

**EVALUATING THE LEVELS OF HEAVY METALS IN POULTRY FEED AND
POULTRY PRODUCTS (EGG AND MEAT) IN SAVAR UPOZILLA OF
BANGLADESH**

**A THESIS
BY
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DEPARTMENT OF POULTRY SCIENCE

SHER-E-BANGLA AGRICULTURAL UNIVERSITY, DHAKA-1207

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AND POULTRY PRODUCTS (EGG AND MEAT) IN SAVAR UPOZILLA OF
BANGLADESH**

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This is to certify that the thesis entitled “Evaluating the levels of heavy metals in poultry feed and poultry products (egg and meat) in Savar Upozilla of Bangladesh” submitted to the faculty of animal science & veterinary medicine, Sher-e-Bangla Agricultural University, Dhaka-1207, in partial fulfillment of the requirements for the degree of Master of Science in Poultry Science, embodies the result of a piece of bona fide research work carried out by Akhel Chandro, Registration no. 14-06012 under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

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Dedicated

To

*My beleoved Parents,
Grandmother and Late
Grandfather*

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LIST OF ACRONYMS AND ABBREVIATION

ABBREVIATION	FULL MEANING
AAS	Atomic Absorption Spectrophotometer
BDL	Below Detectable Level
Ca	Calcium
Cd	Cadmium
As	Arsenic
Cu	Copper
Cm	Centimeter
cm ²	Square centimeter
CONTD.	Continued
DNA	Deoxyribonucleic Acid
et al.	And others/Associates
Etc.	And the other things
EU	European Union
Fe	Iron
FIAS-AAS	Flow Injection Analysis System -Atomic Absorption Spectrophotometer
FAO	Food and Agriculture Organization
GF-AAS	Graphite Furnace Atomic Absorption Spectrophotometer
G	Gram
HCl	Hydrochloric Acid
H ₂ O ₂	Hydrogen Peroxide
HM	Heavy Metals
HNO ₃	Nitric Acid
SHg	Mercury
IPCS	International Program on Chemical Safety
i.e.	That is

LIST OF ACRONYMS AND ABBREVIATIONS (CONT'D)

ABBREVIATION	FULL MEANING
Kg	Kilogram
L	Liter
Mg(NO ₃) ₂	Magnesium Nitrate
Mg	Magnesium
MPC	Maximum Permitted Concentration
M.S.	Master of science
mL	Milliliter
mm	Millimeter
NH ₄ H ₂ PO ₄	Ammonium Phosphate Monobasic
Ppm	Parts per million
RDA	The Recommended Daily Allowance
SAU	Sher-e-Bangla Agricultural University
SE	Standard error

LIST OF SYMBOLS

SYMBOLS	FULL MEANING
@	At the rate of
+	Plus
<	Less than
>	Greater than
°C	Degree Celsius
%	Percentage
&	And
*	5% level of significance
/	Per

ABSTRACT

The Recommended Daily Allowance (RDA) and Maximum Permitted Concentration (MPC) of heavy metals in food chain are the cardinal key point for recent time of food safety even human health. Unfortunately, there are not sufficient data and study on this area of Dhaka city that is why this study has designed. In this study, the concentrations of heavy metals, such as Cr, Cd, Pb and Cu, in poultry feed, meat and egg have addressed. The safeties for human consumption by Recommended RDA and MPC have been investigated in this study. As a result, the sampling is done from various location of Savar upazilla focusing point to our study. A total of 20 feed sample and 20 meat samples and 20 eggs sample were chosen from the different feed brand and farm. A total of 60 elemental samples for Cr, Pb, Cd, and Cu in poultry feed, meat and egg were analysis in laboratory. The results indicated that there were significant levels of most of the trace elements and heavy metals in the different feed samples. But, the levels were below MPC in most cases. The layer and broiler ready feed samples found safe from those elements. The heavy metal contents (Cr, Cd, Pb & Cu) of all the tested samples in meat and egg samples were found negative. Differences in most of the trace and toxic elements among the different sources of meat and eggs were not found to be significant. Differences between the broiler meat and table eggs were only substantial for Fe and Zn. Fe was significantly higher in meat than in eggs, and the opposite trend was found for Zn. Heavy metals (Cr, Pb, Cd, and Cu) were not detected in the meat or eggs, indicating no risks from these toxic elements. The impact of negative result in meat and egg samples suspected reasons are liver metabolic activities which detoxified the heavy metals and poultry dropping bypass the metals contents or elemental metal cannot penetrate cells wall for metabolism. In conclusion, the poultry farmers are suggested to buy poultry feeds from the reputed feed company and discourage to use loose feeds. Moreover, feed marketing channel particularly loose feed marketing should be monitored properly by the regulatory authority Thus, chicken meat and table eggs, which are primary protein sources, are safe sources of human nourishment.

CHAPTER 1

INTRODUCTION

Intensifying domesticated birds, for example chickens, turkeys, ducks, and geese, domestically or commercially for the rationale of farming meat and eggs for food but also for feathers is called poultry farming (Cole, 1962; Fontana *et al.*, 2015). Poultry farming classification focuses on the principles and practices of poultry production and also elucidates about food value and processing of poultry products. Poultry farming has developed into one of the most significant features of agriculture whereas the poultry production is directly blessed to human being for the significance benefiting by its components, such as egg, liver, feathers and meat for the main resources of human health and diet all over the world since many centuries directly and indirectly (Senkoylu *et al.*, 2005). As a result ,many diverse sectors of poultry farming, such as Intensive and alternative poultry farming, egg-laying chickens-husbandry systems, meat-producing chicken-husbandry systems, issues with poultry farming and world chicken population, have been developed and performed in under research. The largest proportion of poultry meat and eggs were found to be produced by intensive poultry farming (Van Boeckel *et al.*, 2012). At the present time, free-range farming by means of lower stocking densities is followed as an alternative to intensive poultry farming where the main aspects are to going the product of eggs, liver, meats and other product for protein resources as poultry products.

Poultry products, such as eggs, meat, liver, and meat products (i.e., burgers, luncheon meat, and frankfurters) are worldwide primary sources of protein, energy, vitamins, and minerals because they are nutritious, delicious, and affordable as well as it provides much of the recommended daily allowance (RDA) of trace minerals, proteins, and energy (Attia *et al.*, 2016; Attia *et al.*, 2014; Bamuwamye *et al.*, 2015; Doyle and Spaulding, 1978; Mertz, 1981). However, poultry products may pose risks due to contamination with heavy metals from the environment or through the food chain (Abduljaleel *et al.*, 2012; Attia *et al.*, 2011) as the food safety is a foremost

public health alarm (Zylberman, 2004) and its stipulated by consumers in worldwide has excited the research regarding the threat bracketed together with expenditure of foodstuffs contaminated by heavy metals (HM) in developed and developing country (Tóth *et al.*, 2016) even Bangladesh (Hezbollah *et al.*, 2016). The diet of broilers is commonly supplemented with microelements such as Fe, Cu, Zn, Mn, I, and as to sustain the growth and health of birds (Jia *et al.*, 2009; Korish and Attia, 2020; Maharjan *et al.*, 2021). Minerals are also essential for maintaining correct metabolic activity, the balance of bodily functions, and immunity in living organisms (Shahla *et al.*, 2012). However, trace minerals can exceed animal requirements and are consequently excreted in manure, which has a negative environmental impact (Ayar *et al.*, 2009).

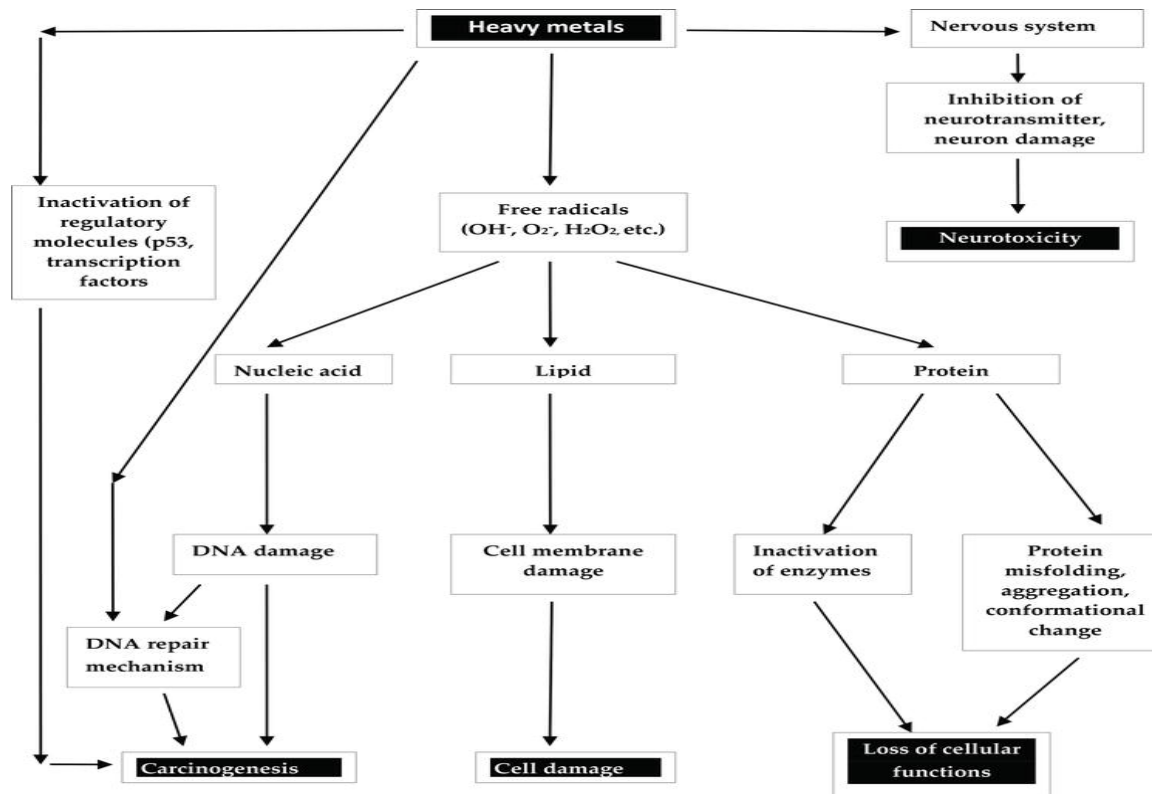


Figure 1: Heavy metals and its harmful effect on human health

In addition, other heavy metals, such as Pb, Cd, and Hg, are not necessary to the integrity and function of the body (Qin *et al.*, 2009). Generally, increasing the intake

of toxic elements poses hazards to both animals and humans (Li *et al.*, 2005). The mineral content of animal products is important for healthy human embryonic development (Attia *et al.*, 2016; Attia *et al.*, 2014; Dong and Zhang, 2021; Sparks, 2006; Surai and Sparks, 2001) and has been suggested for use as a bio-indicator of pollution by environmental elements (Surai and Sparks, 2001). However, animal products might have high concentrations of toxic elements that originate mainly from the feed, water, litter, and the environment (Ayar *et al.*, 2009; Shahla *et al.*, 2012). Cd, As, and Pb are hazardous and can be transmitted through the food chain, having a toxic impact on the health of both animals and humans (Lopes *et al.*, 2011; Peralta-Videa *et al.*, 2009). Lead can cause metabolic harm as a neurotoxin (Baranowska-Bosiacka *et al.*, 2017) and can adversely affect renal function and hemopoiesis, as well as the nervous and gastrointestinal systems (Baykov *et al.*, 1996; Daniel, 1995; Rzymiski *et al.*, 2014; Zhai *et al.*, 2015). Diet is a source of contamination by Cd, which originates from various food sources and the environment and is transmitted through the food chain to animals and, consequently, humans, inducing kidney dysfunction, hypertension, and pulmonary and hepatocellular damage (Pan *et al.*, 2010; Tang *et al.*, 2020).

In the available literature, mineral pollution in animal feeds is unavoidable, as they may be contaminated by heavy metals due to environmental pollution and presence in supplements and concentrates or the machinery and equipment used during manufacture. Both in human and animals, liver and kidney are very important for detoxification and excretion of toxic elements, and they are thus also the most damaged organs due to an excess of toxic elements in feed or food (Baykov *et al.*, 1996; Daniel, 1995; Rainieri *et al.*, 2018).

The As is stored in animal tissues depending on the type of feed intake (Shils, 1994); As can induce nausea, headache, and severe gut irritation. Similarly, Cu adversely affects kidney, brain, and liver function and can result in haemolytic crisis when consumed at high levels (Judith, 1994). The assessment of essential trace minerals and heavy metal levels in poultry products are useful tools with regards to nutritional safety and environmental sustainability. Thus, the aim of the present study is to assess the concentrations of Fe, Cu, Zn, Mn, Se, Co, Cr, Pb, Cd, Ni, B, and Al in poultry

diets, litter, eggs, liver, meat, and meat products, which is essential to determine the possible risk posed to consumers by the consumption of poultry products, as well as the environmental impact of the heavy metal content of litter.

A new research was published by K. P. Biswas, *et al.*, 2021; that the presence of heavy metal residues higher than the limit permissible in the WHO guidelines in chicken farmed at Savar, and Chottogram in Karnifuli river home to some of the biggest poultry farms in the country (2021; Khatun *et al.*, 2021). According to news of New Age heavy metal contamination is not confined to Savar farms alone as both government and non-government researches in the past found a similar contamination in poultry meat and feed collected from different places in the country (Islam *et al.*, 2007; Rahman *et al.*, 2014). Consequently, the some edible fishes from Bangshi River, Savar, Dhaka, Bangladesh are contaminated by heavy metals which is cross the limit of human health assignment (Haque *et al.*, 2021).

There are many well known evidences that some of these heavy metals (Fe, Cu, Zn, Mn, Se, Co, Cr, Pb, Cd, Ni, B, and Al) could cause for cancer while some of these metals are responsible for causing many non-communicable diseases due to lacor deficiency in body system acting as the nutrient elements (Lupton *et al.*, 2016). In addition, a rapid increase in non-communicable diseases, which roughly account for 60 per cent of annual death, is attributed partly on food chain contamination (Dang *et al.*, 2017). A research team of Jahangirnagar University's environmental sciences department searched the 36 samples of chicken from 12 traders at Savar in Dhaka and found the presence of several heavy metals, including iron, copper, zinc, arsenic, nickel, chromium, strontium, mercury and lead. The team in one kilogram of chicken found 10.49 micrograms of arsenic against the tolerable limit of 0.1 microgram suggested by the WHO.

According to the data of WHO, it found 2.79 mg of nickel in 1 kg of chicken against the tolerable limit of 0.5 mg and 3.79 mg of chromium against the limit of 1 mg. The level of mercury was found at 0.56 mg against the limit of 0.2 mg and copper was at 0.46 mg against the limit of 0.1 mg.

Unfortunately, due to some unscrupulous traders in Bangladesh and lack of proper knowledge, some toxic and deadly heavy metals are constantly being mixed with chicken feeds. Although these metals are not directly mixed with chicken feed. Metals are being absorbed into chicken feed through some indirect systems. As a result, the food of these chickens easily goes beyond the toxic stages and is harming our health in various ways.

Over the last 10 years, various studies have shown that poultry meat is one of the serious health risks in Bangladesh. Studies have shown that the poultry meat contains a variety of heavy metals such as Pd, Cd, Fe, Ni, Co, Saver is an important upazila of Dhaka city, a populous location in Bangladesh. Needless to say, most of the industries in Bangladesh are based in Dhaka city which is mainly located in Saver. It is easy to guess that the various metals used in these industries are easily absorbed into our environment. So it is conceivable that if there are not properly research and data how these metals are absorbed into our environment, and how much or how they enter our body through chicken feed, these heavy metals are entering our food chain by taking poultry products. As a result, it may cause for a serious loss of health for the people of our society. Unfortunately, no acceptable research has been done so far on the accounting of heavy metals being used in the various types of poultry farms located in Savar, one of the most important places in Bangladesh. In this context, our new study will be able to tell us how much heavy metal arguments are being used and how much risk is being taken to our health.

Saver, is a location of Dhaka where is about 5 million people. So there should be constant research on whether the ones used there are risky for our health. Secondly, what is the exact reason why heavy metals are being added to these feet? This chapter has been designed with these needs in mind.

Objectives:

- Assess the abundance of the some heavy metals, such as Lead(Pb), , Chromium(Cr),Cadmium(Cd), Cupper(Cu) in poultry feed, egg and meat.
- To compare the heavy metal status of feed, egg and meat with standard value.

This study conveys and fills up the lack of study gap on poultry products and its toxic impact on human health. Finally, it makes conscious to public about heavy metals such as Pb, Cd, Cr, Cu, Zn and Co through food in our daily diet.

CHAPTER 2

LITERATURE REVIEW

Chicken eggs are one of the main sources of protein but if contaminated by toxic heavy metals due to industrial waste, geochemical structures and agricultural activities is a serious problem for environmental and human health by Singh *et al.*, (2007) (Singh *et al.*, 2007; Singh and Nalwa, 2007). Apart from these, chickens are also exposed to heavy metals by feed intake. Poultry could take up heavy metal from different sources, especially via nutrition. Chicken eggs are one of the main sources of protein but if contaminated by toxic heavy metals due to industrial waste, geochemical structures and agricultural activities is a serious problem for environmental and human health.

It seems that the regular national monitoring of egg producing chain specially the quality of chicken feed should be taken into account seriously in order to safeguard public health, by Babu *et al.*, (2018) (Babu *et al.*, 2018), Nisianakis *et al.*, (2009) (Nisianakis *et al.*, 2009), Chowdhury *et al.*, (2018) (Chowdhury *et al.*, 2018); Abdulkhaliq *et al.*, (2012) (Abdulkhaliq *et al.*, 2012) and consequently, the metals are passed to humans through chicken eggs.

Since hen's eggs are considered as one of nature's highly-nutritious and economical food items in human daily diet, especially that of the children, it is of high account for human health, Surai and Sparks (2001) (Surai and Sparks, 2001); AL Ashmawy (2013) (Al-Ashmawy, 2013). Metallic elements are found in all living organisms where they play a variety of roles, as structural, components of control mechanisms (e.g. in nerves and muscles) and enzyme activator. Some metals are essential as copper (Cu), zinc (Zn), calcium (Ca), iron (Fe) and magnesium (Mg) those play a

definitive role in the intrinsic mechanisms regulating vital biological processes. Whereas others are nonessential metals and even toxic in trace amounts, especially lead (Pb), cadmium (Cd), mercury (Hg) and arsenic (As); Dundar and Deryaoglu (2005).

Heavy metal contamination is a serious threat because of their toxicity, bio-magnification and bioaccumulation in food chain. The deficiency of elements leads to impairment of vital biological process but when they are present in excess, they become toxic. Copper is an essential trace element, normal constituent of animal tissues and fluids, crucial in haemoglobin synthesis and other enzymes functions. Toxic level of Cu may lead to Wilson's disease (excessive accumulation of Cu in liver, brain, kidney and cornea) (Huster, 2010) and Menkes's disease (Pappas et al., 2011). Zinc plays an important role in the maintaining of structure and function of large number of macromolecules and for over 300 enzymatic reactions (Oliveira *et al.*, 2012), and also plays a role in immune function, protein synthesis, wound healing, DNA synthesis and cell division; consequently it supports normal growth and development during pregnancy, childhood and adolescence. Lead ingested by chicken through contaminated feed is deposited in bones and soft tissue. Development of abnormalities, deficits in intelligence quotient and neurotoxicity effects in infants, incidence constipation, colic, and anaemia are the main consequences of chronic exposure to Pb. Cadmium is a toxic to virtually every system in the animal body. It is almost absent in the human body at birth but accumulates with age. However food is the primary source of cadmium exposure and its adverse health effects occur in the form of kidney damage but possibly also bone effects and fracture, (Trampel *et al.*, 2003). It is also listed as a human carcinogen in Group 1 by the IARC. Decreased rate of glomerular filtration, significant proteinuria, and increased frequency of kidney stone formation are the chronic effects of oral exposure to this metal. Chromium is an essential element for human beings, especially since it acts on the organism, maintaining normal glucose tolerance. Chromium (III), found in most food and nutrient supplements, is an essential nutrient with very low toxicity, whereas Cr (VI) compound have been shown to be potent occupational carcinogens. Stainless steel vessels seem to be the main source of this element's contamination. Iron is an essential

trace element whose biological importance arises from its involvement in vital metabolic function by being cytochromes, Iron deficiency is the most prevalent single nutritional deficiency in the world and is the main cause of anaemia in infants, children, adolescents and woman of child bearing age. Manganese is usually occurring with iron and it one of the most abundant metal in the earth's crust. Manganese perform significant part in different metabolic process in human, animals, microorganism and plants the deficiency of manganese is very rare that is its presence everywhere and is found in many food, (Jagadish Babu *et al.*,2018). The human health risk assessment requires identification, collection, and integration of information on hazardous chemicals, their exposure to humans, and also the relationship between exposure, dose, and adverse health effects Sobhanardakani (2017).

Eggs are generally consumed by members of different income classes; thus this product's contamination can cause problems to consumers. Hence immediate action required by the health regulatory authorities and the researchers in order to control the hazard due to heavy metals hazard which is being highly sensitive in posing risk to public health. There is a serious need of local database or risk assessment studies in local animals and foodstuffs to evaluate the potential risk or threat to humans from heavy metals because the Asian countries have different environmental and topographical conditions under which a large number livestock and poultry are growing.

Poultry products, such as eggs and meat products are worldwide primary sources of protein, energy, vitamins, and minerals because they are nutritious, delicious, and affordable and provide much of the recommended daily allowance (RDA) of trace minerals, proteins, and energy. The heavy metals are potentially toxic source and the elements included in this category are Pb, Cd, As and Hg. Those elements which have specific gravity greater than five are called heavy metals. Other mineral elements, which are nutritionally important and also fit this category, include cobalt, vanadium, iron, copper, manganese, molybdenum, chromium and zinc (Zhuang *et al.*, 2009). Heavy metals resulting from human activities are the sources of pollution and are continuously released into aquatic and terrestrial ecosystems. Heavy metals contamination is a serious threat because of their toxicity, bio-magnification and

bioaccumulation in food chain (Kumar *et al.*, 2019). These contaminants often have direct physiological toxic effects as they are stored or accumulated in tissues, sometimes permanently (Devi *et al.*, 1996; Jamal *et al.*, 2013). The deficiency of elements leads to impairment of vital biological process but when they are present in excess, they become toxic such as cadmium exposure causes bone and kidney damage. It has also been identified as a potential human carcinogen, causing lung cancer. Pb exposures have developmental and neurobehavioral effects on fetuses, infants and children, and elevate blood pressure in adults. Most elements enter the body through diet. Poultry meat and egg have always been sources of protein for human and their consumption have increased recently. In children approximately 40% uptake of lead is from egg found the concentration of Pb 0.59 mg/kg egg in China, while William and David (1973) found Cd 0.07 mg/kg egg and Cu 0.78 mg/kg egg in Australian foods. During recent years the presence of toxic heavy metals in food of animal's origin has got great importance. Mostly we ingest heavy metals such as Pb, Cd, Cr, Cu, Zn and Co through food in our daily diet, although their levels vary from place to place depending on dietary habits, level of environmental pollution and recycling of poultry food.

CHAPTER 3

METHOD AND METHODOLOGY

3.1 Sample Collection

3.1.1 Site selection

The site selection for collecting the sample is crucial facts for this project because site selection conveys the main result related to the research. Saver is the one of biggest polluted area in our country due to operating both light and heavy industries, for example tannery industries, chemical industries, textile industries, garment factories, pharmaceutical industries, electronic industries, steel factories and agro based industries using various harmful chemical and heavy metal. There are huge scopes to pollute the various component of environment which are mixed to the food chain of Poultry products and feed. Saver upozila were selected with optimizing all criteria of this project.



Figure 2. Map of sampling locations

3.1.2 Samples collection

In order to get real scenario about the presence of heavy metals content in poultry feeds, meat and eggs; samples were collected from major poultry rearing areas of the country Savar upazilla.. To collect the representative sample both from the branded ready feed and locally made loose feed, the farm and market samples, and the urban and peri-urban samples were also collected. In most cases, feed samples were collected along with the eggs and/or meat samples from the same farm.

3.1.3 Feed Sample Collection

Sampling is done from various location of Savar is the focusing point to our study, five points of Savar thana, such as Hemaytpur bus stand, Savar bus stand, Savar nicha

bazar, main gate of Savar dairy firm and Amine Bazar bus stand. The most widely used feeds namely Nourish Feed, Fresh feed, Paragaon feed, alyeza/ancour feed, RRP feed, SGS Feed, Aman feed, Provita feed, Ruposhi feed. A total of 20 samples of layer feed (mush) and broiler feed (pellet) were collected from above mentioned 5 areas. Then sun dried for 2 days and preserved in air tight sample packets at 0°C.



Figure 3: Sample Collection from market and packing

3.1.4 Meat Sample Collection

20 broiler farms, which took the feeding their poultry of mentioned company of feed, were selected for collection of sample. Collected sample from targeted farm. Meat and egg samples were collected from Savar area. Total 20 broiler birds were collected for meat sample analysis. In order to avoid the cross contamination, samples were transported and stored in the laboratory in such a way that they were not in contact with any metal instruments. Fresh samples were washed with distilled water and the edible parts of the chicken were chopped into small pieces with a cleaned stainless-steel knife preserved in refrigerator. Small pieces of the chicken samples were oven dried at 110°C over night almost 24 hours. Samples were grinded. Samples were preserve in air tight sample bag were stored at 0°C until analysis.



Figure 4: Broiler bird collection from poultry farm

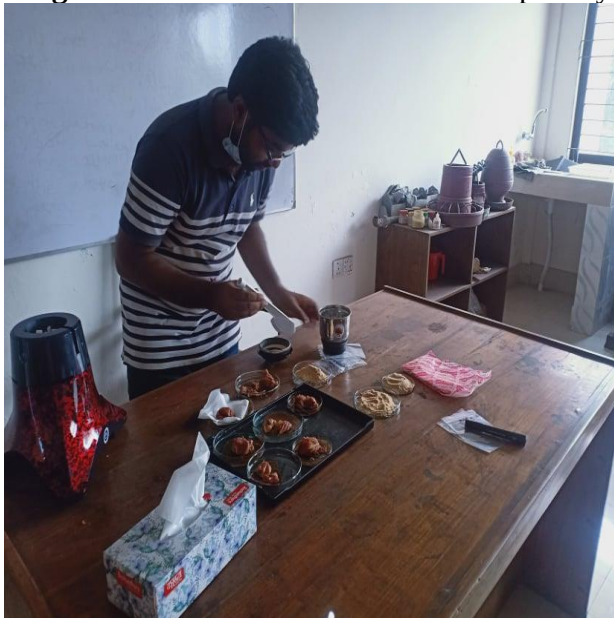


Figure 5: Processing and grinding of meat sample



Figure 6: Oven dried meat sample

3.1.5 Egg Sample Analysis

Egg sample boiled 100°C and remove egg shell and separated egg albumin and yolk. Eggs sample were chopped into small pieces with a cleaned stainless-steel knife and oven dried at 110°C over night. The blended chicken meat and egg samples were air

dried in order to remove the extra moisture from the samples and about 100 g of test portions were stored at 0°C until analysis.



Figure 7: Overall condition of egg sample collection from layer farm preparation and oven dry proceeding

3.1.6 Sample Analysis

A total of 60 samples for As, Pd and Cr were analyzed from 20 different poultry feed, meat and egg samples. To determine the presence of heavy metals in eggs, the egg samples were boiled and oven dried the yolk and albumen separately for 72 hours with 80°C temperature and then make it powder using grinder machine. Meat samples were collected from breast, thigh and drumstick parts of the body then minced by mincing machine and oven dried similar ways done for egg samples and finally made powder by grinder. Feed samples collected from the fields were packed properly giving individual code number and send to laboratory for analysis.

Then, 5 gram of sample was weighed and transferred to 100 ml of glass beaker. In addition, 5 ml of pure HNO_3 and 1 ml of HClO_4 were added and allowed for overnight, the beaker was placed on hot plate to raise its temperature up to 140 -180 °C until the sample completely digested with reducing of its volume to 1 – 3 ml. Afterward, added 1-2 ml H_2O_2 and allowed 2 hours for disappearing colors. Next, the sample was filtered with deionizing water and made volume up to 100 ml in a volumetric flask. For heavy metal estimation it was taken 1 ml digested sample, 10 ml KI (10%), 10 ml HCL and deionizing water to make 100 ml volume in a standard flask and allowed 2 hours for taking reading by Atomic Absorption Spectrophotometer (AAS) (Model: Thermo Scientific-s-series AA Spectrometer, USA for Pb & Cr; and Agilent technologies 200 series AA; 240 FJ AA for As). However, the processed samples were analyzed at the laboratory of Agricultural Chemistry Department, Sher-e-Bangla Agricultural University, Dhaka-1207.

3.2 Working methodology

3.2.1 Principle of atomic absorption spectrophotometer

Flame atomic absorption spectrophotometer is very common technique for detecting metals and metalloids in environmental samples. It is very reliable and simple to use.

The technique is based on the principle of ground state metals absorbing light at specific wave length. Metal ions in a solution are converted to atomic state by means of a flame. Light of the appropriate wave length is supplied and the amount of light absorbed can be measured against a standard curve.



Figure 8: Picture of atomic absorption spectrophotometer

3.2.2 Analysis of feed

Samples 1.0 g of feed was weighed into crucibles. 1ml of conc. nitric acid was added and then pre-ashed by placing the crucible on a heater until the contents charred. The cooled samples were dissolved using 5ml of 30% HCl and then filtered using Whatmann filter paper. The filtrates were individually poured into 50ml standard flask and made up to mark with distilled water. These were then transferred into prewashed

sample bottles for analysis of the trace metals. The sample solutions were then analyzed for copper, lead, chromium, cadmium using atomic absorption spectrophotometer.

3.2.3 Analysis of meat samples and egg (albumin and yolk) samples

The representative meat samples were chopped and 1.0 g of each sample was treated with conc. Nitric acid. After treating samples with acid, samples were digested to get analyst metal in solutions till 1 ml of clear transparent sample solution was remained. The temperature was increased after every 30 minutes during digestion of samples. Then the solutions were filtered and volume of filtrate was made up to the mark in volumetric flask using distilled water and samples were stored in glass bottles. Filter paper No.4 was used for filtration of samples. AAS Stock standard solution of 100 mg/L of respective elements (Pb, Cd, Cu, and Cr) was used to prepare the working standard of 0.1 mg/L.

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Introduction of standard method

Heavy metals can easily enter the food chain (Khan et al., 2016), and have been reported to have detrimental effects on human body. Therefore, attention of the researchers has been focused on its bio-hazardous potential. Once heavy metals are absorbed, they are stored in the body even throughout the life. Some heavy metals are so toxic that a low concentration can adversely affect on a number of metabolic processes in the body.

A Control 700 (Analytik Jena AG, Jena, Germany) high-resolution continuum source atomic absorption spectrometer equipped with a short-arc xenon lamp, a high-resolution double echelle grating monochromator, and a charge-coupled device array detector was used. An MPE-60 autosampler for liquid samples was installed on the GFAAS. High purity argon (99.999%) was supplied as the protective and purge gas. The method was optimized based on the proper atomic lines for Pb (283.306 nm), Cd (228.802 nm), Cr (357.869 nm), Cu (324.754 nm), and Ni (232.003 nm). A BT-214D electronic balance (Sartorius, Göttingen, Germany) was used to weigh the samples. An ETHOS A Microwave Digestion System (Milestone, Milano, Italy) was used for the samples digestion.

The certified reference material for Green Tea (GBW 10052) and the standard solutions (100 mg/L Pb, 1000 mg/L Cd, 1000 mg/L Cr, 1000 mg/L Cu, and 1000 mg/L Ni) were purchased from the National Research Center for Certified Reference Materials of China (Beijing, China). The working standard solutions were prepared daily through a stepwise dilution of the standard stock solutions using 0.5% (v/v) nitric acid (HNO_3), ammonium phosphate monobasic ($\text{NH}_4\text{H}_2\text{PO}_4$), and magnesium nitrate [$\text{Mg}(\text{NO}_3)_2$] (Sigma-Aldrich, St. Louis, MO, USA) were used as chemical modifiers for the determination of the Pb, Cd, Cr, Cu, and Ni levels. The

reagents were of analytical grade, and all solutions were prepared using deionised water (18.2 MΩ/cm) produced using a PureLab Prime system (PALL, Washington, NY, USA). All containers and glassware were cleaned by soaking in the 5 mol/L HNO₃ for at least 24 hours and rinsed three times with deionized water prior to use.

After drying to a constant weight, the tea samples were ground into powder. Approximately 0.25 g of dried tea powder was weighed and added into the polytetrafluoroethylene digestion vessel with 7 mL of concentrated HNO₃ and 1 mL of hydrogen peroxide (H₂O₂). Subsequently, the samples were digested using a two-step temperature program. During the first step, the temperature was linearly increased to 190°C over 10 minutes; the maximum power of the rotating magnetron was 1000 W. During the second step, the temperature was maintained at 190°C for 30 minutes. After digestion and cooling, each solution was evaporated to ~2 mL and diluted with deionized water in a 50 mL volumetric flask for the GFAAS analysis. The results were reported as the average of three repeated measurements, and all digestions were conducted in triplicate.

4.2 Sample preparations

Organic matter in sample is digested by wet digestion or dry digestion or high pressure microwave digestion and determine the amount of heavy metals, i.e. arsenic (As), cadmium (Cd), lead (Pb) and mercury (Hg) by using graphite furnace atomic absorption spectrophotometer (GF-AAS) and flow injection analysis system -atomic absorption spectrophotometer (FIAS-AAS).

The maximum permissible value for workers according to German law is at 15.0 µg/L (0.015 mg/L). For comparison: Non-smokers show an average cadmium blood concentration of 0.5 µg/l or 0.5 mg/kg (0.0005 mg/L in solution).

According to the International Program on Chemical Safety (IPCS), chromium concentrations in chicken are in the range of 10-60 µg/kg (0.01- 0.06 mg/L) [2].

As of 2012, the Centers for Disease Control and Prevention (USA) have set the standard elevated blood lead level for adults to be 10 µg/dL (0.10 mg/L) and for

children 5 µg/dL (0.50 mg/L) of the whole blood (CDC, 2012). Previously, the standard lead level for children was 10 µg/dL. The appearance of clinical manifestations varies from individual to individual depending on other environmental factors [3].

4.3 Analysis and Data of Feed Samples

Table-1: Concentration of heavy metal in Feed sample (mean)

Sample name	Cd	Cr	Pb	Cu
Mean (Feed1-5)	Area-01			
	BDL	0.0020	0.2273	0.4220
P-Value	0.00	0.40	1.00	1.00
Mean (Feed 6-10)	Area-02			
	BDL	BDL	0.2761	0.1518
P-Value	0.00	0.00	1.00	1.00
Mean (Feed 11-15)	Area-03			
	BDL	BDL	0.2666	0.1600
P-Value	0.00	0.00	1.00	1.00
Mean (Feed 16-20)	Area-04			
	BDL	0.0053	0.1800	0.1800
P-Value	0.00	0.20	1.00	1.00
Total Mean	BDL	0.0073	0.2375	0.2284
Total P-Value	0.00	0.33	1.00	1.00

[NOTE: BDL=Below Detectable Level]

From the table 1, it is illustrated that in case of feed sample, there were 20 spot for sample collection having four main zones where the Cd metal is no detectable. Secondly, out of 20, there are three samples having the Cr metals, and its total mean is 0.0073 mg/kg and total p value is 0.33. According to FAO/WHO, the Recommended Daily Allowance (RDA) limit Cr is 0.1 (mg/kg). In case of Pb metal, the 20 samples out of 20 samples contain the Pb metal whereas the total mean is 0.2375mg/kg. According to FAO/WHO, the Recommended Daily Allowance (RDA) limit of Pb is 0.3 (mg/kg).

In case of Cu metal, the 20 samples out of 20 samples contain the Cu metal whereas the total mean is 0.2284 mg/kg. According to FAO/WHO, the Recommended Daily Allowance (RDA) limit of Cu is 24.2 (mg/kg).

4.4 Analysis and Data of Meat Samples

Table 2. Concentration of Lead (Pb), Cadmium (Cd) and Chromium (Cr) in collected Meat samples (mean):

Sample name	Cd	Cr	Pb	Cu
Mean (Meat 1-5)	Area-01			
	BDL	BDL		0.0420
P-Value	0.00	0.00		1.00
Mean (Meat 6-10)	Area-02			
	BDL	BDL		0.0528
P-Value	0.00	0.00		1.00
Total				
Total mean	BDL	BDL		0.0474
Total P-Value	0.00	0.00		1.00

From the table 2, it is illustrated that the metal containing amount in the meat sample in two major zone is classified having 10 samples. First of all, there are no detectable amounts of Cd in meat sample in two major zone having five meat samples. It is similar result is obtained for the Cr metal in same procedure. In case of Cu, all of ten samples have the detectable amount of Cu and the total amount of mean is at 0.0474 mg/kg, as a result the total P value is 1.00. According to FAO/WHO, the Recommended Daily Allowance (RDA) limit of Cu is 5.00 (mg/kg).

4.5 Analysis and Data of Egg Sample

Mean Value of Samples

Table 3. Concentration of Lead(Pb),Cadmium(Cd) and Chromium (Cr) in collected Egg samples (mean)

Sample name	Cd	Cr	Pb	Cu
Mean (Albumin of Egg 1-5)	Area-01			
	BDL	BDL	0.0073	0.0420
P-Value	0.00	0.00	0.2	1.00
Mean (Albumin of Egg 6-10)	Area-02			
	BDL	BDL	BDL	0.0528
P-Value	0.00	0.00	0.00	1.00
Total				
Total mean	BDL	BDL	0.0078	0.0474
Total P value	0.00	0.00	0.50	1.00
Mean (Yolk of Egg 1-5)	Area-01			
	BDL	BDL	0.0018	0.0640
P-Value	0.00	0.00	0.20	1.00
Mean (Yolk of Egg 6-10)	Area-02			
	BDL	BDL	0.0046	0.0626
P-Value	0.00	0.00	0.20	1.00
Total				
Total mean	BDL	BDL	0.00320	0.0615
Total P value	0.00	0.00	1.00	1.00

From the table 3, it is illustrated that the metal containing amount in the egg which is divided two major parts, such as Albumin of Egg and York of egg from two major zone having 10 samples. In case of Albumin of Egg, there are no detectable results obtained for Cd and Cr metal so that the p value is 0.00. Secondly, the Pd is recorded at 0.0073 mg/kg sample as the total mean value having one zone. According to FAO/WHO the RDA limit Pb is 0.5 (mg/kg). As a result, the P value is 0.50. Finally, the amount of Cu is found at 0.0474 mg/kg and p value is 1.00. According to FAO/WHO RDA limit of Cu is 10 (mg/kg).

On the other hand, the Cd and Cr metals are absent in the York sample in both zone as a result the p value with respect to zone is 0.00 even same for sample. For prospective of Pb, it contains at 0.00320 mg/kg. According to FAO/WHO, the RDA limit Pb is 0.5 (mg/kg). and its P value is 1.00 with both of zone and sample. In case of Cu, all of ten samples have the detectable amount of Cu and the total amount of mean is 0.0615 mg/kg as a result the total P value is 1.00. According to FAO/WHO, the Recommended Daily Allowance (RDA) limit of Cu is 10 (mg/kg).

4.6 Comparative study by Graph between standard and 1 kg sample

Table 4. Data for Comparative study by Graph between standard and 1 kg sample.

Placemen t-Savar	Sample Name	Amount of heavy metal per Kilogram of various 20 feed samples					
		Cr (mg/k g)	FAO/WH O limit(mg/ kg), Ref. 1	Pb, mg/kg	FAO/WH O limit (mg/kg) Ref.	Cu mg/K g	*FAO/**WH O limit(mg/kg) Ref.
Area-01	Feed-1	BDL	0.1	25.33	0.3	47.59	24.2
	Feed-2	0.48	0.1	21.75	0.3	15.81	24.2
	Feed-3	BDL	0.1	26.54	0.3	46.95	24.2
	Feed-4	0.10	0.1	21.10	0.3	15.30	24.2
	Feed-5	BDL	0.1	22.83	0.3	88.10	24.2
Area-02	Feed-6	BDL	0.1	37.68	0.3	13.33	24.2
	Feed-7	BDL	0.1	29.85	0.3	14.51	24.2
	Feed-8	BDL	0.1	18.60	0.3	15.11	24.2
	Feed-9	BDL	0.1	24.56	0.3	13.55	24.2
	Feed-10	BDL	0.1	27.47	0.3	19.59	24.2
Area-03	Feed-11	BDL	0.1	21.41	0.3	21.05	24.2
	Feed-12	BDL	0.1	18.94	0.3	13.44	24.2
	Feed-13	BDL	0.1	43.88	0.3	10.03	24.2
	Feed-14	BDL	0.1	23.39	0.3	11.58	24.2
	Feed-15	BDL	0.1	25.70	0.3	25.58	24.2
Area-04	Feed- 16	BDL	0.1	18.62	0.3	26.30	24.2
	Feed-17	BDL	0.1	19.04	0.3	15.45	24.2
	Feed-18	BDL	0.1	17.57	0.3	15.89	24.2
	Feed-19	BDL	0.1	21.44	0.3	10.42	24.2
	Feed-20	0.53	0.1	25.79	0.3	24.62	24.2

*WHO = World Health Organization **FAO = Food and Agriculture Organization03.

In the 9, it is illustrated the comparative study of detected Copper metals with FAO/**WHO limit (mg/kg). First of all, it is seen that the amount of copper metals in sample is not fixed in all feed sample of four locations. Exception of Feed 2 and Feed 4, all sample contains the lower amount of copper metals than FAO/**WHO limit (mg/kg).

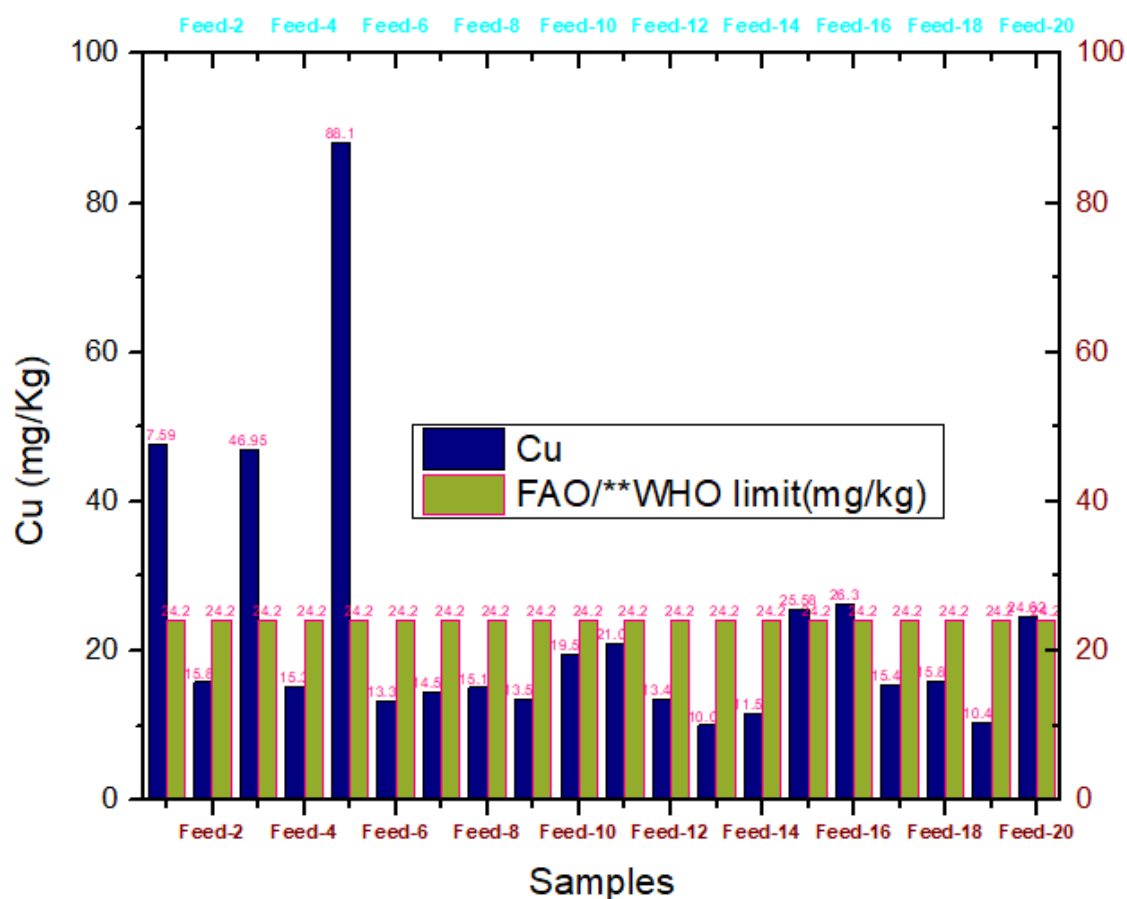


Figure 9: Comparative study of obtained amount of Cu in feed with FAO/**WHO limit(mg/kg)

Table 5. Status of Cu metals in meat sample

Placement-Savar	Sample Name	Amount of heavy metal per Kilogram of various 10 meat samples	
		Cu, mg/kg	FAO/WHO limit (mg/kg)
Area-01	Meat-1	4.24	5.0
	Meat -2	5.74	5.0
	Meat -3	5.64	5.0
	Meat -4	6.41	5.0
	Meat -5	5.53	5.0
Area-02	Meat -6	6.87	5.0
	Meat -7	7.04	5.0
	Meat -8	6.56	5.0
	Meat -9	6.29	5.0
	Meat -10	5.90	5.0

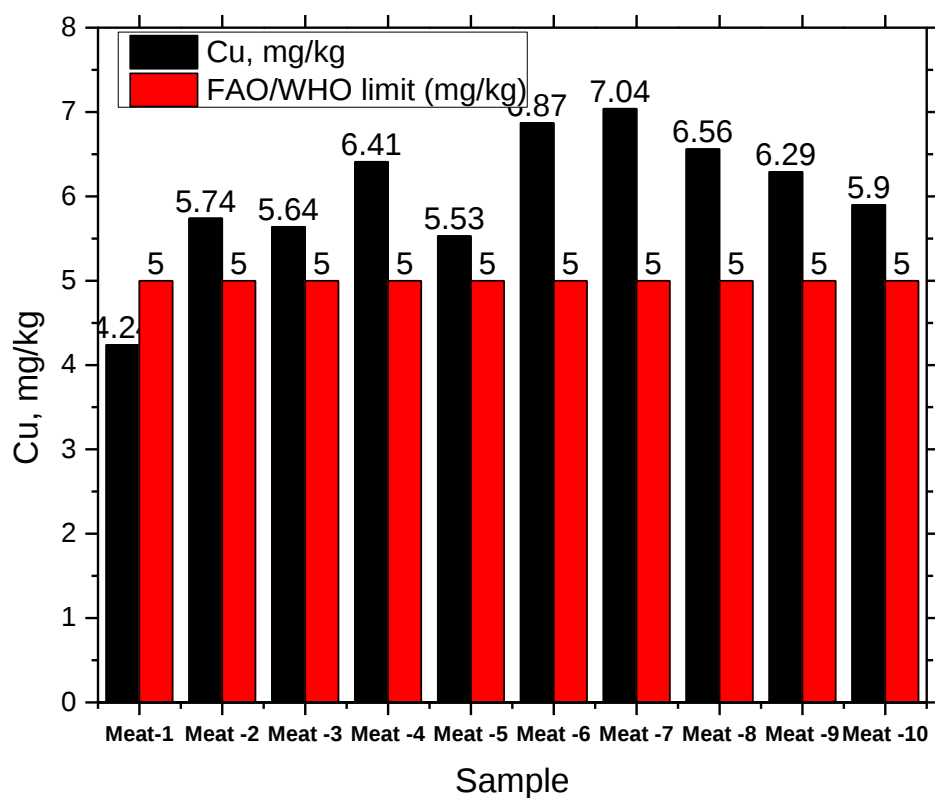


Figure 10: Comparative study of obtained amount of Cu in meat sample with FAO/WHO limit (mg/kg)

CHAPTER 5

SUMMARY AND CONCLUSION

In this study, it is revealed that the significance of heavy metals content in chicken feeds, chicken meat and chicken eggs samples in the various location of the highly sophisticated and denser of populated area of Saver of Dhaka district, Bangladesh has been evaluated for reporting and conveying the status of heavy metals. First of all, there are no detectable range for chromium metal in feed samples but Lead and Cupper metals are found while the copper is two time or much higher than FAO/**WHO limit (mg/kg) in all area. Secondly, the level of Pb, Cd, and Cr is the below of detectable level, but the amount of Cu is in 0.0528 mg/kg which is much smaller than FAO/**WHO limit (mg/kg) in all area in egg samples. In case of poultry meat in Savar, it contributes a slight amount of essential minerals (Fe, Mn and Zn) to the total daily intake while considerable amount of toxic heavy metals (Pb, Cd and Cr) were contributed in the total daily intake of these heavy metals reflecting poor quality of poultry meat.

RECOMMENDATIONS

To provide quality food products for human consumption, appropriate legislation are required for monitoring of quality of poultry meat and meat products. Necessary measures should be taken detoxicate the waste effluents from industries which are to be used as drinking water for poultry birds. All those poultry products which exceed the maximum permissible limits may be declared as unhygienic for human consumption. Further studies are needed to find out the exact sources of minerals and heavy metals in poultry meat and eggs. Both the public and private sectors must cooperate in tackling the problem.

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Appendices

DEPARTMENT OF POULTRY SCIENCE

Sher-e-Bangla Agricultural University, Dhaka-1207

Poultry Feed Sample Collection Questionnaire

Q.1: Sample collection site:

Q.2: Store name:

Proprietor name-----

Age-----

Location -----

Mobile no -----

Q.3: What kind of feed does he sell?

☐ Broiler feed

☐ Layer feed

☐ Fish feed

☐ Cattle feed

If sell layer feed or broiler feed then following question below

Q.4. Which types of feed available now?

☐ Mush

☐ Pellet

☐ Starter

☐ Grower finisher

Q.5: Which companies have feed stores?

A	
B	
C	
D	

Q.6: Do you sell retail or wholesale?

☐ Wholesale

☐ Retail

☒ Both

Q.7: What is the retail and wholesale price?

Feed types	Retail price/kg	Wholesale price/sack
Mush		
Starter		
Grower		
Finisher		

Q.8: Farmers buy more feed from which company band?

Sl. No.	Company name	Band name

Q.9: How many sacks do you sell per day?

☐ 1-5

☐ 6-10

☐ 11-15

☐ 16-20

☐ More than 20

Q.10: Which types farmer buy feed more from you?

☐ Small scale

☐ Large scale

☐ Both

If answer small scale or large scale then mention following question

Q.10.1: Flock size

- ☐ 500-1000 birds
- ☐ 1000-2000 birds
- ☐ 2000-3000 birds
- ☐ More than 3000

Q.11: Have any complain from farmers for feed quality ?

- ☐ Yes
- ☐ No

If the answer ‘ Yes ‘ Q.No.11.1

Q.11.1:

Sl. No	Complains
A	
B	
C	

Table 1 (a). Concentration of Lead(Pb),Cadmium(Cd), Chromium (Cr) and Copper (Cu) in collected feed samples

Plac eme nt savar	Sa mp le Na me	Level of content(mg/L)							
		Cd content		Cr content		Pb content		Cu content	
		C d, m g/ L	Per mitt ed leve l, mg/ L	Cr m g/ L	Per mitt ed leve l dail y, mg/ L	Pb , m g/ L	Per mitt ed leve l, mg/ L	Cu m g/ L	Per mitt ed leve l, mg/ L
Area -01	Fe ed- 1	N D	0.00 05	N D	0.01 - 0.06	0. 25 33	0.10	0. 47 59	0.5 mg
	Fe ed- 2	N D		0. 00 48		0. 21 75		0. 15 81	

	Fe ed- 3	N D		N D		0. 26 54		0. 46 95	
	Fe ed- 4	N D		0. 00 10		0. 21 10		0. 15 30	
	Fe ed- 5	N D		N D		0. 22 83		0. 88 10	
Area -02	Fe ed- 6	N D		N D		0. 37 68		0. 13 33	
	Fe ed- 7	N D		N D		0. 29 85		0. 14 51	
	Fe ed- 8	N D		N D		0. 18 60		0. 15 11	
	Fe ed- 9	N D		N D		0. 24 56		0. 13 55	
	Fe ed- 10	N D		N D		0. 27 47		0. 19 59	
Area -03	Fe ed- 11	N D		N D		0. 21 41		0. 21 05	
	Fe ed- 12	N D		N D		0. 18 94		0. 13 44	
	Fe ed- 13	N D		N D		0. 43 88		0. 10 03	
	Fe ed- 14	N D		N D		0. 23 39		0. 11 58	

	Fe ed- 15	N D		N D		0. 25 70		0. 25 58	
Area -04	Fe ed- 16	N D		N D		0. 18 62		0. 26 30	
	Fe ed- 17	N D		N D		0. 19 04		0. 15 45	
	Fe ed- 18	N D		N D		0. 17 57		0. 15 89	
	Fe ed- 19	N D		N D		0. 21 44		0. 10 42	
	Fe ed- 20	N D		0. 00 53		0. 25 79		0. 24 62	

Table 2(a). Concentration of Lead(Pb),Cadmium(Cd) and Chromium (Cr) in collected Meat samples

Placeme nt-Savar	Sampl e Name	Level of content(mg/L)							
		Cd content		Cr content		Pb content		Cu content	
		Cd, mg/ L	Permitt ed level, mg/L	Cr mg/ L	Permitt ed level	Pb, mg/ L	Permitt ed level, mg/L	Cu mg/L	Permitt ed level, mg/L
Area-01	Meat- 1	ND	0.0005	ND	0.01- 0.06			0.042 4	0.08 - 0.180
	Meat -2	ND		ND				0.057 4	
	Meat -3	ND		ND				0.056 4	
	Meat -4	ND		ND				0.064 1	
	Meat -5	ND		ND				0.055 3	

Area-02	Meat -6	ND		ND				0.0687	
	Meat -7	ND		ND				0.0704	
	Meat -8	ND		ND				0.0656	
	Meat -9	ND		ND				0.0629	
	Meat -10	ND		ND				0.0590	

Table 3(a). Concentration of Lead(Pb),Cadmium(Cd) and Chromium (Cr) in collected Egg samples

Place ment-Savar	Sample Name	Level of content(mg/L)								
			Cd content		Cr content		Pb content		Cu content	
		Parts of Egg	Cd, mg/L	Permitted level, mg/L	Cr mg/L	Permitted level	Pb, mg/L	Permitted level, mg/L	Cu mg/L	Permitted level daily, mg/L
Area-01	Egg-1	Albumin	ND	57.0-71.0	ND	0.01-0.06	ND		0.0725	1.0
	Egg -2		ND		ND		ND		0.0521	
	Egg -3		ND		ND		0.0073		0.0600	
	Egg-4		ND		ND		ND		0.0565	
	Egg -5		ND		ND		ND		0.0505	
Area-02	Egg-6		ND		ND		ND		0.0396	
	Egg -7		ND		ND		ND		0.0515	
	Egg -8		ND		ND		ND		0.0487	
	Feed-9		ND		ND		ND		0.0522	
	Egg -10		ND		ND		ND		0.0621	

Area-01	Egg -1	Yolk	ND		ND		ND		0.0788	
	Egg -2		ND		ND		ND		0.0607	
	Egg -3		ND		ND		ND		0.0577	
	Egg -4		ND		ND		0.0018		0.0677	
	Egg -5		ND		ND		ND		0.0613	
	Egg-6		ND		ND		ND		0.0334	
	Egg -7		ND		ND		ND		0.0726	
	Egg -8		ND		ND		0.0046		0.0604	
	Egg -9		ND		ND		ND		0.0742	
	Egg -10		ND		ND		ND		0.0742	

Placeme nt-savar	Sampl e Name and code	Parts of Egg	Pb, mg/k g	Pb, mg/who le egg	FAO/WH O limit (mg/kg)	Cu, mg/k g	mg/who le egg	FAO/WH O limit (mg/kg)
Area-01	Egg-1	Album in	ND	ND	0.50	7.25	0.0222	10.0
	Egg -2		ND	ND	0.50	5.21	0.0159	10.0
	Egg -3		0.73	0.00224	0.50	6.00	0.0184	10.0
	Egg-4		ND	ND	0.50	5.65	0.0173	10.0
	Egg -5		ND	ND	0.50	5.05	0.0155	10.0
Area-02	Egg-6		ND	ND	0.50	3.96	0.0121	10.0
	Egg -7		ND	ND	0.50	5.15	0.0158	10.0
	Egg -8		ND	ND	0.50	4.87	0.0149	10.0
	Feed-9		ND	ND	0.50	5.22	0.0160	10.0
	Egg -		ND	ND	0.50	6.21	0.0196	10.0

	10							
Area-01	Egg - 1	Yolk	ND	ND	0.50	7.88	0.0808	10.0
	Egg - 2		ND	ND	0.50	6.07	0.0622	10.0
	Egg - 3		ND	ND	0.50	5.77	0.0592	10.0
	Egg - 4		0.18	0.00184	0.50	6.77	0.0694	10.0
	Egg - 5		ND	ND	0.50	6.13	0.0628	10.0
Area-02	Egg - 6		ND	ND	0.50	3.34	0.0342	10.0
	Egg - 7		ND	ND	0.50	7.26	0.0744	10.0
	Egg - 8		0.46	0.00471	0.50	6.04	0.0619	10.0
	Egg - 9		ND	ND	0.50	7.42	0.0761	10.0
	Egg - 10		ND	ND	0.50	7.42	0.0761	10.0

Operator: Tazul

Laboratory: Chem.

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 12/28/1800 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Cd228	Cd	228.8	Single-beam	HCL	2	-	1.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Cd228	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Cd228	50	6

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Cd228	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Cd [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.1
3	Cal-Std	80	-	0.2
4	Cal-Std	81	-	0.4
5	Cal-Std	82	-	0.6
6	Cal-Std	83	-	0.8
7	Cal-Std	84	-	1

Operator: Tazul

Laboratory: Chem.

Statistics Parameters

Statistics:	Mean stat.	CI calc.:	absolute	Confidence level:	95.4%
Repl./sample:	3	Repl./calib.samp	3	Repl./QC:	3
Pre-runs:	0	Grubbs test:	off		

QCS Parameters

Type:	QC std.4	Name:	QC std.4		
Reaction:	flag	Blank correction:	off	Unit:	mg/L

Cd228: .6 [-10,+10]%

QCC Parameters

RSD/RR% check:	Calib. check:	Recal. check:
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Operator: Tazul

Laboratory: Chem.

Results

Results file: C:\Doc...\Cd-Mak-21-09-01.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	9/1/2021 18:35

Cd228

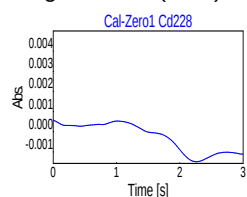
Cal-Zero1	default(1)				Date:	9/1/2021 18:35
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Cd228

Conc.1 0 mg/L

Abs -0.00113 0.00098 86.7

Single values (Abs.): #1: -0.00027 #2: -0.00093 #3: -0.00219 (SEV: 402V)



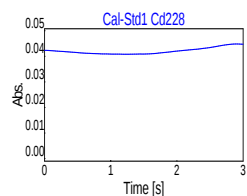
Cal-Std1	default(1)				Date:	9/1/2021 18:36
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Cd228

Conc.1 0.1 mg/L

Abs 0.04274 0.00095 2.2

Single values (Abs.): #1: 0.04208 #2: 0.04232 #3: 0.04383 (SEV: 402V)



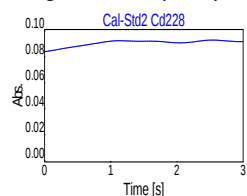
Cal-Std2	default(1)				Date:	9/1/2021 18:36
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Cd228

Conc.1 0.2 mg/L

Abs 0.08774 0.00260 3.0

Single values (Abs.): #1: 0.09074 #2: 0.08609 #3: 0.08638 (SEV: 402V)



Operator: Tazul

Laboratory: Chem.

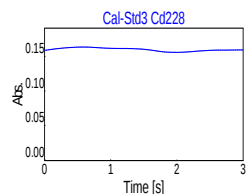
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	9/1/2021 18:37

Cd228

Conc.1 0.4 mg/L

Abs 0.16094 0.00384 2.4

Single values (Abs.): #1: 0.16014 #2: 0.16512 #3: 0.15756 (SEV: 402V)



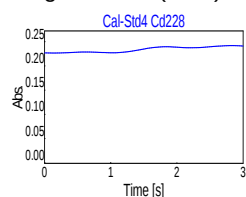
Cal-Std4	default(1)				Date:	9/1/2021 18:37
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Cd228

Conc.1 0.6 mg/L

Abs 0.23645 0.00310 1.3

Single values (Abs.): #1: 0.23377 #2: 0.23574 #3: 0.23985 (SEV: 402V)



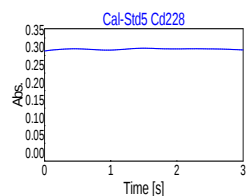
Cal-Std5	default(1)				Date:	9/1/2021 18:38
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Cd228

Conc.1 0.8 mg/L

Abs 0.31473 0.00390 1.2

Single values (Abs.): #1: 0.31821 #2: 0.31548 #3: 0.31051 (SEV: 402V)



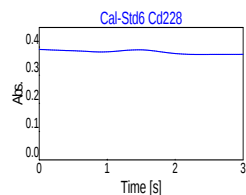
Cal-Std6	default(1)				Date:	9/1/2021 18:39
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Cd228

Conc.1 1 mg/L

Abs 0.38531 0.00325 0.8

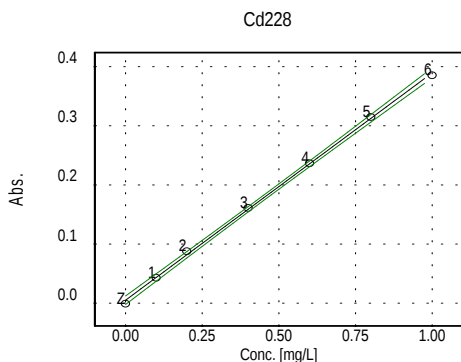
Single values (Abs.): #1: 0.38210 #2: 0.38523 #3: 0.38860 (SEV: 402V)



Operator: Tazul

Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Compute calib.	Cd228				Date:	9/1/2021 18:39

Cd228R²(adj.): 0.998796558 Slope: 0.38449 Abs./mg/L Char.conc.: 0.01134 mg/L/1%AMethod SD: 0.01159 y=a+bx a=0.0049798 b=0.3844915
mg/L

QC std.4	default(1)	Date:	9/1/2021 18:40
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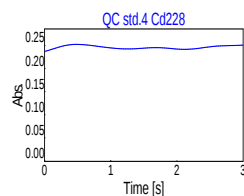
Cd228

Conc.1 0.6211 0.0054 0.9 0.0198 mg/L

Abs 0.24378 0.00209 0.9

Single values (Abs.): #1: 0.24618 #2: 0.24277 #3: 0.24238 (SEV: 402V)

QC:Nominal val.=0.6000 mg/L Recovery=103.5 % OK



Mak-PF-1	default(1)			Date:	9/1/2021 18:40
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off

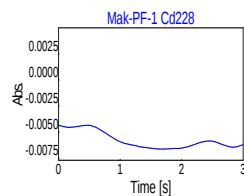
Cd228

Conc.1 -0.0250 0.0028 11.2 0.0245 mg/L <KAL

Conc.2 -0.0250 0.0028 11.2 0.0245 mg/L <KAL

Abs -0.00465 0.00108 23.3 <KAL

Single values (Abs.): #1: -0.00578 #2: -0.00453 #3: -0.00363 (SEV: 402V)



Operator: Tazul

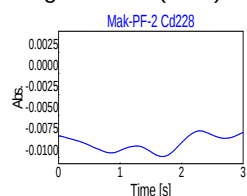
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-2	default(1)				Date:	9/1/2021 18:41
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0328	0.0023	7.1	0.0247	mg/L	<KAL
Conc.2	-0.0328	0.0023	7.1	0.0247	mg/L	<KAL
Abs	-0.00761	0.00089	11.7			<KAL

Single values (Abs.): #1: -0.00833 #2: -0.00789 #3: -0.00662 (SEV: 402V)

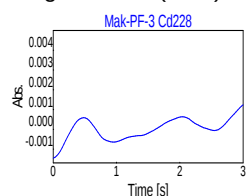


Mak-PF-3	default(1)				Date:	9/1/2021 18:41
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0191	0.0060	31.5	0.0244	mg/L	<KAL
Conc.2	-0.0191	0.0060	31.5	0.0244	mg/L	<KAL
Abs	-0.00236	0.00231	97.8			<KAL

Single values (Abs.): #1: 0.00002 #2: -0.00251 #3: -0.00459 (SEV: 402V)

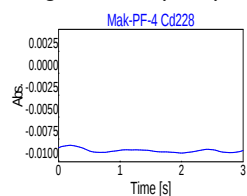


Mak-PF-4	default(1)				Date:	9/1/2021 18:42
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0330	0.0028	8.6	0.0247	mg/L	<KAL
Conc.2	-0.0330	0.0028	8.6	0.0247	mg/L	<KAL
Abs	-0.00772	0.00109	14.1			<KAL

Single values (Abs.): #1: -0.00882 #2: -0.00664 #3: -0.00769 (SEV: 402V)



Operator: Tazul

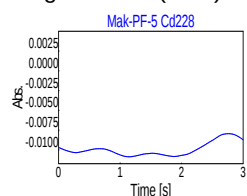
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-5	default(1)				Date:	9/1/2021 18:42
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0376	0.0017	4.6	0.0248	mg/L	<KAL
Conc.2	-0.0376	0.0017	4.6	0.0248	mg/L	<KAL
Abs	-0.00949	0.00067	7.1			<KAL

Single values (Abs.): #1: -0.00993 #2: -0.00981 #3: -0.00872 (SEV: 402V)

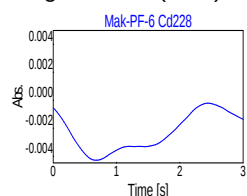


Mak-PF-6	default(1)				Date:	9/1/2021 18:43
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0194	0.0045	22.9	0.0244	mg/L	<KAL
Conc.2	-0.0194	0.0045	22.9	0.0244	mg/L	<KAL
Abs	-0.00250	0.00171	68.6			<KAL

Single values (Abs.): #1: -0.00227 #2: -0.00091 #3: -0.00431 (SEV: 402V)

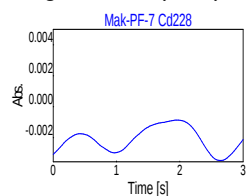


Mak-PF-7	default(1)				Date:	9/1/2021 18:44
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0191	0.0028	14.4	0.0244	mg/L	<KAL
Conc.2	-0.0191	0.0028	14.4	0.0244	mg/L	<KAL
Abs	-0.00238	0.00106	44.5			<KAL

Single values (Abs.): #1: -0.00212 #2: -0.00148 #3: -0.00355 (SEV: 402V)



Operator: Tazul

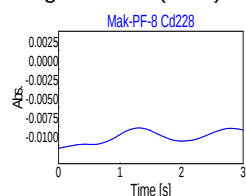
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-8	default(1)				Date:	9/1/2021 18:44
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0360	0.0024	6.7	0.0248	mg/L	<KAL
Conc.2	-0.0360	0.0024	6.7	0.0248	mg/L	<KAL
Abs	-0.00886	0.00093	10.5			<KAL

Single values (Abs.): #1: -0.00892 #2: -0.00976 #3: -0.00791 (SEV: 402V)

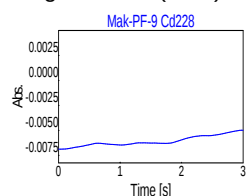


Mak-PF-9	default(1)				Date:	9/1/2021 18:45
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0255	0.0044	17.4	0.0245	mg/L	<KAL
Conc.2	-0.0255	0.0044	17.4	0.0245	mg/L	<KAL
Abs	-0.00483	0.00171	35.4			<KAL

Single values (Abs.): #1: -0.00608 #2: -0.00552 #3: -0.00288 (SEV: 402V)

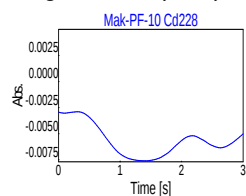


Mak-PF-10	default(1)				Date:	9/1/2021 18:45
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0278	0.0003	1.0	0.0246	mg/L	<KAL
Conc.2	-0.0278	0.0003	1.0	0.0246	mg/L	<KAL
Abs	-0.00572	0.00011	1.9			<KAL

Single values (Abs.): #1: -0.00564 #2: -0.00585 #3: -0.00569 (SEV: 402V)



Operator: Tazul

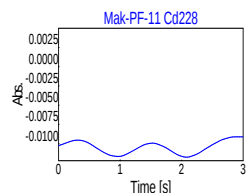
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-11	default(1)				Date:	9/1/2021 18:46
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0432	0.0027	6.3	0.0249	mg/L	<KAL
Conc.2	-0.0432	0.0027	6.3	0.0249	mg/L	<KAL
Abs	-0.01164	0.00105	9.0			<KAL

Single values (Abs.): #1: -0.01046 #2: -0.01201 #3: -0.01246 (SEV: 402V)

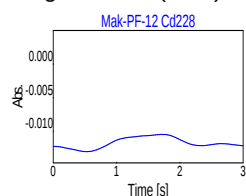


Mak-PF-12	default(1)				Date:	9/1/2021 18:47
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0447	0.0014	3.2	0.0250	mg/L	<KAL
Conc.2	-0.0447	0.0014	3.2	0.0250	mg/L	<KAL
Abs	-0.01222	0.00054	4.5			<KAL

Single values (Abs.): #1: -0.01175 #2: -0.01210 #3: -0.01282 (SEV: 402V)

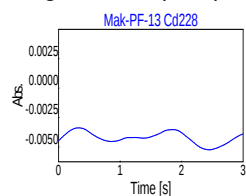


Mak-PF-13	default(1)				Date:	9/1/2021 18:47
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0237	0.0016	6.8	0.0245	mg/L	<KAL
Conc.2	-0.0237	0.0016	6.8	0.0245	mg/L	<KAL
Abs	-0.00411	0.00062	15.1			<KAL

Single values (Abs.): #1: -0.00422 #2: -0.00468 #3: -0.00345 (SEV: 402V)



Operator: Tazul

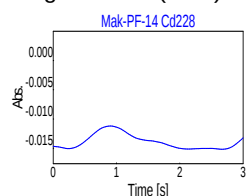
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-14	default(1)				Date:	9/1/2021 18:48
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0451	0.0035	7.8	0.0250	mg/L	<KAL
Conc.2	-0.0451	0.0035	7.8	0.0250	mg/L	<KAL
Abs	-0.01237	0.00135	10.9			<KAL

Single values (Abs.): #1: -0.01393 #2: -0.01159 #3: -0.01159 (SEV: 402V)

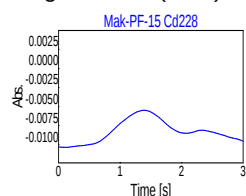


Mak-PF-15	default(1)				Date:	9/1/2021 18:48
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0337	0.0011	3.3	0.0247	mg/L	<KAL
Conc.2	-0.0337	0.0011	3.3	0.0247	mg/L	<KAL
Abs	-0.00797	0.00043	5.3			<KAL

Single values (Abs.): #1: -0.00828 #2: -0.00815 #3: -0.00749 (SEV: 402V)

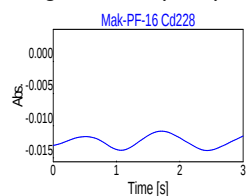


Mak-PF-16	default(1)				Date:	9/1/2021 18:49
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0458	0.0024	5.2	0.0250	mg/L	<KAL
Conc.2	-0.0458	0.0024	5.2	0.0250	mg/L	<KAL
Abs	-0.01265	0.00091	7.2			<KAL

Single values (Abs.): #1: -0.01249 #2: -0.01362 #3: -0.01183 (SEV: 402V)



Operator: Tazul

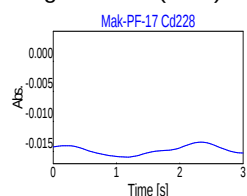
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-17	default(1)				Date:	9/1/2021 18:49
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0486	0.0036	7.4	0.0250	mg/L	<KAL
Conc.2	-0.0486	0.0036	7.4	0.0250	mg/L	<KAL
Abs	-0.01369	0.00137	10.0			<KAL

Single values (Abs.): #1: -0.01476 #2: -0.01416 #3: -0.01214 (SEV: 402V)

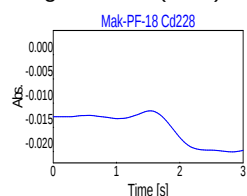


Mak-PF-18	default(1)				Date:	9/1/2021 18:50
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0496	0.0026	5.1	0.0251	mg/L	<KAL
Conc.2	-0.0496	0.0026	5.1	0.0251	mg/L	<KAL
Abs	-0.01410	0.00098	7.0			<KAL

Single values (Abs.): #1: -0.01513 #2: -0.01317 #3: -0.01399 (SEV: 402V)

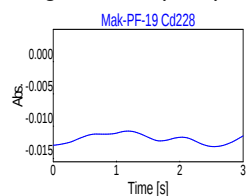


Mak-PF-19	default(1)				Date:	9/1/2021 18:51
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0471	0.0050	10.6	0.0250	mg/L	<KAL
Conc.2	-0.0471	0.0050	10.6	0.0250	mg/L	<KAL
Abs	-0.01313	0.00193	14.7			<KAL

Single values (Abs.): #1: -0.01196 #2: -0.01207 #3: -0.01535 (SEV: 402V)



Operator: Tazul

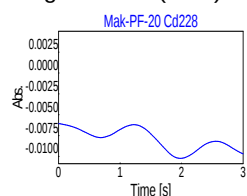
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-20	default(1)				Date:	9/1/2021 18:51
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0328	0.0036	11.0	0.0247	mg/L	<KAL
Conc.2	-0.0328	0.0036	11.0	0.0247	mg/L	<KAL
Abs	-0.00763	0.00139	18.2			<KAL

Single values (Abs.): #1: -0.00793 #2: -0.00885 #3: -0.00611 (SEV: 402V)



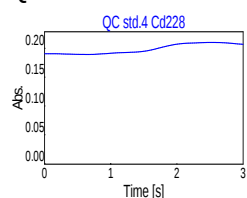
QC std.4	default(1)				Date:	9/1/2021 18:52
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Cd228

Conc.1	0.5208	0.0182	3.5	0.0191	mg/L	
Abs	0.20523	0.00701	3.4			

Single values (Abs.): #1: 0.19871 #2: 0.20432 #3: 0.21265 (SEV: 402V)

QC:Nominal val.=0.6000 mg/L Recovery= 86.8 % ! no react.

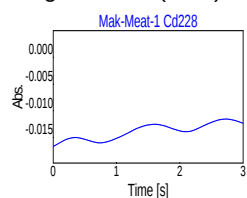


Mak-Meat-1	default(1)				Date:	9/1/2021 18:52
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0487	0.0011	2.3	0.0250	mg/L	<KAL
Conc.2	-0.0487	0.0011	2.3	0.0250	mg/L	<KAL
Abs	-0.01373	0.00042	3.1			<KAL

Single values (Abs.): #1: -0.01385 #2: -0.01326 #3: -0.01407 (SEV: 402V)



Operator: Tazul

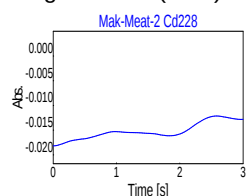
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Meat-2	default(1)				Date:	9/1/2021 18:53
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0497	0.0029	5.9	0.0251	mg/L	<KAL
Conc.2	-0.0497	0.0029	5.9	0.0251	mg/L	<KAL
Abs	-0.01414	0.00113	8.0			<KAL

Single values (Abs.): #1: -0.01518 #2: -0.01430 #3: -0.01294 (SEV: 402V)

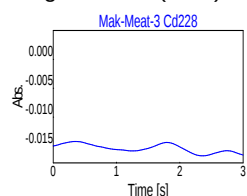


Mak-Meat-3	default(1)				Date:	9/1/2021 18:54
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0532	0.0005	0.9	0.0251	mg/L	<KAL
Conc.2	-0.0532	0.0005	0.9	0.0251	mg/L	<KAL
Abs	-0.01546	0.00019	1.2			<KAL

Single values (Abs.): #1: -0.01540 #2: -0.01566 #3: -0.01531 (SEV: 402V)

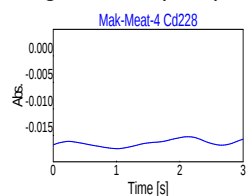


Mak-Meat-4	default(1)				Date:	9/1/2021 18:54
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0531	0.0026	5.0	0.0251	mg/L	<KAL
Conc.2	-0.0531	0.0026	5.0	0.0251	mg/L	<KAL
Abs	-0.01545	0.00102	6.6			<KAL

Single values (Abs.): #1: -0.01644 #2: -0.01550 #3: -0.01441 (SEV: 402V)



Operator: Tazul

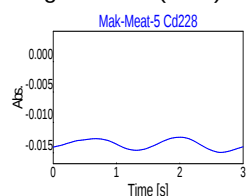
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Meat-5	default(1)				Date:	9/1/2021 18:55
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0497	0.0019	3.8	0.0251	mg/L	<KAL
Conc.2	-0.0497	0.0019	3.8	0.0251	mg/L	<KAL
Abs	-0.01412	0.00072	5.1			<KAL

Single values (Abs.): #1: -0.01362 #2: -0.01379 #3: -0.01495 (SEV: 402V)

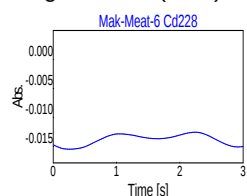


Mak-Meat-6	default(1)				Date:	9/1/2021 18:55
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0523	0.0035	6.6	0.0251	mg/L	<KAL
Conc.2	-0.0523	0.0035	6.6	0.0251	mg/L	<KAL
Abs	-0.01515	0.00134	8.8			<KAL

Single values (Abs.): #1: -0.01385 #2: -0.01507 #3: -0.01652 (SEV: 402V)

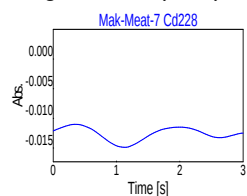


Mak-Meat-7	default(1)				Date:	9/1/2021 18:56
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0481	0.0039	8.1	0.0250	mg/L	<KAL
Conc.2	-0.0481	0.0039	8.1	0.0250	mg/L	<KAL
Abs	-0.01351	0.00150	11.1			<KAL

Single values (Abs.): #1: -0.01258 #2: -0.01271 #3: -0.01524 (SEV: 402V)



Operator: Tazul

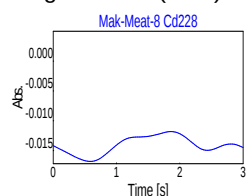
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Meat-8	default(1)				Date:	9/1/2021 18:56
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0485	0.0016	3.2	0.0250	mg/L	<KAL
Conc.2	-0.0485	0.0016	3.2	0.0250	mg/L	<KAL
Abs	-0.01368	0.00060	4.4			<KAL

Single values (Abs.): #1: -0.01411 #2: -0.01299 #3: -0.01394 (SEV: 402V)

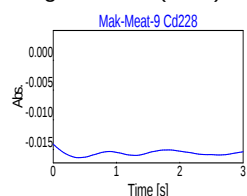


Mak-Meat-9	default(1)				Date:	9/1/2021 18:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0490	0.0047	9.7	0.0251	mg/L	<KAL
Conc.2	-0.0490	0.0047	9.7	0.0251	mg/L	<KAL
Abs	-0.01385	0.00182	13.2			<KAL

Single values (Abs.): #1: -0.01560 #2: -0.01196 #3: -0.01400 (SEV: 402V)

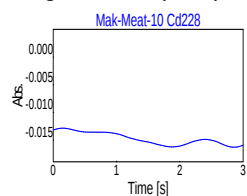


Mak-Meat-10	default(1)				Date:	9/1/2021 18:58
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0504	0.0008	1.6	0.0251	mg/L	<KAL
Conc.2	-0.0504	0.0008	1.6	0.0251	mg/L	<KAL
Abs	-0.01439	0.00031	2.2			<KAL

Single values (Abs.): #1: -0.01475 #2: -0.01416 #3: -0.01426 (SEV: 402V)



Operator: Tazul

Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.4	default(1)				Date:	9/1/2021 18:58

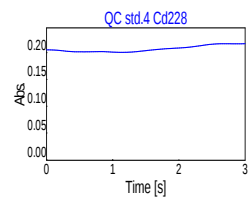
Cd228

Conc.1 0.5300 0.0043 0.8 0.0191 mg/L

Abs 0.20878 0.00166 0.8

Single values (Abs.): #1: 0.20693 #2: 0.21014 #3: 0.20927 (SEV: 402V)

QC:Nominal val.=0.6000 mg/L Recovery= 88.3 % ! no react.



Operator:

Laboratory:

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 1800-12-28 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Cd228	Cd	228.8	Single-beam	HCL	2	-	1.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Cd228	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Cd228	50	6

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Cd228	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Cd [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.1
3	Cal-Std	80	-	0.2
4	Cal-Std	81	-	0.4
5	Cal-Std	82	-	0.6
6	Cal-Std	83	-	0.8

Statistics Parameters

Operator:

Laboratory:

Statistics:	Mean stat.	CI calc.:	absolute	Confidence level:	95.4%
Repl./sample:	3	Repl./calib.samp	3	Repl./QC:	3
Pre-runs:	0	Grubbs test:	off		

QCS Parameters

Type:	QC std.2	Name:	QC std.2		
Reaction:	flag	Blank correction:	off	Unit:	mg/L

Cd228: 0.2 [-10,+10]%

QCC Parameters

RSD/RR% check:

Calib. check:

Recal. check:

Operator:

Laboratory:

Results

Results file: C:\Use...\Cd-Mir-Mak-2021-12-26.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	2021-12-26 14:31

Cd228

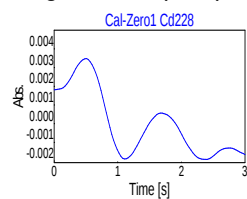
Cal-Zero1	default(1)				Date:	2021-12-26 14:31
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Cd228

Conc.1 0 mg/L

Abs -0.00159 0.00139 87.4

Single values (Abs.): #1: -0.00002 #2: -0.00265 #3: -0.00212 (SEV: 429V)



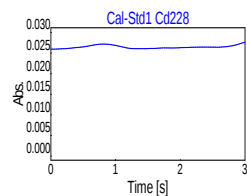
Cal-Std1	default(1)				Date:	2021-12-26 14:32
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Cd228

Conc.1 0.1 mg/L

Abs 0.02745 0.00084 3.1

Single values (Abs.): #1: 0.02648 #2: 0.02796 #3: 0.02790 (SEV: 429V)



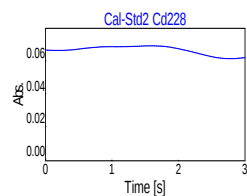
Cal-Std2	default(1)				Date:	2021-12-26 14:32
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Cd228

Conc.1 0.2 mg/L

Abs 0.06788 0.00116 1.7

Single values (Abs.): #1: 0.06655 #2: 0.06846 #3: 0.06864 (SEV: 429V)



Operator:

Laboratory:

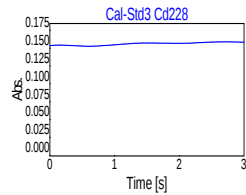
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	2021-12-26 14:33

Cd228

Conc.1 0.4 mg/L

Abs 0.15328 0.00254 1.7

Single values (Abs.): #1: 0.15618 #2: 0.15147 #3: 0.15217 (SEV: 429V)



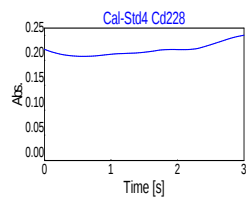
Cal-Std4	default(1)				Date:	2021-12-26 14:33
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Cd228

Conc.1 0.6 mg/L

Abs 0.23910 0.01617 6.8

Single values (Abs.): #1: 0.22048 #2: 0.24716 #3: 0.24965 (SEV: 429V)



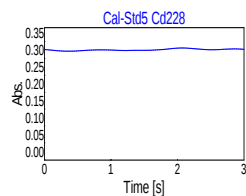
Cal-Std5	default(1)				Date:	2021-12-26 14:34
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Cd228

Conc.1 0.8 mg/L

Abs 0.32318 0.00221 0.7

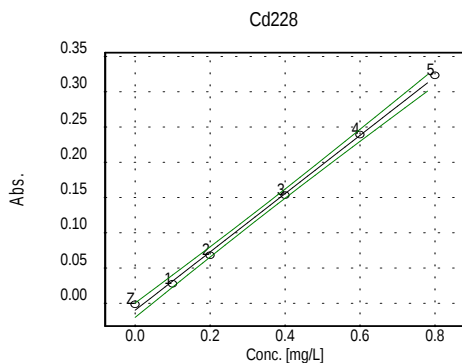
Single values (Abs.): #1: 0.32572 #2: 0.32203 #3: 0.32177 (SEV: 429V)



Compute calib.	Cd228				Date:	2021-12-26 14:34
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Cd228R²(adj.): 0.997538327 Slope: 0.41343 Abs./mg/L Char.conc.: 0.01055 mg/L/1%A

Method SD: 0.01325 y=a+bx a=-.0098202 b=0.4134317 mg/L



Show Cal. plots					Date:	2021-12-26 14:34
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Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.2	default(1)				Date:	2021-12-26 14:35

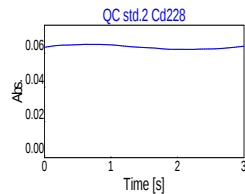
Cd228

Conc.1 0.1824 0.0046 2.5 0.0254 mg/L

Abs 0.06557 0.00191 2.9

Single values (Abs.): #1: 0.06360 #2: 0.06570 #3: 0.06742 (SEV: 429V)

QC:Nominal val.=0.2000 mg/L Recovery= 91.2 % OK



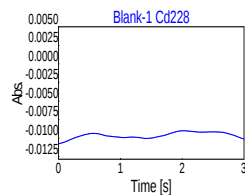
Blank-1	default(1)				Date:	2021-12-26 14:36
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Cd228

Conc.1 0.0011 0.0035 312.9 0.0304 mg/L <KAL

Abs -0.00936 0.00143 15.3 <KAL

Single values (Abs.): #1: -0.00963 #2: -0.01064 #3: -0.00782 (SEV: 429V)



Cd-Mir-Soil-1	default(1)				Date:	2021-12-26 14:36
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

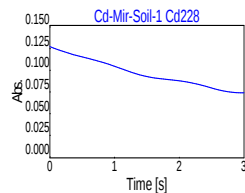
Cd228

Conc.1 0.1695 0.0826 48.7 0.0256 mg/L

Conc.2 0.1695 0.0826 48.7 0.0256 mg/L

Abs 0.06027 0.03416 56.7

Single values (Abs.): #1: 0.09666 #2: 0.05524 #3: 0.02889 (SEV: 429V)



Cd-Mir-Soil-2	default(1)				Date:	2021-12-26 14:37
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

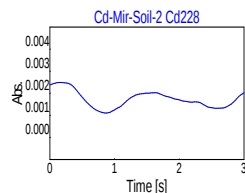
Cd228

Conc.1 0.0254 0.0026 10.3 0.0296 mg/L

Conc.2 0.0254 0.0026 10.3 0.0296 mg/L

Abs 0.00067 0.00108 161.2

Single values (Abs.): #1: 0.00173 #2: 0.00071 #3: -0.00043 (SEV: 429V)



Operator:

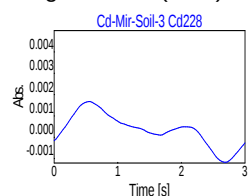
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mir-Soil-3	default(1)				Date:	2021-12-26 14:37
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	0.0230	0.0033	14.3	0.0297	mg/L
Conc.2	0.0230	0.0033	14.3	0.0297	mg/L
Abs	-0.00031	0.00136	440.1		

Single values (Abs.): #1: 0.00034 #2: -0.00187 #3: 0.00061 (SEV: 429V)

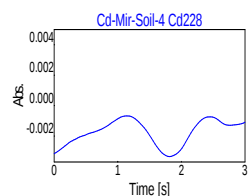


Cd-Mir-Soil-4	default(1)				Date:	2021-12-26 14:38
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	0.0206	0.0010	4.9	0.0298	mg/L
Conc.2	0.0206	0.0010	4.9	0.0298	mg/L
Abs	-0.00132	0.00042	31.6		

Single values (Abs.): #1: -0.00175 #2: -0.00130 #3: -0.00092 (SEV: 429V)

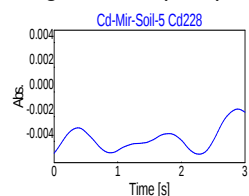


Cd-Mir-Soil-5	default(1)				Date:	2021-12-26 14:38
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	0.0145	0.0038	25.9	0.0300	mg/L
Conc.2	0.0145	0.0038	25.9	0.0300	mg/L
Abs	-0.00382	0.00156	40.8		

Single values (Abs.): #1: -0.00376 #2: -0.00540 #3: -0.00229 (SEV: 429V)



Operator:

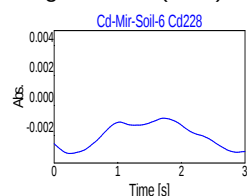
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mir-Soil-6	default(1)				Date:	2021-12-26 14:39
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	0.0171	0.0016	9.2	0.0299	mg/L
Conc.2	0.0171	0.0016	9.2	0.0299	mg/L
Abs	-0.00275	0.00065	23.5		

Single values (Abs.): #1: -0.00201 #2: -0.00303 #3: -0.00321 (SEV: 429V)

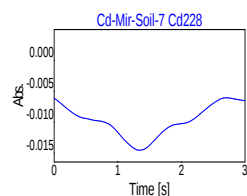


Cd-Mir-Soil-7	default(1)				Date:	2021-12-26 14:40
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	0.0049	0.0044	91.0	0.0303	mg/L
Conc.2	0.0049	0.0044	91.0	0.0303	mg/L
Abs	-0.00781	0.00183	23.4		

Single values (Abs.): #1: -0.00971 #2: -0.00766 #3: -0.00606 (SEV: 429V)

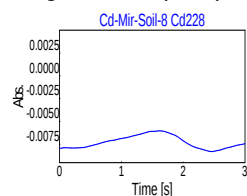


Cd-Mir-Soil-8	default(1)				Date:	2021-12-26 14:40
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	0.0029	0.0031	108.3	0.0304	mg/L
Conc.2	0.0029	0.0031	108.3	0.0304	mg/L
Abs	-0.00862	0.00130	15.1		

Single values (Abs.): #1: -0.00729 #2: -0.00988 #3: -0.00869 (SEV: 429V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.2	default(1)				Date:	2021-12-26 14:41

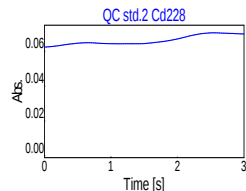
Cd228

Conc.1 0.1901 0.0054 2.9 0.0252 mg/L

Abs 0.06879 0.00224 3.3

Single values (Abs.): #1: 0.06619 #2: 0.07005 #3: 0.07011 (SEV: 429V)

QC:Nominal val.=0.2000 mg/L Recovery= 95.1 % OK



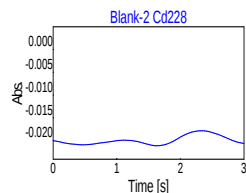
Blank-2	default(1)				Date:	2021-12-26 14:41
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Cd228

Conc.1 -0.0233 0.0011 4.7 0.0313 mg/L <KAL

Abs -0.01944 0.00045 2.3 <KAL

Single values (Abs.): #1: -0.01996 #2: -0.01923 #3: -0.01914 (SEV: 429V)



Cd-Mir-Soil-9	default(1)				Date:	2021-12-26 14:42
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

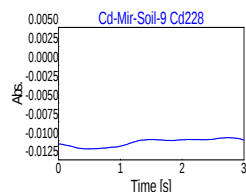
Cd228

Conc.1 -0.0013 0.0012 99.3 0.0305 mg/L <KAL

Conc.2 -0.0013 0.0012 99.3 0.0305 mg/L <KAL

Abs -0.01034 0.00052 5.0 <KAL

Single values (Abs.): #1: -0.01024 #2: -0.00988 #3: -0.01090 (SEV: 429V)



Cd-Mir-Soil-10	default(1)				Date:	2021-12-26 14:43
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

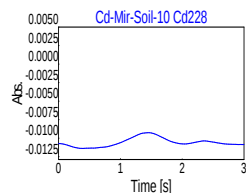
Cd228

Conc.1 -0.0017 0.0009 50.8 0.0305 mg/L <KAL

Conc.2 -0.0017 0.0009 50.8 0.0305 mg/L <KAL

Abs -0.01053 0.00036 3.4 <KAL

Single values (Abs.): #1: -0.01058 #2: -0.01014 #3: -0.01086 (SEV: 429V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mir-Soil-11	default(1)				Date:	2021-12-26 14:43
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

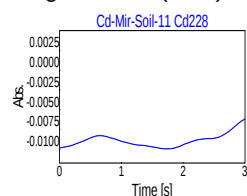
Cd228

Conc.1 0.0021 0.0001 4.0 0.0304 mg/L

Conc.2 0.0021 0.0001 4.0 0.0304 mg/L

Abs -0.00895 0.00004 0.4

Single values (Abs.): #1: -0.00891 #2: -0.00897 #3: -0.00897 (SEV: 429V)



Cd-Mir-Soil-12	default(1)				Date:	2021-12-26 14:44
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

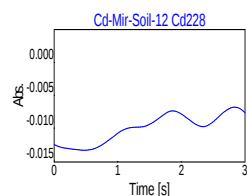
Cd228

Conc.1 -0.0031 0.0040 127.7 0.0306 mg/L <KAL

Conc.2 -0.0031 0.0040 127.7 0.0306 mg/L <KAL

Abs -0.01110 0.00164 14.7 <KAL

Single values (Abs.): #1: -0.01003 #2: -0.01299 #3: -0.01029 (SEV: 429V)



Cd-Mir-Soil-13	default(1)				Date:	2021-12-26 14:44
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

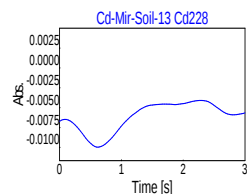
Cd228

Conc.1 0.0076 0.0021 27.9 0.0302 mg/L

Conc.2 0.0076 0.0021 27.9 0.0302 mg/L

Abs -0.00668 0.00088 13.1

Single values (Abs.): #1: -0.00612 #2: -0.00769 #3: -0.00623 (SEV: 429V)



Operator:

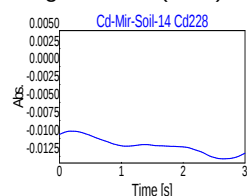
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mir-Soil-14	default(1)				Date:	2021-12-26 14:45
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0032	0.0004	12.8	0.0306	mg/L	<KAL
Conc.2	-0.0032	0.0004	12.8	0.0306	mg/L	<KAL
Abs	-0.01116	0.00017	1.5			<KAL

Single values (Abs.): #1: -0.01100 #2: -0.01134 #3: -0.01114 (SEV: 429V)

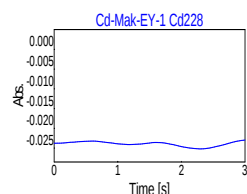


Cd-Mak-EY-1	default(1)				Date:	2021-12-26 14:45
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0330	0.0021	6.3	0.0316	mg/L	<KAL
Conc.2	-0.0330	0.0021	6.3	0.0316	mg/L	<KAL
Abs	-0.02347	0.00086	3.7			<KAL

Single values (Abs.): #1: -0.02394 #2: -0.02247 #3: -0.02399 (SEV: 429V)

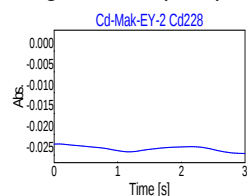


Cd-Mak-EY-2	default(1)				Date:	2021-12-26 14:46
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0329	0.0001	0.2	0.0316	mg/L	<KAL
Conc.2	-0.0329	0.0001	0.2	0.0316	mg/L	<KAL
Abs	-0.02341	0.00003	0.1			<KAL

Single values (Abs.): #1: -0.02342 #2: -0.02337 #3: -0.02343 (SEV: 429V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.2	default(1)				Date:	2021-12-26 14:47

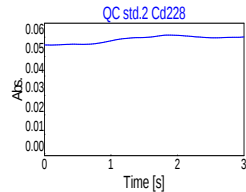
Cd228

Conc.1 0.1700 0.0039 2.3 0.0256 mg/L

Abs 0.06046 0.00162 2.7

Single values (Abs.): #1: 0.05883 #2: 0.06047 #3: 0.06208 (SEV: 429V)

QC:Nominal val.=0.2000 mg/L Recovery= 85.0 % ! no react.



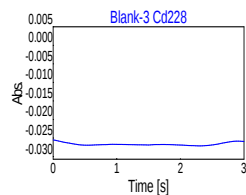
Blank-3	default(1)				Date:	2021-12-26 14:47
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Cd228

Conc.1 -0.0398 0.0010 2.6 0.0319 mg/L <KAL

Abs -0.02626 0.00043 1.6 <KAL

Single values (Abs.): #1: -0.02665 #2: -0.02580 #3: -0.02635 (SEV: 429V)



Cd-Mak-EY-3	default(1)				Date:	2021-12-26 14:48
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

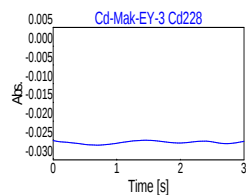
Cd228

Conc.1 -0.0393 0.0012 3.1 0.0319 mg/L <KAL

Conc.2 -0.0393 0.0012 3.1 0.0319 mg/L <KAL

Abs -0.02607 0.00051 1.9 <KAL

Single values (Abs.): #1: -0.02568 #2: -0.02664 #3: -0.02589 (SEV: 429V)



Cd-Mak-EY-4	default(1)				Date:	2021-12-26 14:48
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

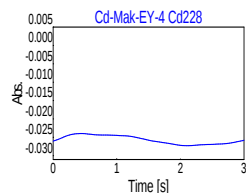
Cd228

Conc.1 -0.0412 0.0028 6.7 0.0319 mg/L <KAL

Conc.2 -0.0412 0.0028 6.7 0.0319 mg/L <KAL

Abs -0.02687 0.00114 4.3 <KAL

Single values (Abs.): #1: -0.02568 #2: -0.02697 #3: -0.02796 (SEV: 429V)



Operator:

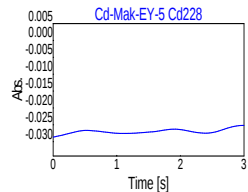
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mak-EY-5	default(1)				Date:	2021-12-26 14:49
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0451	0.0043	9.6	0.0321	mg/L	<KAL
Conc.2	-0.0451	0.0043	9.6	0.0321	mg/L	<KAL
Abs	-0.02848	0.00179	6.3			<KAL

Single values (Abs.): #1: -0.02697 #2: -0.02802 #3: -0.03046 (SEV: 429V)

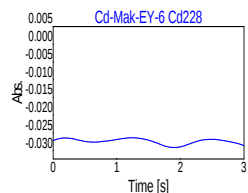


Cd-Mak-EY-6	default(1)				Date:	2021-12-26 14:50
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0448	0.0025	5.6	0.0321	mg/L	<KAL
Conc.2	-0.0448	0.0025	5.6	0.0321	mg/L	<KAL
Abs	-0.02835	0.00103	3.6			<KAL

Single values (Abs.): #1: -0.02738 #2: -0.02825 #3: -0.02943 (SEV: 429V)

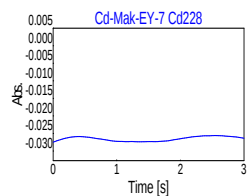


Cd-Mak-EY-7	default(1)				Date:	2021-12-26 14:50
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0416	0.0033	7.9	0.0320	mg/L	<KAL
Conc.2	-0.0416	0.0033	7.9	0.0320	mg/L	<KAL
Abs	-0.02703	0.00135	5.0			<KAL

Single values (Abs.): #1: -0.02653 #2: -0.02599 #3: -0.02856 (SEV: 429V)



Operator:

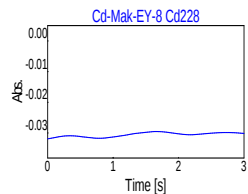
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mak-EY-8	default(1)				Date:	2021-12-26 14:51
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0518	0.0019	3.7	0.0323	mg/L	<KAL
Conc.2	-0.0518	0.0019	3.7	0.0323	mg/L	<KAL
Abs	-0.03124	0.00079	2.5			<KAL

Single values (Abs.): #1: -0.03055 #2: -0.03107 #3: -0.03210 (SEV: 429V)

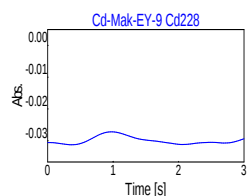


Cd-Mak-EY-9	default(1)				Date:	2021-12-26 14:51
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0522	0.0038	7.3	0.0324	mg/L	<KAL
Conc.2	-0.0522	0.0038	7.3	0.0324	mg/L	<KAL
Abs	-0.03139	0.00158	5.0			<KAL

Single values (Abs.): #1: -0.02999 #2: -0.03109 #3: -0.03310 (SEV: 429V)

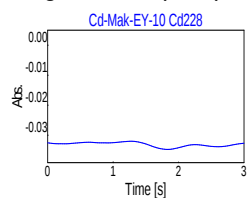


Cd-Mak-EY-10	default(1)				Date:	2021-12-26 14:52
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0569	0.0010	1.8	0.0325	mg/L	<KAL
Conc.2	-0.0569	0.0010	1.8	0.0325	mg/L	<KAL
Abs	-0.03333	0.00042	1.3			<KAL

Single values (Abs.): #1: -0.03310 #2: -0.03381 #3: -0.03308 (SEV: 429V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.2	default(1)				Date:	2021-12-26 14:53

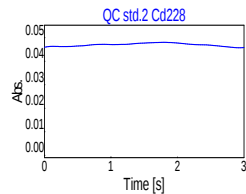
Cd228

Conc.1 0.1428 0.0050 3.5 0.0262 mg/L

Abs 0.04922 0.00206 4.2

Single values (Abs.): #1: 0.04697 #2: 0.04967 #3: 0.05102 (SEV: 429V)

QC:Nominal val.=0.2000 mg/L Recovery= 71.4 % ! no react.



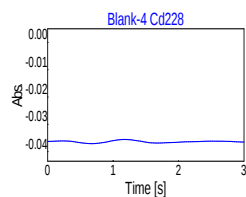
Blank-4	default(1)				Date:	2021-12-26 14:53
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Cd228

Conc.1 -0.0659 0.0017 2.5 0.0329 mg/L <KAL

Abs -0.03705 0.00069 1.9 <KAL

Single values (Abs.): #1: -0.03635 #2: -0.03708 #3: -0.03772 (SEV: 429V)



Cd-Mak-EA-1	default(1)				Date:	2021-12-26 14:54
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

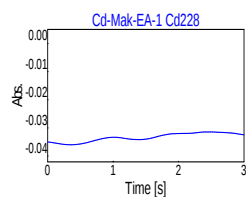
Cd228

Conc.1 -0.0591 0.0048 8.1 0.0326 mg/L <KAL

Conc.2 -0.0591 0.0048 8.1 0.0326 mg/L <KAL

Abs -0.03426 0.00199 5.8 <KAL

Single values (Abs.): #1: -0.03336 #2: -0.03288 #3: -0.03653 (SEV: 429V)



Cd-Mak-EA-2	default(1)				Date:	2021-12-26 14:54
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

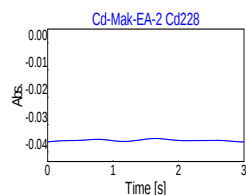
Cd228

Conc.1 -0.0613 0.0037 6.1 0.0327 mg/L <KAL

Conc.2 -0.0613 0.0037 6.1 0.0327 mg/L <KAL

Abs -0.03516 0.00153 4.4 <KAL

Single values (Abs.): #1: -0.03576 #2: -0.03342 #3: -0.03631 (SEV: 429V)



Operator:

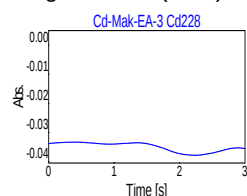
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mak-EA-3	default(1)				Date:	2021-12-26 14:55
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0639	0.0032	5.0	0.0328	mg/L	<KAL
Conc.2	-0.0639	0.0032	5.0	0.0328	mg/L	<KAL
Abs	-0.03626	0.00133	3.7			<KAL

Single values (Abs.): #1: -0.03502 #2: -0.03766 #3: -0.03609 (SEV: 429V)

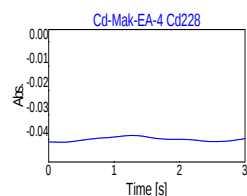


Cd-Mak-EA-4	default(1)				Date:	2021-12-26 14:55
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0744	0.0011	1.5	0.0332	mg/L	<KAL
Conc.2	-0.0744	0.0011	1.5	0.0332	mg/L	<KAL
Abs	-0.04057	0.00047	1.2			<KAL

Single values (Abs.): #1: -0.04003 #2: -0.04077 #3: -0.04092 (SEV: 429V)

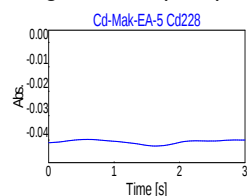


Cd-Mak-EA-5	default(1)				Date:	2021-12-26 14:56
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0720	0.0036	5.0	0.0331	mg/L	<KAL
Conc.2	-0.0720	0.0036	5.0	0.0331	mg/L	<KAL
Abs	-0.03961	0.00149	3.8			<KAL

Single values (Abs.): #1: -0.04071 #2: -0.03792 #3: -0.04020 (SEV: 429V)



Operator:

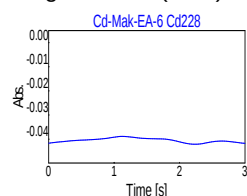
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mak-EA-6	default(1)				Date:	2021-12-26 14:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0734	0.0013	1.8	0.0332	mg/L	<KAL
Conc.2	-0.0734	0.0013	1.8	0.0332	mg/L	<KAL
Abs	-0.04017	0.00055	1.4			<KAL

Single values (Abs.): #1: -0.04053 #2: -0.03954 #3: -0.04045 (SEV: 429V)

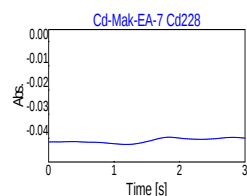


Cd-Mak-EA-7	default(1)				Date:	2021-12-26 14:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0782	0.0033	4.2	0.0334	mg/L	<KAL
Conc.2	-0.0782	0.0033	4.2	0.0334	mg/L	<KAL
Abs	-0.04217	0.00137	3.2			<KAL

Single values (Abs.): #1: -0.04093 #2: -0.04364 #3: -0.04193 (SEV: 429V)

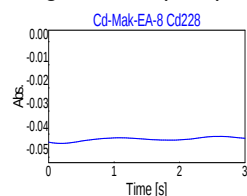


Cd-Mak-EA-8	default(1)				Date:	2021-12-26 14:58
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0781	0.0003	0.4	0.0333	mg/L	<KAL
Conc.2	-0.0781	0.0003	0.4	0.0333	mg/L	<KAL
Abs	-0.04212	0.00012	0.3			<KAL

Single values (Abs.): #1: -0.04223 #2: -0.04200 #3: -0.04212 (SEV: 429V)



Operator:

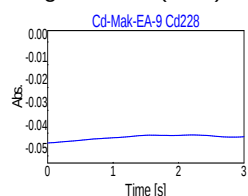
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cd-Mak-EA-9	default(1)				Date:	2021-12-26 14:58
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0787	0.0019	2.4	0.0334	mg/L	<KAL
Conc.2	-0.0787	0.0019	2.4	0.0334	mg/L	<KAL
Abs	-0.04236	0.00079	1.9			<KAL

Single values (Abs.): #1: -0.04190 #2: -0.04327 #3: -0.04191 (SEV: 429V)

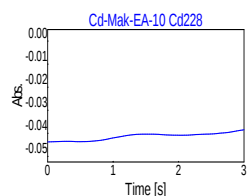


Cd-Mak-EA-10	default(1)				Date:	2021-12-26 14:59
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cd228

Conc.1	-0.0810	0.0056	6.9	0.0335	mg/L	<KAL
Conc.2	-0.0810	0.0056	6.9	0.0335	mg/L	<KAL
Abs	-0.04329	0.00232	5.4			<KAL

Single values (Abs.): #1: -0.04138 #2: -0.04588 #3: -0.04263 (SEV: 429V)



Operator: Tazul

Laboratory: Chem.

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 12/28/1800 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Cr357	Cr	357.9	Single-beam	HCL	4	-	0.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Cr357	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Cr357	100	8

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Cr357	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Cr [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.2
3	Cal-Std	80	-	0.4
4	Cal-Std	81	-	0.8
5	Cal-Std	82	-	1

Statistics Parameters

Statistics: Mean stat.

CI calc.: absolute

Confidence level: 95.4%

Operator: Tazul

Laboratory: Agri. Chem.

Repl./sample: 3

Repl./calib.samp 3

Repl./QC: 3

Pre-runs: 0

Grubbs test: off

QCS Parameters

Type: QC std.3

Name: QC std.3

Reaction: flag

Blank correction: off

Unit: mg/L

Cr357: 0.8 [-10,+10]%

QCC Parameters

RSD/RR% check:

Calib. check:

Recal. check:

Operator: Tazul

Laboratory: Chem.

Results

Results file: C:\Doc...\Tazul-21-08-29-Cr.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	8/29/2021 20:48

Cr357

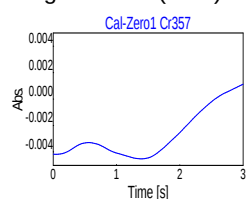
Cal-Zero1	default(1)				Date:	8/29/2021 20:48
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Cr357

Conc.1 0 mg/L

Abs -0.00120 0.00132 110.3

Single values (Abs.): #1: -0.00269 #2: -0.00072 #3: -0.00018 (SEV: 377V)



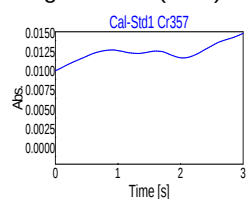
Cal-Std1	default(1)				Date:	8/29/2021 20:49
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Cr357

Conc.1 0.2 mg/L

Abs 0.01347 0.00102 7.5

Single values (Abs.): #1: 0.01349 #2: 0.01245 #3: 0.01448 (SEV: 377V)



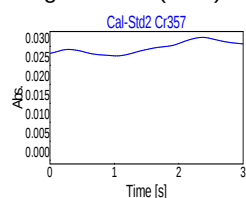
Cal-Std2	default(1)				Date:	8/29/2021 20:49
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Cr357

Conc.1 0.4 mg/L

Abs 0.02928 0.00163 5.6

Single values (Abs.): #1: 0.02966 #2: 0.03069 #3: 0.02750 (SEV: 377V)



Operator: Tazul

Laboratory: Chem.

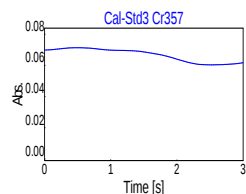
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	8/29/2021 20:50

Cr357

Conc.1 0.8 mg/L

Abs 0.06573 0.00295 4.5

Single values (Abs.): #1: 0.06661 #2: 0.06244 #3: 0.06813 (SEV: 377V)



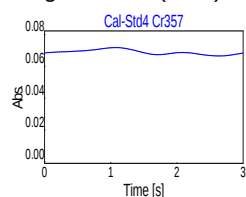
Cal-Std4	default(1)				Date:	8/29/2021 20:51
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Cr357

Conc.1 1 mg/L

Abs 0.06978 0.00616 8.8

Single values (Abs.): #1: 0.06885 #2: 0.06413 #3: 0.07635 (SEV: 377V)

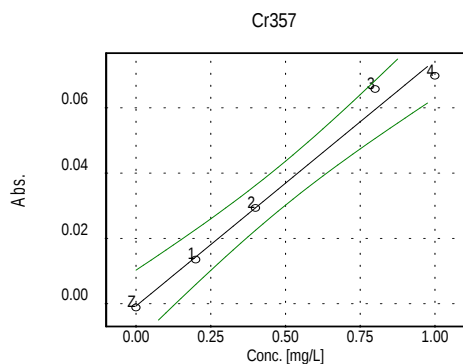


Compute calib.	Cr357				Date:	8/29/2021 20:51
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Cr357R²(adj.): 0.968381232 Slope: 0.07526 Abs./mg/L Char.conc.: 0.05793 mg/L/1%A

Method SD: 0.06069 y=a+bx a=-.0007113 b=0.0752569

mg/L



QC std.3	default(1)				Date:	8/29/2021 20:51
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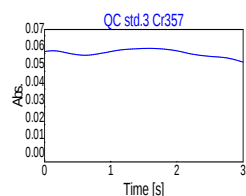
Cr357

Conc.1 0.7973 0.0440 5.5 0.0966 mg/L

Abs 0.06445 0.00371 5.7

Single values (Abs.): #1: 0.06032 #2: 0.06748 #3: 0.06554 (SEV: 377V)

QC:Nominal val.=0.8000 mg/L Recovery= 99.7 % OK



Operator: Tazul

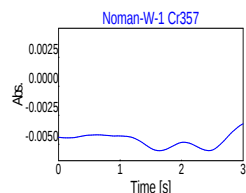
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-W-1	default(1)				Date:	8/29/2021 20:52
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0313	0.0151	48.2	0.0886	mg/L	<KAL
Conc.2	-0.0313	0.0151	48.2	0.0886	mg/L	<KAL
Abs	-0.00525	0.00127	24.1			<KAL

Single values (Abs.): #1: -0.00468 #2: -0.00437 #3: -0.00670 (SEV: 377V)

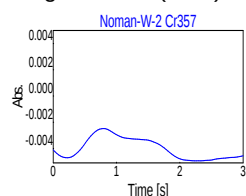


Noman-W-2	default(1)				Date:	8/29/2021 20:53
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0218	0.0088	40.6	0.0875	mg/L	<KAL
Conc.2	-0.0218	0.0088	40.6	0.0875	mg/L	<KAL
Abs	-0.00445	0.00074	16.7			<KAL

Single values (Abs.): #1: -0.00402 #2: -0.00403 #3: -0.00531 (SEV: 377V)

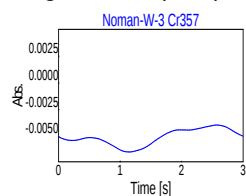


Noman-W-3	default(1)				Date:	8/29/2021 20:53
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0160	0.0125	78.0	0.0869	mg/L	<KAL
Conc.2	-0.0160	0.0125	78.0	0.0869	mg/L	<KAL
Abs	-0.00397	0.00105	26.5			<KAL

Single values (Abs.): #1: -0.00506 #2: -0.00296 #3: -0.00388 (SEV: 377V)



Operator: Tazul

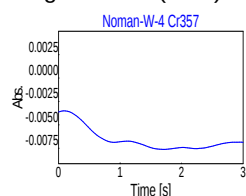
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-W-4	default(1)				Date:	8/29/2021 20:54
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0341	0.0138	40.4	0.0890	mg/L	<KAL
Conc.2	-0.0341	0.0138	40.4	0.0890	mg/L	<KAL
Abs	-0.00549	0.00116	21.1			<KAL

Single values (Abs.): #1: -0.00656 #2: -0.00426 #3: -0.00565 (SEV: 377V)

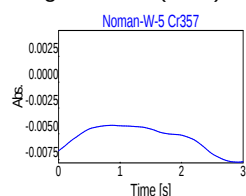


Noman-W-5	default(1)				Date:	8/29/2021 20:54
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0201	0.0114	56.6	0.0873	mg/L	<KAL
Conc.2	-0.0201	0.0114	56.6	0.0873	mg/L	<KAL
Abs	-0.00431	0.00096	22.2			<KAL

Single values (Abs.): #1: -0.00541 #2: -0.00373 #3: -0.00379 (SEV: 377V)

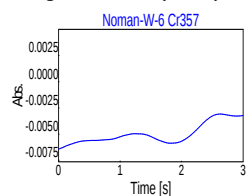


Noman-W-6	default(1)				Date:	8/29/2021 20:55
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0289	0.0062	21.3	0.0884	mg/L	<KAL
Conc.2	-0.0289	0.0062	21.3	0.0884	mg/L	<KAL
Abs	-0.00505	0.00052	10.3			<KAL

Single values (Abs.): #1: -0.00497 #2: -0.00560 #3: -0.00457 (SEV: 377V)



Operator: Tazul

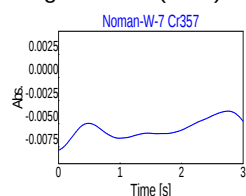
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-W-7	default(1)				Date:	8/29/2021 20:56
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0354	0.0024	6.8	0.0891	mg/L	<KAL
Conc.2	-0.0354	0.0024	6.8	0.0891	mg/L	<KAL
Abs	-0.00560	0.00020	3.6			<KAL

Single values (Abs.): #1: -0.00554 #2: -0.00582 #3: -0.00543 (SEV: 377V)

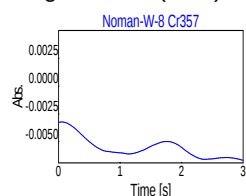


Noman-W-8	default(1)				Date:	8/29/2021 20:56
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0330	0.0062	18.8	0.0888	mg/L	<KAL
Conc.2	-0.0330	0.0062	18.8	0.0888	mg/L	<KAL
Abs	-0.00539	0.00052	9.7			<KAL

Single values (Abs.): #1: -0.00556 #2: -0.00581 #3: -0.00481 (SEV: 377V)

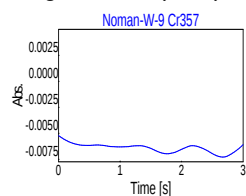


Noman-W-9	default(1)				Date:	8/29/2021 20:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0364	0.0133	36.6	0.0892	mg/L	<KAL
Conc.2	-0.0364	0.0133	36.6	0.0892	mg/L	<KAL
Abs	-0.00568	0.00112	19.7			<KAL

Single values (Abs.): #1: -0.00641 #2: -0.00625 #3: -0.00439 (SEV: 377V)



Operator: Tazul

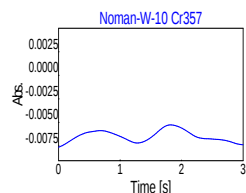
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-W-10	default(1)				Date:	8/29/2021 20:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0381	0.0067	17.6	0.0894	mg/L	<KAL
Conc.2	-0.0381	0.0067	17.6	0.0894	mg/L	<KAL
Abs	-0.00582	0.00057	9.7			<KAL

Single values (Abs.): #1: -0.00647 #2: -0.00553 #3: -0.00546 (SEV: 377V)

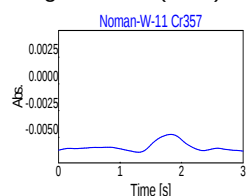


Noman-W-11	default(1)				Date:	8/29/2021 20:58
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0328	0.0084	25.7	0.0888	mg/L	<KAL
Conc.2	-0.0328	0.0084	25.7	0.0888	mg/L	<KAL
Abs	-0.00538	0.00071	13.2			<KAL

Single values (Abs.): #1: -0.00589 #2: -0.00567 #3: -0.00457 (SEV: 377V)



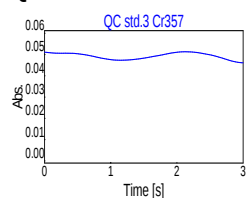
QC std.3	default(1)				Date:	8/29/2021 20:59
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Cr357

Conc.1	0.6599	0.0505	7.7	0.0808	mg/L	
Abs	0.05288	0.00425	8.0			

Single values (Abs.): #1: 0.04929 #2: 0.05179 #3: 0.05757 (SEV: 377V)

QC:Nominal val.=0.8000 mg/L Recovery= 82.5 % ! no react.



Operator: Tazul

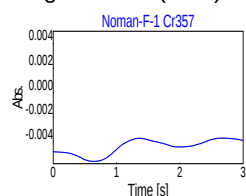
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-F-1	default(1)				Date:	8/29/2021 20:59
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0013	0.0195	###.##	0.0849	mg/L	<KAL
Conc.2	0.0013	0.0195	###.##	0.0849	mg/L	<KAL
Abs	-0.00251	0.00164	65.5			<KAL

Single values (Abs.): #1: -0.00440 #2: -0.00155 #3: -0.00157 (SEV: 377V)

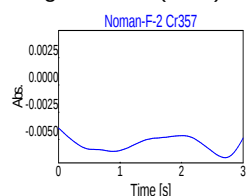


Noman-F-2	default(1)				Date:	8/29/2021 21:00
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0282	0.0110	38.9	0.0883	mg/L	<KAL
Conc.2	-0.0282	0.0110	38.9	0.0883	mg/L	<KAL
Abs	-0.00499	0.00092	18.5			<KAL

Single values (Abs.): #1: -0.00544 #2: -0.00559 #3: -0.00393 (SEV: 377V)

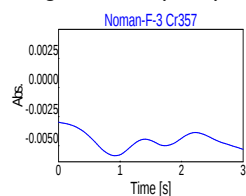


Noman-F-3	default(1)				Date:	8/29/2021 21:00
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0224	0.0006	2.6	0.0876	mg/L	<KAL
Conc.2	-0.0224	0.0006	2.6	0.0876	mg/L	<KAL
Abs	-0.00450	0.00005	1.1			<KAL

Single values (Abs.): #1: -0.00455 #2: -0.00446 #3: -0.00449 (SEV: 377V)



Operator: Tazul

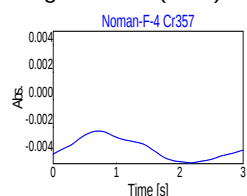
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-F-4	default(1)				Date:	8/29/2021 21:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0135	0.0091	67.3	0.0866	mg/L	<KAL
Conc.2	-0.0135	0.0091	67.3	0.0866	mg/L	<KAL
Abs	-0.00376	0.00077	20.4			<KAL

Single values (Abs.): #1: -0.00357 #2: -0.00310 #3: -0.00460 (SEV: 377V)

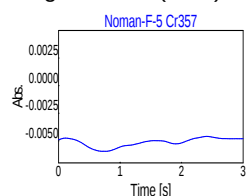


Noman-F-5	default(1)				Date:	8/29/2021 21:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0258	0.0037	14.4	0.0880	mg/L	<KAL
Conc.2	-0.0258	0.0037	14.4	0.0880	mg/L	<KAL
Abs	-0.00479	0.00031	6.5			<KAL

Single values (Abs.): #1: -0.00513 #2: -0.00452 #3: -0.00471 (SEV: 377V)



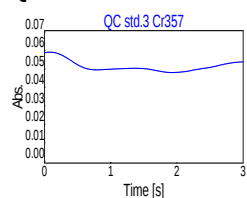
QC std.3	default(1)				Date:	8/29/2021 21:02
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Cr357

Conc.1	0.6582	0.0147	2.2	0.0806	mg/L	
Abs	0.05274	0.00123	2.3			

Single values (Abs.): #1: 0.05140 #2: 0.05383 #3: 0.05300 (SEV: 377V)

QC:Nominal val.=0.8000 mg/L Recovery= 82.3 % ! no react.



Operator: Tazul

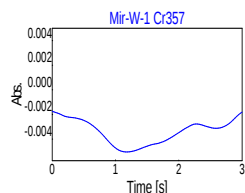
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-1	default(1)				Date:	8/29/2021 21:03
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0110	0.0040	36.0	0.0863	mg/L	<KAL
Conc.2	-0.0110	0.0040	36.0	0.0863	mg/L	<KAL
Abs	-0.00355	0.00033	9.4			<KAL

Single values (Abs.): #1: -0.00338 #2: -0.00334 #3: -0.00393 (SEV: 377V)

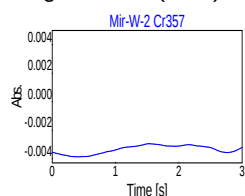


Mir-W-2	default(1)				Date:	8/29/2021 21:03
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0039	0.0099	256.3	0.0855	mg/L	<KAL
Conc.2	-0.0039	0.0099	256.3	0.0855	mg/L	<KAL
Abs	-0.00294	0.00083	28.3			<KAL

Single values (Abs.): #1: -0.00335 #2: -0.00350 #3: -0.00198 (SEV: 377V)

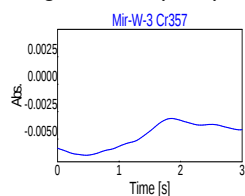


Mir-W-3	default(1)				Date:	8/29/2021 21:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0179	0.0124	69.0	0.0871	mg/L	<KAL
Conc.2	-0.0179	0.0124	69.0	0.0871	mg/L	<KAL
Abs	-0.00413	0.00104	25.2			<KAL

Single values (Abs.): #1: -0.00474 #2: -0.00472 #3: -0.00293 (SEV: 377V)



Operator: Tazul

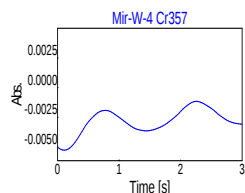
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-4	default(1)				Date:	8/29/2021 21:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0044	0.0154	349.9	0.0856	mg/L	<KAL
Conc.2	-0.0044	0.0154	349.9	0.0856	mg/L	<KAL
Abs	-0.00299	0.00129	43.3			<KAL

Single values (Abs.): #1: -0.00285 #2: -0.00435 #3: -0.00177 (SEV: 377V)

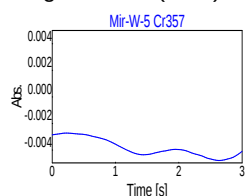


Mir-W-5	default(1)				Date:	8/29/2021 21:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0043	0.0087	201.5	0.0856	mg/L	<KAL
Conc.2	-0.0043	0.0087	201.5	0.0856	mg/L	<KAL
Abs	-0.00298	0.00073	24.5			<KAL

Single values (Abs.): #1: -0.00382 #2: -0.00263 #3: -0.00249 (SEV: 377V)

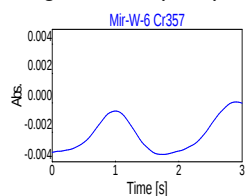


Mir-W-6	default(1)				Date:	8/29/2021 21:06
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0103	0.0049	47.9	0.0839	mg/L	
Conc.2	0.0103	0.0049	47.9	0.0839	mg/L	
Abs	-0.00176	0.00041	23.5			

Single values (Abs.): #1: -0.00212 #2: -0.00185 #3: -0.00130 (SEV: 377V)



Operator: Tazul

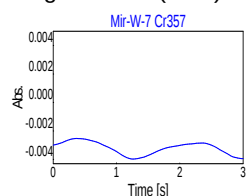
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-7	default(1)				Date:	8/29/2021 21:06
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0012	0.0061	500.5	0.0852	mg/L	<KAL
Conc.2	-0.0012	0.0061	500.5	0.0852	mg/L	<KAL
Abs	-0.00272	0.00051	18.8			<KAL

Single values (Abs.): #1: -0.00321 #2: -0.00219 #3: -0.00277 (SEV: 377V)

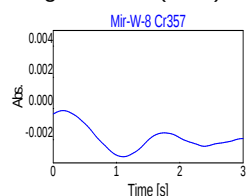


Mir-W-8	default(1)				Date:	8/29/2021 21:07
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0024	0.0068	287.0	0.0848	mg/L	
Conc.2	0.0024	0.0068	287.0	0.0848	mg/L	
Abs	-0.00242	0.00057	23.6			

Single values (Abs.): #1: -0.00187 #2: -0.00301 #3: -0.00238 (SEV: 377V)

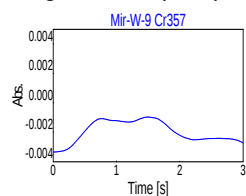


Mir-W-9	default(1)				Date:	8/29/2021 21:07
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0093	0.0104	111.3	0.0841	mg/L	
Conc.2	0.0093	0.0104	111.3	0.0841	mg/L	
Abs	-0.00184	0.00087	47.4			

Single values (Abs.): #1: -0.00197 #2: -0.00091 #3: -0.00263 (SEV: 377V)



Operator: Tazul

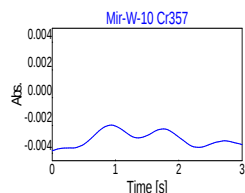
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-10	default(1)				Date:	8/29/2021 21:08
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0078	0.0033	41.6	0.0860	mg/L	<KAL
Conc.2	-0.0078	0.0033	41.6	0.0860	mg/L	<KAL
Abs	-0.00328	0.00027	8.4			<KAL

Single values (Abs.): #1: -0.00297 #2: -0.00348 #3: -0.00339 (SEV: 377V)

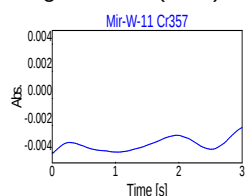


Mir-W-11	default(1)				Date:	8/29/2021 21:08
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0005	0.0097	###.#	0.0850	mg/L	<KAL
Conc.2	0.0005	0.0097	###.#	0.0850	mg/L	<KAL
Abs	-0.00257	0.00082	31.8			<KAL

Single values (Abs.): #1: -0.00339 #2: -0.00258 #3: -0.00175 (SEV: 377V)

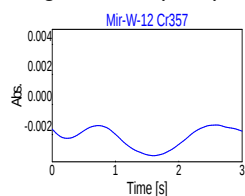


Mir-W-12	default(1)				Date:	8/29/2021 21:09
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0162	0.0147	90.6	0.0833	mg/L	
Conc.2	0.0162	0.0147	90.6	0.0833	mg/L	
Abs	-0.00126	0.00123	98.0			

Single values (Abs.): #1: -0.00217 #2: 0.00015 #3: -0.00175 (SEV: 377V)



Operator: Tazul

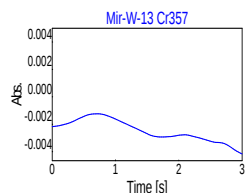
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-13	default(1)				Date:	8/29/2021 21:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0001	0.0117	###.#	0.0851	mg/L	<KAL
Conc.2	-0.0001	0.0117	###.#	0.0851	mg/L	<KAL
Abs	-0.00262	0.00099	37.6			<KAL

Single values (Abs.): #1: -0.00247 #2: -0.00172 #3: -0.00368 (SEV: 377V)

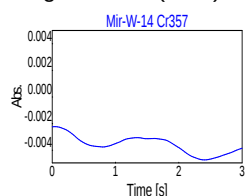


Mir-W-14	default(1)				Date:	8/29/2021 21:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0097	0.0052	54.0	0.0862	mg/L	<KAL
Conc.2	-0.0097	0.0052	54.0	0.0862	mg/L	<KAL
Abs	-0.00343	0.00044	12.8			<KAL

Single values (Abs.): #1: -0.00358 #2: -0.00294 #3: -0.00378 (SEV: 377V)



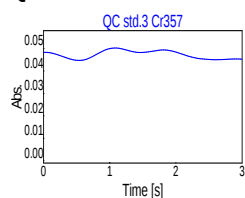
QC std.3	default(1)				Date:	8/29/2021 21:11
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Cr357

Conc.1	0.6043	0.0120	2.0	0.0754	mg/L	
Abs	0.04821	0.00101	2.1			

Single values (Abs.): #1: 0.04721 #2: 0.04922 #3: 0.04820 (SEV: 377V)

QC:Nominal val.=0.8000 mg/L Recovery= 75.5 % ! no react.



Operator: Tazul

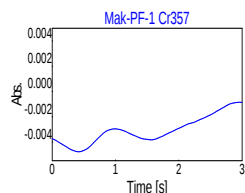
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-1	default(1)				Date:	8/29/2021 21:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0076	0.0060	78.5	0.0859	mg/L	<KAL
Conc.2	-0.0076	0.0060	78.5	0.0859	mg/L	<KAL
Abs	-0.00326	0.00050	15.4			<KAL

Single values (Abs.): #1: -0.00307 #2: -0.00288 #3: -0.00383 (SEV: 377V)

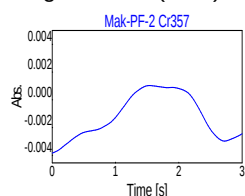


Mak-PF-2	default(1)				Date:	8/29/2021 21:12
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0048	0.0106	221.2	0.0845	mg/L	
Conc.2	0.0048	0.0106	221.2	0.0845	mg/L	
Abs	-0.00221	0.00090	40.4			

Single values (Abs.): #1: -0.00120 #2: -0.00255 #3: -0.00289 (SEV: 377V)

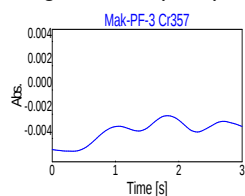


Mak-PF-3	default(1)				Date:	8/29/2021 21:13
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0017	0.0113	656.8	0.0853	mg/L	<KAL
Conc.2	-0.0017	0.0113	656.8	0.0853	mg/L	<KAL
Abs	-0.00276	0.00095	34.4			<KAL

Single values (Abs.): #1: -0.00340 #2: -0.00323 #3: -0.00167 (SEV: 377V)



Operator: Tazul

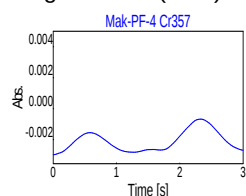
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-4	default(1)				Date:	8/29/2021 21:13
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0010	0.0050	518.2	0.0850	mg/L
Conc.2	0.0010	0.0050	518.2	0.0850	mg/L
Abs	-0.00254	0.00042	16.6		

Single values (Abs.): #1: -0.00210 #2: -0.00258 #3: -0.00293 (SEV: 377V)

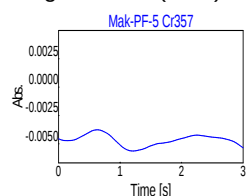


Mak-PF-5	default(1)				Date:	8/29/2021 21:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0236	0.0056	23.6	0.0877	mg/L	<KAL
Conc.2	-0.0236	0.0056	23.6	0.0877	mg/L	<KAL
Abs	-0.00460	0.00047	10.2			<KAL

Single values (Abs.): #1: -0.00468 #2: -0.00410 #3: -0.00503 (SEV: 377V)

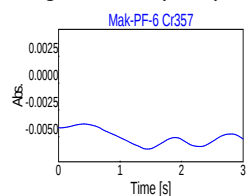


Mak-PF-6	default(1)				Date:	8/29/2021 21:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0201	0.0076	37.9	0.0873	mg/L	<KAL
Conc.2	-0.0201	0.0076	37.9	0.0873	mg/L	<KAL
Abs	-0.00431	0.00064	14.9			<KAL

Single values (Abs.): #1: -0.00504 #2: -0.00410 #3: -0.00380 (SEV: 377V)



Operator: Tazul

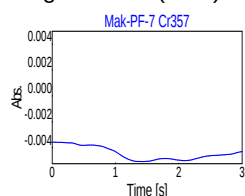
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-7	default(1)				Date:	8/29/2021 21:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0079	0.0121	152.4	0.0860	mg/L	<KAL
Conc.2	-0.0079	0.0121	152.4	0.0860	mg/L	<KAL
Abs	-0.00329	0.00102	30.9			<KAL

Single values (Abs.): #1: -0.00445 #2: -0.00278 #3: -0.00263 (SEV: 377V)

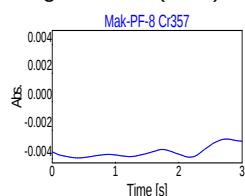


Mak-PF-8	default(1)				Date:	8/29/2021 21:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0066	0.0072	109.6	0.0858	mg/L	<KAL
Conc.2	-0.0066	0.0072	109.6	0.0858	mg/L	<KAL
Abs	-0.00317	0.00061	19.2			<KAL

Single values (Abs.): #1: -0.00353 #2: -0.00247 #3: -0.00352 (SEV: 377V)

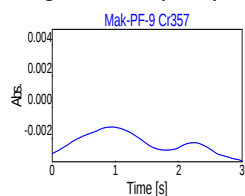


Mak-PF-9	default(1)				Date:	8/29/2021 21:16
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0072	0.0097	133.7	0.0859	mg/L	<KAL
Conc.2	-0.0072	0.0097	133.7	0.0859	mg/L	<KAL
Abs	-0.00323	0.00081	25.2			<KAL

Single values (Abs.): #1: -0.00230 #2: -0.00380 #3: -0.00358 (SEV: 377V)



Operator: Tazul

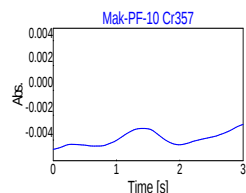
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-10	default(1)				Date:	8/29/2021 21:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0117	0.0041	35.2	0.0864	mg/L	<KAL
Conc.2	-0.0117	0.0041	35.2	0.0864	mg/L	<KAL
Abs	-0.00360	0.00035	9.6			<KAL

Single values (Abs.): #1: -0.00390 #2: -0.00368 #3: -0.00322 (SEV: 377V)



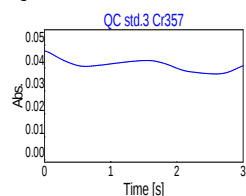
QC std.3	default(1)				Date:	8/29/2021 21:17
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Cr357

Conc.1	0.5769	0.0561	9.7	0.0730	mg/L	
Abs	0.04591	0.00472	10.3			

Single values (Abs.): #1: 0.04109 #2: 0.05052 #3: 0.04611 (SEV: 377V)

QC:Nominal val.=0.8000 mg/L Recovery= 72.1 % ! no react.

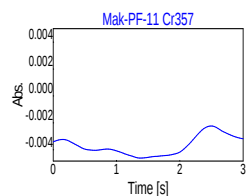


Mak-PF-11	default(1)				Date:	8/29/2021 21:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0197	0.0099	50.3	0.0873	mg/L	<KAL
Conc.2	-0.0197	0.0099	50.3	0.0873	mg/L	<KAL
Abs	-0.00428	0.00084	19.5			<KAL

Single values (Abs.): #1: -0.00369 #2: -0.00392 #3: -0.00524 (SEV: 377V)



Operator: Tazul

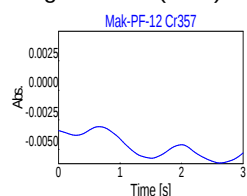
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-12	default(1)				Date:	8/29/2021 21:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0147	0.0166	112.7	0.0867	mg/L	<KAL
Conc.2	-0.0147	0.0166	112.7	0.0867	mg/L	<KAL
Abs	-0.00386	0.00139	36.1			<KAL

Single values (Abs.): #1: -0.00476 #2: -0.00456 #3: -0.00225 (SEV: 377V)

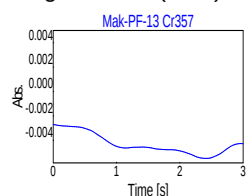


Mak-PF-13	default(1)				Date:	8/29/2021 21:19
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0229	0.0044	19.3	0.0877	mg/L	<KAL
Conc.2	-0.0229	0.0044	19.3	0.0877	mg/L	<KAL
Abs	-0.00455	0.00037	8.2			<KAL

Single values (Abs.): #1: -0.00430 #2: -0.00436 #3: -0.00498 (SEV: 377V)

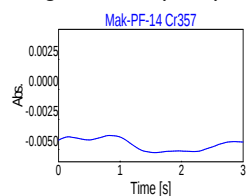


Mak-PF-14	default(1)				Date:	8/29/2021 21:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0259	0.0035	13.6	0.0880	mg/L	<KAL
Conc.2	-0.0259	0.0035	13.6	0.0880	mg/L	<KAL
Abs	-0.00479	0.00030	6.2			<KAL

Single values (Abs.): #1: -0.00458 #2: -0.00467 #3: -0.00513 (SEV: 377V)



Operator: Tazul

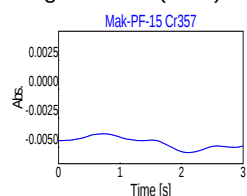
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-15	default(1)				Date:	8/29/2021 21:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0264	0.0060	22.7	0.0881	mg/L	<KAL
Conc.2	-0.0264	0.0060	22.7	0.0881	mg/L	<KAL
Abs	-0.00484	0.00050	10.4			<KAL

Single values (Abs.): #1: -0.00460 #2: -0.00541 #3: -0.00450 (SEV: 377V)

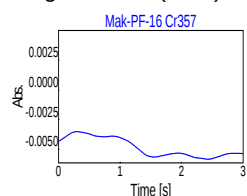


Mak-PF-16	default(1)				Date:	8/29/2021 21:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0217	0.0046	21.0	0.0875	mg/L	<KAL
Conc.2	-0.0217	0.0046	21.0	0.0875	mg/L	<KAL
Abs	-0.00444	0.00038	8.6			<KAL

Single values (Abs.): #1: -0.00484 #2: -0.00442 #3: -0.00407 (SEV: 377V)

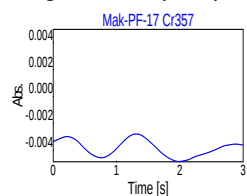


Mak-PF-17	default(1)				Date:	8/29/2021 21:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0207	0.0053	25.7	0.0874	mg/L	<KAL
Conc.2	-0.0207	0.0053	25.7	0.0874	mg/L	<KAL
Abs	-0.00436	0.00045	10.2			<KAL

Single values (Abs.): #1: -0.00386 #2: -0.00473 #3: -0.00448 (SEV: 377V)



Operator: Tazul

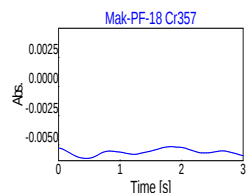
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-PF-18	default(1)				Date:	8/29/2021 21:22
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0344	0.0050	14.5	0.0890	mg/L	<KAL
Conc.2	-0.0344	0.0050	14.5	0.0890	mg/L	<KAL
Abs	-0.00551	0.00042	7.6			<KAL

Single values (Abs.): #1: -0.00562 #2: -0.00586 #3: -0.00505 (SEV: 377V)

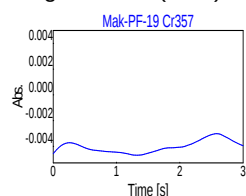


Mak-PF-19	default(1)				Date:	8/29/2021 21:22
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0126	0.0036	28.3	0.0865	mg/L	<KAL
Conc.2	-0.0126	0.0036	28.3	0.0865	mg/L	<KAL
Abs	-0.00368	0.00030	8.2			<KAL

Single values (Abs.): #1: -0.00402 #2: -0.00355 #3: -0.00347 (SEV: 377V)

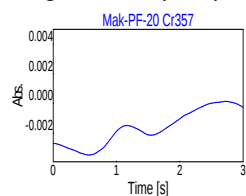


Mak-PF-20	default(1)				Date:	8/29/2021 21:23
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.0053	0.0056	105.7	0.0845	mg/L	
Conc.2	0.0053	0.0056	105.7	0.0845	mg/L	
Abs	-0.00217	0.00047	21.7			

Single values (Abs.): #1: -0.00163 #2: -0.00237 #3: -0.00252 (SEV: 377V)



Operator: Tazul

Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.3	default(1)				Date:	8/29/2021 21:24

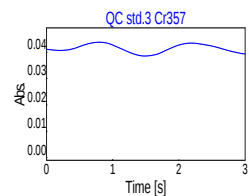
Cr357

Conc.1 0.5392 0.0312 5.8 0.0700 mg/L

Abs 0.04274 0.00262 6.1

Single values (Abs.): #1: 0.04139 #2: 0.04106 #3: 0.04576 (SEV: 377V)

QC:Nominal val.=0.8000 mg/L Recovery= 67.4 % ! no react.



Operator:

Laboratory:

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 1800-12-28 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Cr357	Cr	357.9	Single-beam	HCL	4	-	0.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Cr357	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Cr357	100	8

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Cr357	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Cr [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.1
3	Cal-Std	80	-	0.6
4	Cal-Std	81	-	0.8
5	Cal-Std	82	-	1

Statistics Parameters

Statistics: Mean stat.

CI calc.: absolute

Confidence level: 95.4%

Operator:

Laboratory:

Repl./sample: 3

Pre-runs: 0

Repl./calib.samp 3

Grubbs test: off

Repl./QC: 3

QCS Parameters

Type: QC std.3

Reaction: flag

Name: QC std.3

Blank

correction:

Unit: mg/L

Cr357: .8 [-10,+10]%

QCC Parameters

RSD/RR% check:

Calib. check:

Recal. check:

Operator:

Laboratory:

Results

Results file: C:\Use...\Cr-Mir- Maksuda-21-10-27--.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	2021-10-27 21:39

Cr357

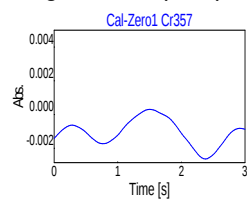
Cal-Zero1	default(1)				Date:	2021-10-27 21:39
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Cr357

Conc.1 0 mg/L

Abs 0.00025 0.00114 450.1

Single values (Abs.): #1: -0.00105 #2: 0.00105 #3: 0.00076 (SEV: 402V)



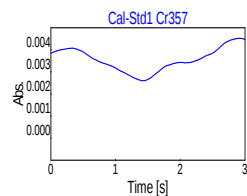
Cal-Std1	default(1)				Date:	2021-10-27 21:40
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Cr357

Conc.1 0.1 mg/L

Abs 0.00472 0.00105 22.3

Single values (Abs.): #1: 0.00356 #2: 0.00498 #3: 0.00561 (SEV: 402V)



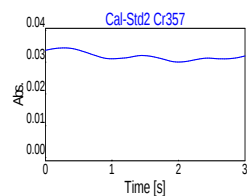
Cal-Std2	default(1)				Date:	2021-10-27 21:41
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Cr357

Conc.1 0.6 mg/L

Abs 0.03274 0.00079 2.4

Single values (Abs.): #1: 0.03182 #2: 0.03316 #3: 0.03323 (SEV: 402V)



Operator:

Laboratory:

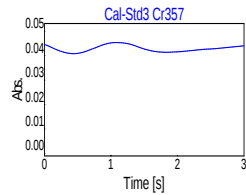
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	2021-10-27 21:41

Cr357

Conc.1 0.8 mg/L

Abs 0.04442 0.00137 3.1

Single values (Abs.): #1: 0.04287 #2: 0.04546 #3: 0.04493 (SEV: 402V)



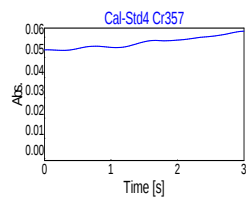
Cal-Std4	default(1)				Date:	2021-10-27 21:42
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Cr357

Conc.1 1 mg/L

Abs 0.05896 0.00138 2.3

Single values (Abs.): #1: 0.05739 #2: 0.05996 #3: 0.05954 (SEV: 402V)

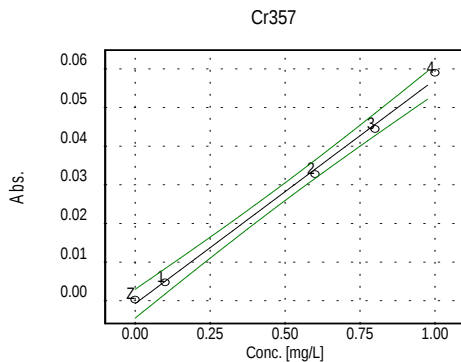


Compute calib.	Cr357				Date:	2021-10-27 21:42
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Cr357R²(adj.): 0.994318816 Slope: 0.05798 Abs./mg/L Char.conc.: 0.07519 mg/L/1%A

Method SD: 0.02686 y=a+bx a=-.0007738 b=0.0579848

mg/L



Show Cal. plots					Date:	2021-10-27 21:42
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QC std.3	default(1)				Date:	2021-10-27 21:43
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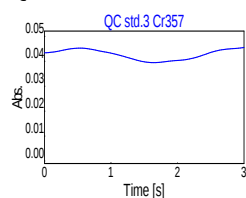
Cr357

Conc.1 0.7796 0.0297 3.8 0.0627 mg/L

Abs 0.04443 0.00172 3.9

Single values (Abs.): #1: 0.04276 #2: 0.04619 #3: 0.04434 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 97.4 % OK



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Soil-1	default(1)				Date:	2021-10-27 21:43
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

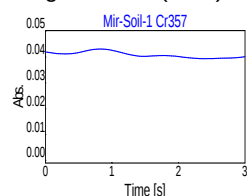
Cr357

Conc.1 0.6990 0.0182 2.6 0.0594 mg/L

Conc.2 0.6990 0.0182 2.6 0.0594 mg/L

Abs 0.03976 0.00106 2.7

Single values (Abs.): #1: 0.04087 #2: 0.03963 #3: 0.03877 (SEV: 402V)



Mir-Soil-2	default(1)				Date:	2021-10-27 21:44
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

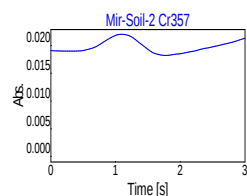
Cr357

Conc.1 0.3668 0.0125 3.4 0.0575 mg/L

Conc.2 0.3668 0.0125 3.4 0.0575 mg/L

Abs 0.02050 0.00072 3.5

Single values (Abs.): #1: 0.01976 #2: 0.02052 #3: 0.02121 (SEV: 402V)



Mir-Soil-3	default(1)				Date:	2021-10-27 21:44
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

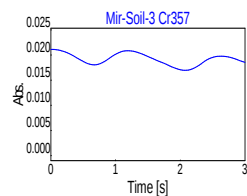
Cr357

Conc.1 0.3426 0.0223 6.5 0.0581 mg/L

Conc.2 0.3426 0.0223 6.5 0.0581 mg/L

Abs 0.01909 0.00129 6.8

Single values (Abs.): #1: 0.01919 #2: 0.01776 #3: 0.02033 (SEV: 402V)



Operator:

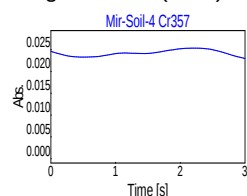
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Soil-4	default(1)				Date:	2021-10-27 21:45
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.4237	0.0157	3.7	0.0564	mg/L
Conc.2	0.4237	0.0157	3.7	0.0564	mg/L
Abs	0.02380	0.00091	3.8		

Single values (Abs.): #1: 0.02422 #2: 0.02275 #3: 0.02441 (SEV: 402V)

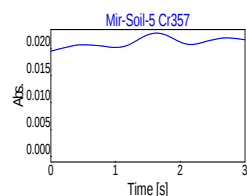


Mir-Soil-5	default(1)				Date:	2021-10-27 21:46
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.3816	0.0023	0.6	0.0572	mg/L
Conc.2	0.3816	0.0023	0.6	0.0572	mg/L
Abs	0.02135	0.00013	0.6		

Single values (Abs.): #1: 0.02120 #2: 0.02139 #3: 0.02146 (SEV: 402V)

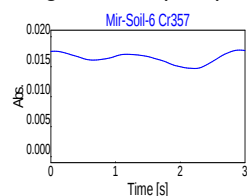


Mir-Soil-6	default(1)				Date:	2021-10-27 21:46
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.3025	0.0097	3.2	0.0594	mg/L
Conc.2	0.3025	0.0097	3.2	0.0594	mg/L
Abs	0.01677	0.00056	3.3		

Single values (Abs.): #1: 0.01641 #2: 0.01648 #3: 0.01741 (SEV: 402V)



Operator:

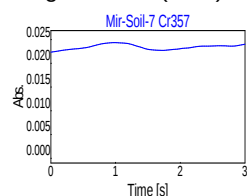
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Soil-7	default(1)				Date:	2021-10-27 21:47
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.4462	0.0278	6.2	0.0561	mg/L
Conc.2	0.4462	0.0278	6.2	0.0561	mg/L
Abs	0.02510	0.00161	6.4		

Single values (Abs.): #1: 0.02343 #2: 0.02522 #3: 0.02665 (SEV: 402V)

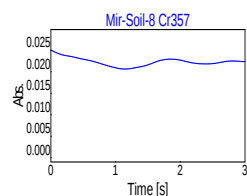


Mir-Soil-8	default(1)				Date:	2021-10-27 21:47
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.4078	0.0145	3.6	0.0567	mg/L
Conc.2	0.4078	0.0145	3.6	0.0567	mg/L
Abs	0.02287	0.00084	3.7		

Single values (Abs.): #1: 0.02229 #2: 0.02384 #3: 0.02248 (SEV: 402V)

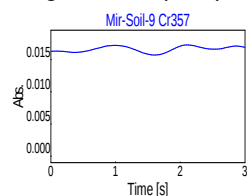


Mir-Soil-9	default(1)				Date:	2021-10-27 21:48
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.2944	0.0051	1.7	0.0596	mg/L
Conc.2	0.2944	0.0051	1.7	0.0596	mg/L
Abs	0.01630	0.00029	1.8		

Single values (Abs.): #1: 0.01662 #2: 0.01604 #3: 0.01623 (SEV: 402V)



Operator:

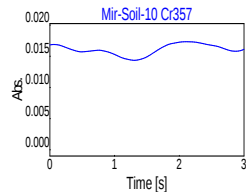
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Soil-10	default(1)				Date:	2021-10-27 21:49
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.3002	0.0118	3.9	0.0594	mg/L
Conc.2	0.3002	0.0118	3.9	0.0594	mg/L
Abs	0.01663	0.00068	4.1		

Single values (Abs.): #1: 0.01608 #2: 0.01641 #3: 0.01740 (SEV: 402V)



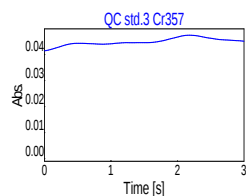
QC std.3	default(1)				Date:	2021-10-27 21:49
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Cr357

Conc.1	0.7904	0.0147	1.9	0.0632	mg/L
Abs	0.04505	0.00085	1.9		

Single values (Abs.): #1: 0.04492 #2: 0.04597 #3: 0.04428 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 98.8 % OK

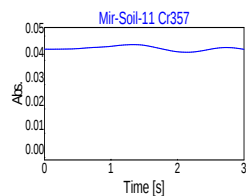


Mir-Soil-11	default(1)				Date:	2021-10-27 21:50
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.7829	0.0051	0.6	0.0628	mg/L
Conc.2	0.7829	0.0051	0.6	0.0628	mg/L
Abs	0.04462	0.00029	0.7		

Single values (Abs.): #1: 0.04496 #2: 0.04441 #3: 0.04449 (SEV: 402V)



Operator:

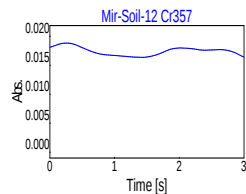
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Soil-12	default(1)				Date:	2021-10-27 21:50
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.3130	0.0046	1.5	0.0590	mg/L
Conc.2	0.3130	0.0046	1.5	0.0590	mg/L
Abs	0.01737	0.00027	1.5		

Single values (Abs.): #1: 0.01742 #2: 0.01761 #3: 0.01709 (SEV: 402V)

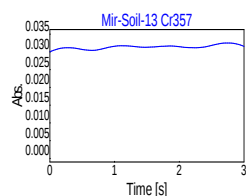


Mir-Soil-13	default(1)				Date:	2021-10-27 21:51
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.5592	0.0227	4.1	0.0562	mg/L
Conc.2	0.5592	0.0227	4.1	0.0562	mg/L
Abs	0.03165	0.00131	4.2		

Single values (Abs.): #1: 0.03139 #2: 0.03308 #3: 0.03049 (SEV: 402V)

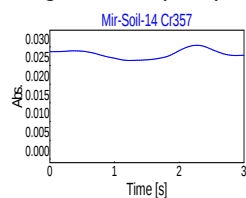


Mir-Soil-14	default(1)				Date:	2021-10-27 21:51
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	0.5076	0.0178	3.5	0.0559	mg/L
Conc.2	0.5076	0.0178	3.5	0.0559	mg/L
Abs	0.02866	0.00103	3.6		

Single values (Abs.): #1: 0.02811 #2: 0.02985 #3: 0.02801 (SEV: 402V)



Operator:

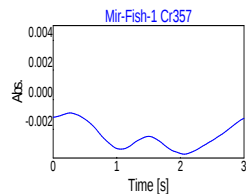
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Fish-1	default(1)				Date:	2021-10-27 21:52
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0239	0.0131	54.8	0.0771	mg/L	<KAL
Conc.2	-0.0239	0.0131	54.8	0.0771	mg/L	<KAL
Abs	-0.00216	0.00076	35.2			<KAL

Single values (Abs.): #1: -0.00245 #2: -0.00130 #3: -0.00273 (SEV: 402V)

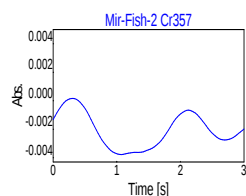


Mir-Fish-2	default(1)				Date:	2021-10-27 21:53
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0158	0.0059	37.0	0.0765	mg/L	<KAL
Conc.2	-0.0158	0.0059	37.0	0.0765	mg/L	<KAL
Abs	-0.00169	0.00034	20.1			<KAL

Single values (Abs.): #1: -0.00206 #2: -0.00163 #3: -0.00139 (SEV: 402V)

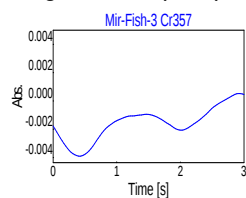


Mir-Fish-3	default(1)				Date:	2021-10-27 21:53
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0256	0.0143	55.7	0.0772	mg/L	<KAL
Conc.2	-0.0256	0.0143	55.7	0.0772	mg/L	<KAL
Abs	-0.00226	0.00083	36.6			<KAL

Single values (Abs.): #1: -0.00159 #2: -0.00318 #3: -0.00201 (SEV: 402V)



Operator:

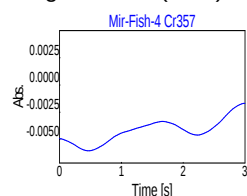
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Fish-4	default(1)				Date:	2021-10-27 21:54
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0278	0.0304	109.3	0.0774	mg/L	<KAL
Conc.2	-0.0278	0.0304	109.3	0.0774	mg/L	<KAL
Abs	-0.00238	0.00176	73.9			<KAL

Single values (Abs.): #1: -0.00420 #2: -0.00069 #3: -0.00226 (SEV: 402V)

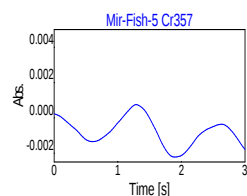


Mir-Fish-5	default(1)				Date:	2021-10-27 21:54
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0098	0.0113	115.3	0.0761	mg/L	<KAL
Conc.2	-0.0098	0.0113	115.3	0.0761	mg/L	<KAL
Abs	-0.00134	0.00065	48.7			<KAL

Single values (Abs.): #1: -0.00077 #2: -0.00121 #3: -0.00205 (SEV: 402V)

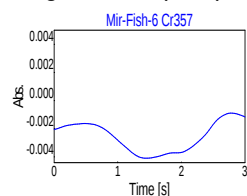


Mir-Fish-6	default(1)				Date:	2021-10-27 21:55
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0335	0.0061	18.3	0.0778	mg/L	<KAL
Conc.2	-0.0335	0.0061	18.3	0.0778	mg/L	<KAL
Abs	-0.00272	0.00035	13.1			<KAL

Single values (Abs.): #1: -0.00254 #2: -0.00312 #3: -0.00248 (SEV: 402V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.3	default(1)				Date:	2021-10-27 21:56

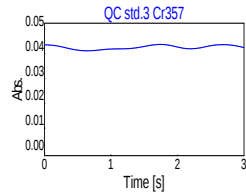
Cr357

Conc.1 0.7485 0.0011 0.2 0.0613 mg/L

Abs 0.04263 0.00007 0.2

Single values (Abs.): #1: 0.04260 #2: 0.04271 #3: 0.04259 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 93.6 % OK



Mir-Fish-7	default(1)				Date:	2021-10-27 21:56
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.: off		

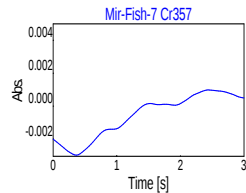
Cr357

Conc.1 -0.0095 0.0157 164.8 0.0761 mg/L <KAL

Conc.2 -0.0095 0.0157 164.8 0.0761 mg/L <KAL

Abs -0.00132 0.00091 68.5 <KAL

Single values (Abs.): #1: -0.00057 #2: -0.00233 #3: -0.00107 (SEV: 402V)



Mir-Fish-8	default(1)				Date:	2021-10-27 21:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.: off		

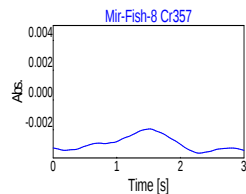
Cr357

Conc.1 -0.0357 0.0170 47.7 0.0779 mg/L <KAL

Conc.2 -0.0357 0.0170 47.7 0.0779 mg/L <KAL

Abs -0.00285 0.00099 34.7 <KAL

Single values (Abs.): #1: -0.00293 #2: -0.00182 #3: -0.00379 (SEV: 402V)



Operator:

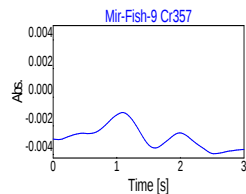
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Fish-9	default(1)				Date:	2021-10-27 21:57
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0416	0.0076	18.3	0.0783	mg/L	<KAL
Conc.2	-0.0416	0.0076	18.3	0.0783	mg/L	<KAL
Abs	-0.00319	0.00044	13.8			<KAL

Single values (Abs.): #1: -0.00280 #2: -0.00367 #3: -0.00310 (SEV: 402V)

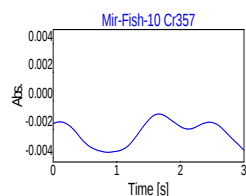


Mir-Fish-10	default(1)				Date:	2021-10-27 21:58
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0348	0.0101	29.0	0.0779	mg/L	<KAL
Conc.2	-0.0348	0.0101	29.0	0.0779	mg/L	<KAL
Abs	-0.00279	0.00059	21.0			<KAL

Single values (Abs.): #1: -0.00224 #2: -0.00341 #3: -0.00272 (SEV: 402V)

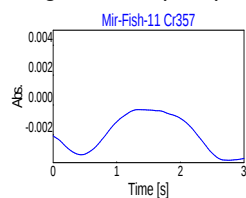


Mir-Fish-11	default(1)				Date:	2021-10-27 21:58
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0251	0.0041	16.3	0.0772	mg/L	<KAL
Conc.2	-0.0251	0.0041	16.3	0.0772	mg/L	<KAL
Abs	-0.00223	0.00024	10.6			<KAL

Single values (Abs.): #1: -0.00198 #2: -0.00245 #3: -0.00226 (SEV: 402V)



Operator:

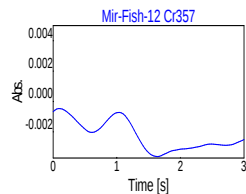
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Fish-12	default(1)				Date:	2021-10-27 21:59
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0428	0.0169	39.5	0.0784	mg/L	<KAL
Conc.2	-0.0428	0.0169	39.5	0.0784	mg/L	<KAL
Abs	-0.00325	0.00098	30.1			<KAL

Single values (Abs.): #1: -0.00224 #2: -0.00332 #3: -0.00420 (SEV: 402V)

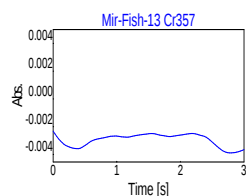


Mir-Fish-13	default(1)				Date:	2021-10-27 22:00
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0302	0.0157	52.1	0.0775	mg/L	<KAL
Conc.2	-0.0302	0.0157	52.1	0.0775	mg/L	<KAL
Abs	-0.00252	0.00091	36.1			<KAL

Single values (Abs.): #1: -0.00296 #2: -0.00314 #3: -0.00148 (SEV: 402V)

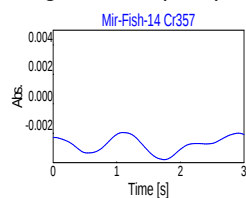


Mir-Fish-14	default(1)				Date:	2021-10-27 22:00
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0363	0.0102	28.2	0.0780	mg/L	<KAL
Conc.2	-0.0363	0.0102	28.2	0.0780	mg/L	<KAL
Abs	-0.00288	0.00059	20.6			<KAL

Single values (Abs.): #1: -0.00275 #2: -0.00353 #3: -0.00236 (SEV: 402V)



Operator:

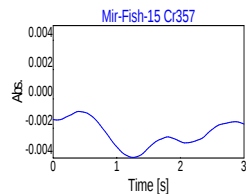
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-Fish-15	default(1)				Date:	2021-10-27 22:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0329	0.0103	31.3	0.0777	mg/L	<KAL
Conc.2	-0.0329	0.0103	31.3	0.0777	mg/L	<KAL
Abs	-0.00268	0.00060	22.2			<KAL

Single values (Abs.): #1: -0.00234 #2: -0.00337 #3: -0.00234 (SEV: 402V)

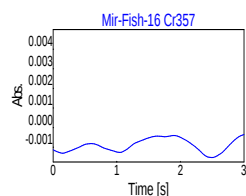


Mir-Fish-16	default(1)				Date:	2021-10-27 22:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0157	0.0120	76.0	0.0765	mg/L	<KAL
Conc.2	-0.0157	0.0120	76.0	0.0765	mg/L	<KAL
Abs	-0.00169	0.00069	41.1			<KAL

Single values (Abs.): #1: -0.00091 #2: -0.00190 #3: -0.00225 (SEV: 402V)



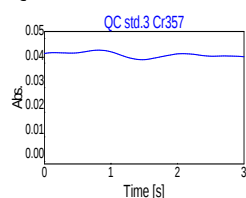
QC std.3	default(1)				Date:	2021-10-27 22:02
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Cr357

Conc.1	0.7667	0.0150	2.0	0.0621	mg/L	
Abs	0.04368	0.00087	2.0			

Single values (Abs.): #1: 0.04342 #2: 0.04465 #3: 0.04297 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 95.8 % OK



Operator:

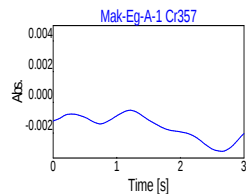
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-A-1	default(1)				Date:	2021-10-27 22:03
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0325	0.0165	50.6	0.0777	mg/L	<KAL
Conc.2	-0.0325	0.0165	50.6	0.0777	mg/L	<KAL
Abs	-0.00266	0.00095	35.9			<KAL

Single values (Abs.): #1: -0.00162 #2: -0.00349 #3: -0.00288 (SEV: 402V)

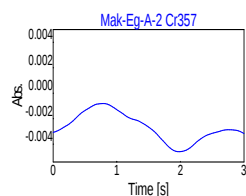


Mak-Eg-A-2	default(1)				Date:	2021-10-27 22:03
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0440	0.0099	22.5	0.0785	mg/L	<KAL
Conc.2	-0.0440	0.0099	22.5	0.0785	mg/L	<KAL
Abs	-0.00332	0.00057	17.3			<KAL

Single values (Abs.): #1: -0.00266 #2: -0.00371 #3: -0.00359 (SEV: 402V)

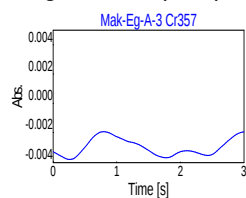


Mak-Eg-A-3	default(1)				Date:	2021-10-27 22:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0314	0.0077	24.4	0.0776	mg/L	<KAL
Conc.2	-0.0314	0.0077	24.4	0.0776	mg/L	<KAL
Abs	-0.00259	0.00044	17.1			<KAL

Single values (Abs.): #1: -0.00301 #2: -0.00264 #3: -0.00213 (SEV: 402V)



Operator:

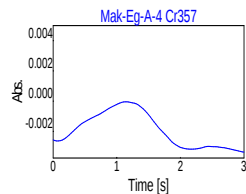
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-A-4	default(1)				Date:	2021-10-27 22:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0255	0.0177	69.2	0.0772	mg/L	<KAL
Conc.2	-0.0255	0.0177	69.2	0.0772	mg/L	<KAL
Abs	-0.00225	0.00102	45.4			<KAL

Single values (Abs.): #1: -0.00194 #2: -0.00142 #3: -0.00340 (SEV: 402V)

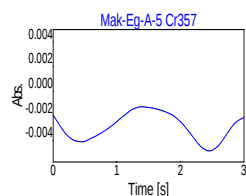


Mak-Eg-A-5	default(1)				Date:	2021-10-27 22:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0244	0.0116	47.4	0.0771	mg/L	<KAL
Conc.2	-0.0244	0.0116	47.4	0.0771	mg/L	<KAL
Abs	-0.00219	0.00067	30.7			<KAL

Single values (Abs.): #1: -0.00292 #2: -0.00160 #3: -0.00205 (SEV: 402V)

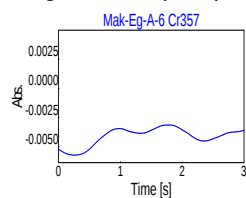


Mak-Eg-A-6	default(1)				Date:	2021-10-27 22:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0538	0.0134	24.9	0.0792	mg/L	<KAL
Conc.2	-0.0538	0.0134	24.9	0.0792	mg/L	<KAL
Abs	-0.00389	0.00078	19.9			<KAL

Single values (Abs.): #1: -0.00412 #2: -0.00303 #3: -0.00453 (SEV: 402V)



Operator:

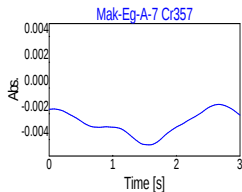
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-A-7	default(1)				Date:	2021-10-27 22:06
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0268	0.0062	23.3	0.0773	mg/L	<KAL
Conc.2	-0.0268	0.0062	23.3	0.0773	mg/L	<KAL
Abs	-0.00233	0.00036	15.5			<KAL

Single values (Abs.): #1: -0.00270 #2: -0.00230 #3: -0.00198 (SEV: 402V)

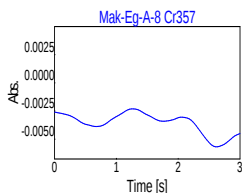


Mak-Eg-A-8	default(1)				Date:	2021-10-27 22:07
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0485	0.0184	37.9	0.0788	mg/L	<KAL
Conc.2	-0.0485	0.0184	37.9	0.0788	mg/L	<KAL
Abs	-0.00359	0.00107	29.7			<KAL

Single values (Abs.): #1: -0.00358 #2: -0.00253 #3: -0.00466 (SEV: 402V)

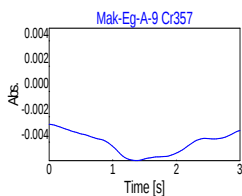


Mak-Eg-A-9	default(1)				Date:	2021-10-27 22:07
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0511	0.0101	19.7	0.0790	mg/L	<KAL
Conc.2	-0.0511	0.0101	19.7	0.0790	mg/L	<KAL
Abs	-0.00374	0.00058	15.6			<KAL

Single values (Abs.): #1: -0.00410 #2: -0.00404 #3: -0.00306 (SEV: 402V)



Operator:

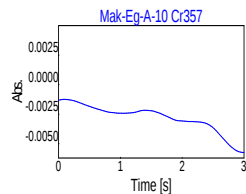
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-A-10	default(1)				Date:	2021-10-27 22:08
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0225	0.0128	56.7	0.0770	mg/L	<KAL
Conc.2	-0.0225	0.0128	56.7	0.0770	mg/L	<KAL
Abs	-0.00208	0.00074	35.6			<KAL

Single values (Abs.): #1: -0.00280 #2: -0.00212 #3: -0.00132 (SEV: 402V)



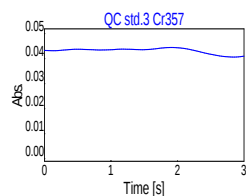
QC std.3	default(1)				Date:	2021-10-27 22:08
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Cr357

Conc.1	0.7815	0.0208	2.7	0.0627	mg/L	
Abs	0.04454	0.00121	2.7			

Single values (Abs.): #1: 0.04319 #2: 0.04549 #3: 0.04495 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 97.7 % OK

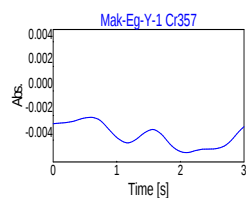


Mak-Eg-Y-1	default(1)				Date:	2021-10-27 22:09
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0416	0.0139	33.4	0.0783	mg/L	<KAL
Conc.2	-0.0416	0.0139	33.4	0.0783	mg/L	<KAL
Abs	-0.00318	0.00080	25.2			<KAL

Single values (Abs.): #1: -0.00364 #2: -0.00226 #3: -0.00366 (SEV: 402V)



Operator:

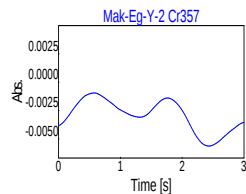
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-Y-2	default(1)				Date:	2021-10-27 22:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0456	0.0121	26.5	0.0786	mg/L	<KAL
Conc.2	-0.0456	0.0121	26.5	0.0786	mg/L	<KAL
Abs	-0.00342	0.00070	20.5			<KAL

Single values (Abs.): #1: -0.00294 #2: -0.00422 #3: -0.00309 (SEV: 402V)

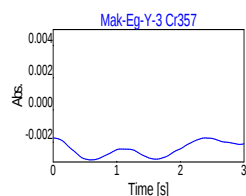


Mak-Eg-Y-3	default(1)				Date:	2021-10-27 22:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0339	0.0047	14.0	0.0778	mg/L	<KAL
Conc.2	-0.0339	0.0047	14.0	0.0778	mg/L	<KAL
Abs	-0.00274	0.00027	10.0			<KAL

Single values (Abs.): #1: -0.00243 #2: -0.00296 #3: -0.00282 (SEV: 402V)

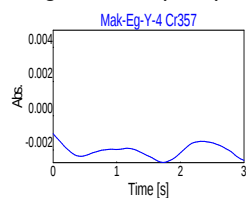


Mak-Eg-Y-4	default(1)				Date:	2021-10-27 22:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0276	0.0096	34.6	0.0773	mg/L	<KAL
Conc.2	-0.0276	0.0096	34.6	0.0773	mg/L	<KAL
Abs	-0.00238	0.00055	23.3			<KAL

Single values (Abs.): #1: -0.00204 #2: -0.00302 #3: -0.00207 (SEV: 402V)



Operator:

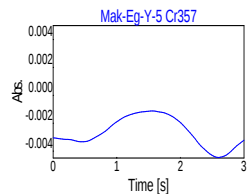
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-Y-5	default(1)				Date:	2021-10-27 22:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0388	0.0141	36.2	0.0781	mg/L	<KAL
Conc.2	-0.0388	0.0141	36.2	0.0781	mg/L	<KAL
Abs	-0.00302	0.00081	27.0			<KAL

Single values (Abs.): #1: -0.00265 #2: -0.00396 #3: -0.00246 (SEV: 402V)

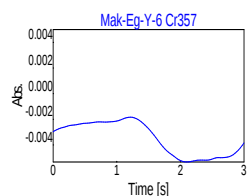


Mak-Eg-Y-6	default(1)				Date:	2021-10-27 22:12
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0214	0.0223	104.2	0.0769	mg/L	<KAL
Conc.2	-0.0214	0.0223	104.2	0.0769	mg/L	<KAL
Abs	-0.00202	0.00130	64.2			<KAL

Single values (Abs.): #1: -0.00349 #2: -0.00148 #3: -0.00107 (SEV: 402V)

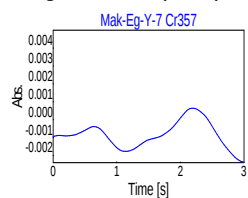


Mak-Eg-Y-7	default(1)				Date:	2021-10-27 22:12
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0141	0.0143	101.5	0.0764	mg/L	<KAL
Conc.2	-0.0141	0.0143	101.5	0.0764	mg/L	<KAL
Abs	-0.00159	0.00083	52.1			<KAL

Single values (Abs.): #1: -0.00086 #2: -0.00143 #3: -0.00249 (SEV: 402V)



Operator:

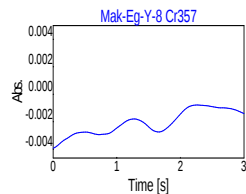
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Eg-Y-8	default(1)				Date:	2021-10-27 22:13
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0181	0.0088	48.4	0.0767	mg/L	<KAL
Conc.2	-0.0181	0.0088	48.4	0.0767	mg/L	<KAL
Abs	-0.00182	0.00051	27.9			<KAL

Single values (Abs.): #1: -0.00207 #2: -0.00216 #3: -0.00124 (SEV: 402V)

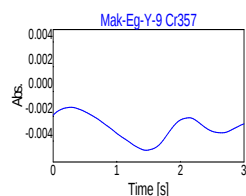


Mak-Eg-Y-9	default(1)				Date:	2021-10-27 22:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0336	0.0031	9.3	0.0778	mg/L	<KAL
Conc.2	-0.0336	0.0031	9.3	0.0778	mg/L	<KAL
Abs	-0.00272	0.00018	6.7			<KAL

Single values (Abs.): #1: -0.00289 #2: -0.00253 #3: -0.00275 (SEV: 402V)

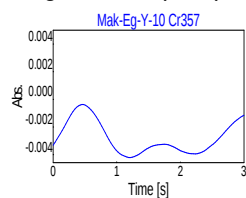


Mak-Eg-Y-10	default(1)				Date:	2021-10-27 22:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0360	0.0037	10.4	0.0779	mg/L	<KAL
Conc.2	-0.0360	0.0037	10.4	0.0779	mg/L	<KAL
Abs	-0.00286	0.00022	7.6			<KAL

Single values (Abs.): #1: -0.00278 #2: -0.00311 #3: -0.00270 (SEV: 402V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.3	default(1)				Date:	2021-10-27 22:15

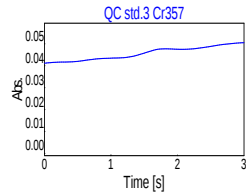
Cr357

Conc.1 0.7822 0.0159 2.0 0.0628 mg/L

Abs 0.04458 0.00092 2.1

Single values (Abs.): #1: 0.04563 #2: 0.04393 #3: 0.04418 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 97.8 % OK



Mak-Meat-1	default(1)				Date:	2021-10-27 22:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.: off		

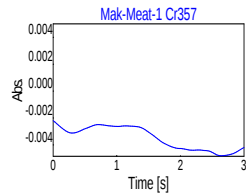
Cr357

Conc.1 -0.0382 0.0095 24.7 0.0781 mg/L <KAL

Conc.2 -0.0382 0.0095 24.7 0.0781 mg/L <KAL

Abs -0.00299 0.00055 18.3 <KAL

Single values (Abs.): #1: -0.00349 #2: -0.00240 #3: -0.00308 (SEV: 402V)



Mak-Meat-2	default(1)				Date:	2021-10-27 22:16
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.: off		

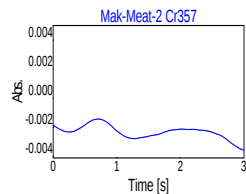
Cr357

Conc.1 -0.0438 0.0330 75.3 0.0785 mg/L <KAL

Conc.2 -0.0438 0.0330 75.3 0.0785 mg/L <KAL

Abs -0.00332 0.00191 57.7 <KAL

Single values (Abs.): #1: -0.00232 #2: -0.00552 #3: -0.00210 (SEV: 402V)



Operator:

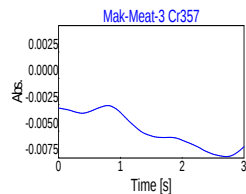
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Meat-3	default(1)				Date:	2021-10-27 22:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0667	0.0099	14.9	0.0801	mg/L	<KAL
Conc.2	-0.0667	0.0099	14.9	0.0801	mg/L	<KAL
Abs	-0.00464	0.00057	12.4			<KAL

Single values (Abs.): #1: -0.00496 #2: -0.00398 #3: -0.00498 (SEV: 402V)

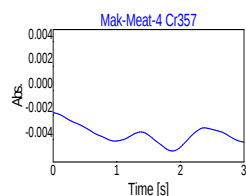


Mak-Meat-4	default(1)				Date:	2021-10-27 22:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0442	0.0093	21.1	0.0785	mg/L	<KAL
Conc.2	-0.0442	0.0093	21.1	0.0785	mg/L	<KAL
Abs	-0.00334	0.00054	16.2			<KAL

Single values (Abs.): #1: -0.00357 #2: -0.00372 #3: -0.00272 (SEV: 402V)

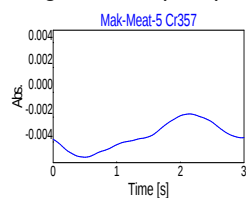


Mak-Meat-5	default(1)				Date:	2021-10-27 22:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0459	0.0017	3.7	0.0786	mg/L	<KAL
Conc.2	-0.0459	0.0017	3.7	0.0786	mg/L	<KAL
Abs	-0.00343	0.00010	2.9			<KAL

Single values (Abs.): #1: -0.00354 #2: -0.00334 #3: -0.00343 (SEV: 402V)



Operator:

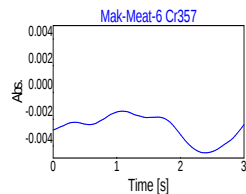
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Meat-6	default(1)				Date:	2021-10-27 22:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0343	0.0050	14.6	0.0778	mg/L	<KAL
Conc.2	-0.0343	0.0050	14.6	0.0778	mg/L	<KAL
Abs	-0.00276	0.00029	10.5			<KAL

Single values (Abs.): #1: -0.00266 #2: -0.00254 #3: -0.00309 (SEV: 402V)

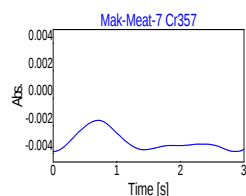


Mak-Meat-7	default(1)				Date:	2021-10-27 22:19
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0272	0.0145	53.1	0.0773	mg/L	<KAL
Conc.2	-0.0272	0.0145	53.1	0.0773	mg/L	<KAL
Abs	-0.00235	0.00084	35.6			<KAL

Single values (Abs.): #1: -0.00316 #2: -0.00241 #3: -0.00149 (SEV: 402V)

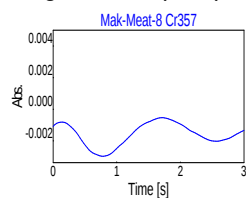


Mak-Meat-8	default(1)				Date:	2021-10-27 22:19
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0211	0.0064	30.3	0.0769	mg/L	<KAL
Conc.2	-0.0211	0.0064	30.3	0.0769	mg/L	<KAL
Abs	-0.00200	0.00037	18.6			<KAL

Single values (Abs.): #1: -0.00158 #2: -0.00230 #3: -0.00211 (SEV: 402V)



Operator:

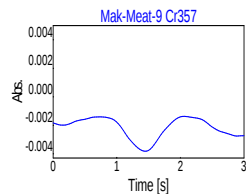
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mak-Meat-9	default(1)				Date:	2021-10-27 22:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0319	0.0103	32.3	0.0777	mg/L	<KAL
Conc.2	-0.0319	0.0103	32.3	0.0777	mg/L	<KAL
Abs	-0.00263	0.00060	22.7			<KAL

Single values (Abs.): #1: -0.00216 #2: -0.00242 #3: -0.00330 (SEV: 402V)



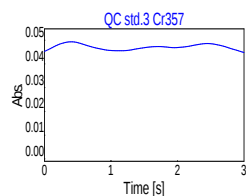
QC std.3	default(1)				Date:	2021-10-27 22:21
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Cr357

Conc.1	0.7973	0.0248	3.1	0.0635	mg/L	
Abs	0.04546	0.00144	3.2			

Single values (Abs.): #1: 0.04712 #2: 0.04454 #3: 0.04472 (SEV: 402V)

QC:Nominal val.=0.8000 mg/L Recovery= 99.7 % OK

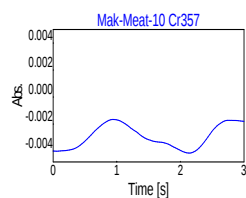


Mak-Meat-10	default(1)				Date:	2021-10-27 22:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cr357

Conc.1	-0.0398	0.0072	18.2	0.0782	mg/L	<KAL
Conc.2	-0.0398	0.0072	18.2	0.0782	mg/L	<KAL
Abs	-0.00308	0.00042	13.6			<KAL

Single values (Abs.): #1: -0.00292 #2: -0.00277 #3: -0.00356 (SEV: 402V)



Operator:

Laboratory:

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 1800-12-28 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Cu324	Cu	324.8	Single-beam	HCL	2	-	1.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Cu324	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Cu324	50	6

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Cu324	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Cu [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.1
3	Cal-Std	80	-	0.2
4	Cal-Std	81	-	0.4
5	Cal-Std	82	-	0.6
6	Cal-Std	83	-	0.8
7	Cal-Std	84	-	1

Operator:

Laboratory:

Statistics Parameters

<i>Statistics:</i>	Mean stat.	<i>CI calc.:</i>	absolute	<i>Confidence level:</i>	95.4%
<i>Repl./sample:</i>	3	<i>Repl./calib.samp</i>	3	<i>Repl./QC:</i>	3
<i>Pre-runs:</i>	0	<i>Grubbs test:</i>	off		

QCS Parameters

<i>Type:</i>	QC std.4	<i>Name:</i>	QC std.4		
<i>Reaction:</i>	flag	<i>Blank correction:</i>	off	<i>Unit:</i>	mg/L

Cu324: 0.6 [-10,+10]%

QCC Parameters

<i>RSD/RR% check:</i>	<i>Calib. check:</i>	<i>Recal. check:</i>
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Operator:

Laboratory:

Results

Results file: C:\Use...\Cu-Maksuda-21-10-31.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	2021-10-31 19:53

Cu324

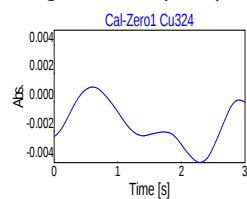
Cal-Zero1	default(1)				Date:	2021-10-31 19:53
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Cu324

Conc.1 0 mg/L

Abs -0.00250 0.00098 39.1

Single values (Abs.): #1: -0.00150 #2: -0.00346 #3: -0.00255 (SEV: 345V)



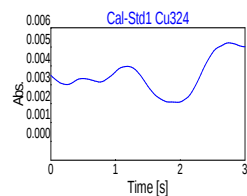
Cal-Std1	default(1)				Date:	2021-10-31 19:54
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Cu324

Conc.1 0.1 mg/L

Abs 0.00475 0.00119 25.0

Single values (Abs.): #1: 0.00346 #2: 0.00499 #3: 0.00580 (SEV: 345V)



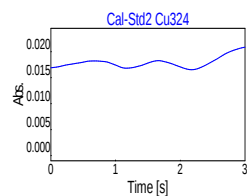
Cal-Std2	default(1)				Date:	2021-10-31 19:54
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Cu324

Conc.1 0.2 mg/L

Abs 0.01773 0.00044 2.5

Single values (Abs.): #1: 0.01788 #2: 0.01806 #3: 0.01723 (SEV: 345V)



Operator:

Laboratory:

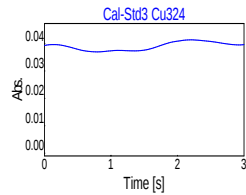
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	2021-10-31 19:55

Cu324

Conc.1 0.4 mg/L

Abs 0.04050 0.00140 3.5

Single values (Abs.): #1: 0.03904 #2: 0.04061 #3: 0.04185 (SEV: 345V)



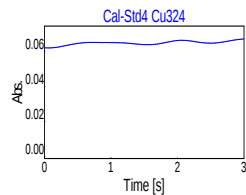
Cal-Std4	default(1)				Date:	2021-10-31 19:56
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Cu324

Conc.1 0.6 mg/L

Abs 0.06543 0.00091 1.4

Single values (Abs.): #1: 0.06489 #2: 0.06647 #3: 0.06491 (SEV: 345V)



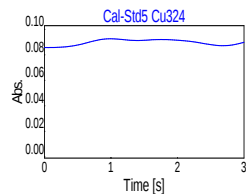
Cal-Std5	default(1)				Date:	2021-10-31 19:56
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Cu324

Conc.1 0.8 mg/L

Abs 0.08826 0.00207 2.3

Single values (Abs.): #1: 0.08972 #2: 0.08916 #3: 0.08589 (SEV: 345V)



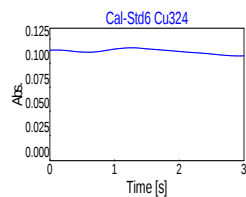
Cal-Std6	default(1)				Date:	2021-10-31 19:57
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Cu324

Conc.1 1 mg/L

Abs 0.11457 0.00221 1.9

Single values (Abs.): #1: 0.11207 #2: 0.11537 #3: 0.11628 (SEV: 345V)



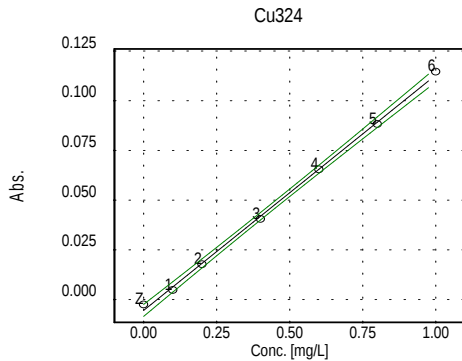
Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Compute calib.	Cu324				Date:	2021-10-31 19:57

Cu324R²(adj.): 0.997791843 Slope: 0.11835 Abs./mg/L Char.conc.: 0.03684 mg/L/1%A

Method SD: 0.01571 y=a+bx a=-.0054505 b=0.1183488 mg/L



Show Cal. plots		Date:	2021-10-31 19:58
QC std.4	default(1)	Date:	2021-10-31 19:58

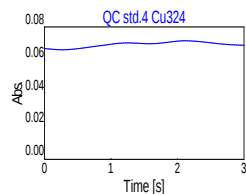
Cu324

Conc.1 0.6066 0.0229 3.8 0.0267 mg/L

Abs 0.06634 0.00271 4.1

Single values (Abs.): #1: 0.06947 #2: 0.06483 #3: 0.06472 (SEV: 345V)

QC:Nominal val.=0.6000 mg/L Recovery=101.1 % OK



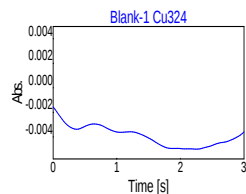
Blank-1	default(1)	Date:	2021-10-31 19:59
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Cu324

Conc.1 0.0242 0.0104 43.2 0.0319 mg/L

Abs -0.00259 0.00124 47.7

Single values (Abs.): #1: -0.00392 #2: -0.00148 #3: -0.00236 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-1	default(1)				Date:	2021-10-31 19:59
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

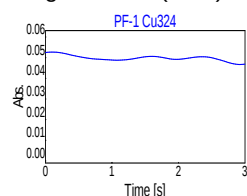
Cu324

Conc.1 0.4759 0.0218 4.6 0.0256 mg/L

Conc.2 0.4759 0.0218 4.6 0.0256 mg/L

Abs 0.05088 0.00258 5.1

Single values (Abs.): #1: 0.04979 #2: 0.05383 #3: 0.04901 (SEV: 345V)



PF-2	default(1)				Date:	2021-10-31 20:00
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

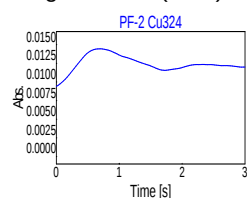
Cu324

Conc.1 0.1581 0.0119 7.5 0.0287 mg/L

Conc.2 0.1581 0.0119 7.5 0.0287 mg/L

Abs 0.01326 0.00141 10.6

Single values (Abs.): #1: 0.01244 #2: 0.01245 #3: 0.01489 (SEV: 345V)



PF-3	default(1)				Date:	2021-10-31 20:00
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

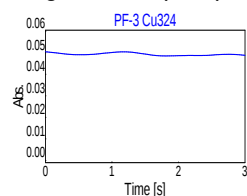
Cu324

Conc.1 0.4695 0.0060 1.3 0.0256 mg/L

Conc.2 0.4695 0.0060 1.3 0.0256 mg/L

Abs 0.05011 0.00072 1.4

Single values (Abs.): #1: 0.04929 #2: 0.05041 #3: 0.05063 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-4	default(1)				Date:	2021-10-31 20:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

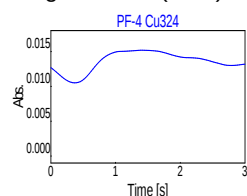
Cu324

Conc.1 0.1530 0.0118 7.7 0.0288 mg/L

Conc.2 0.1530 0.0118 7.7 0.0288 mg/L

Abs 0.01265 0.00140 11.1

Single values (Abs.): #1: 0.01358 #2: 0.01333 #3: 0.01104 (SEV: 345V)



PF-5	default(1)				Date:	2021-10-31 20:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

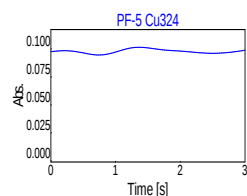
Cu324

Conc.1 0.8810 0.0112 1.3 0.0324 mg/L

Conc.2 0.8810 0.0112 1.3 0.0324 mg/L

Abs 0.09882 0.00133 1.3

Single values (Abs.): #1: 0.09779 #2: 0.09836 #3: 0.10031 (SEV: 345V)



PF-6	default(1)				Date:	2021-10-31 20:02
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

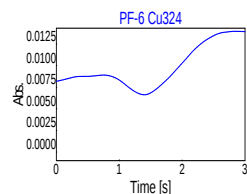
Cu324

Conc.1 0.1333 0.0090 6.8 0.0292 mg/L

Conc.2 0.1333 0.0090 6.8 0.0292 mg/L

Abs 0.01032 0.00107 10.3

Single values (Abs.): #1: 0.00983 #2: 0.00960 #3: 0.01155 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-7	default(1)				Date:	2021-10-31 20:03
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

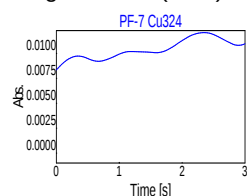
Cu324

Conc.1 0.1451 0.0098 6.7 0.0289 mg/L

Conc.2 0.1451 0.0098 6.7 0.0289 mg/L

Abs 0.01173 0.00116 9.9

Single values (Abs.): #1: 0.01040 #2: 0.01224 #3: 0.01254 (SEV: 345V)



PF-8	default(1)				Date:	2021-10-31 20:03
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

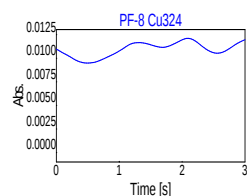
Cu324

Conc.1 0.1511 0.0215 14.2 0.0288 mg/L

Conc.2 0.1511 0.0215 14.2 0.0288 mg/L

Abs 0.01243 0.00254 20.4

Single values (Abs.): #1: 0.01093 #2: 0.01537 #3: 0.01100 (SEV: 345V)



PF-9	default(1)				Date:	2021-10-31 20:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

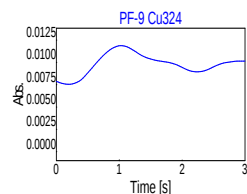
Cu324

Conc.1 0.1355 0.0083 6.1 0.0291 mg/L

Conc.2 0.1355 0.0083 6.1 0.0291 mg/L

Abs 0.01059 0.00099 9.3

Single values (Abs.): #1: 0.00979 #2: 0.01169 #3: 0.01027 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-10	default(1)				Date:	2021-10-31 20:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

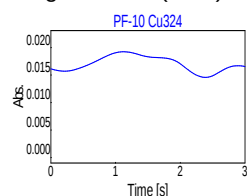
Cu324

Conc.1 0.1959 0.0053 2.7 0.0279 mg/L

Conc.2 0.1959 0.0053 2.7 0.0279 mg/L

Abs 0.01773 0.00062 3.5

Single values (Abs.): #1: 0.01701 #2: 0.01807 #3: 0.01812 (SEV: 345V)



PF-11	default(1)				Date:	2021-10-31 20:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

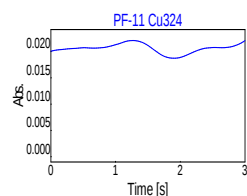
Cu324

Conc.1 0.2105 0.0086 4.1 0.0277 mg/L

Conc.2 0.2105 0.0086 4.1 0.0277 mg/L

Abs 0.01946 0.00102 5.2

Single values (Abs.): #1: 0.02060 #2: 0.01862 #3: 0.01917 (SEV: 345V)



PF-12	default(1)				Date:	2021-10-31 20:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

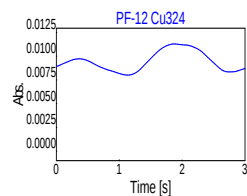
Cu324

Conc.1 0.1344 0.0081 6.0 0.0292 mg/L

Conc.2 0.1344 0.0081 6.0 0.0292 mg/L

Abs 0.01045 0.00095 9.1

Single values (Abs.): #1: 0.00945 #2: 0.01135 #3: 0.01055 (SEV: 345V)



Operator:

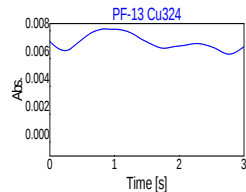
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-13	default(1)				Date:	2021-10-31 20:06
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.1003	0.0106	10.6	0.0299	mg/L
Conc.2	0.1003	0.0106	10.6	0.0299	mg/L
Abs	0.00643	0.00126	19.6		

Single values (Abs.): #1: 0.00716 #2: 0.00714 #3: 0.00497 (SEV: 345V)



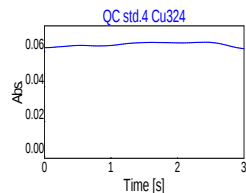
QC std.4	default(1)				Date:	2021-10-31 20:07
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Cu324

Conc.1	0.5944	0.0144	2.4	0.0265	mg/L
Abs	0.06490	0.00170	2.6		

Single values (Abs.): #1: 0.06422 #2: 0.06364 #3: 0.06684 (SEV: 345V)

QC:Nominal val.=0.6000 mg/L Recovery= 99.1 % OK

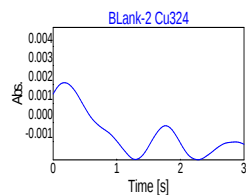


BLank-2	default(1)				Date:	2021-10-31 20:07
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Cu324

Conc.1	0.0306	0.0104	33.9	0.0317	mg/L
Abs	-0.00183	0.00123	66.8		

Single values (Abs.): #1: -0.00058 #2: -0.00303 #3: -0.00190 (SEV: 345V)



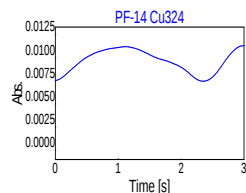
PF-14	default(1)				Date:	2021-10-31 20:08
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Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off
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Cu324

Conc.1	0.1158	0.0132	11.4	0.0296	mg/L
Conc.2	0.1158	0.0132	11.4	0.0296	mg/L
Abs	0.00825	0.00156	18.9		

Single values (Abs.): #1: 0.00965 #2: 0.00854 #3: 0.00656 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-15	default(1)				Date:	2021-10-31 20:08
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

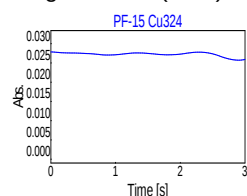
Cu324

Conc.1 0.2558 0.0198 7.7 0.0270 mg/L

Conc.2 0.2558 0.0198 7.7 0.0270 mg/L

Abs 0.02482 0.00234 9.4

Single values (Abs.): #1: 0.02724 #2: 0.02466 #3: 0.02257 (SEV: 345V)



PF-16	default(1)				Date:	2021-10-31 20:09
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

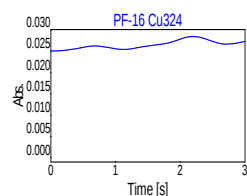
Cu324

Conc.1 0.2630 0.0087 3.3 0.0269 mg/L

Conc.2 0.2630 0.0087 3.3 0.0269 mg/L

Abs 0.02567 0.00103 4.0

Single values (Abs.): #1: 0.02655 #2: 0.02454 #3: 0.02593 (SEV: 345V)



PF-17	default(1)				Date:	2021-10-31 20:09
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

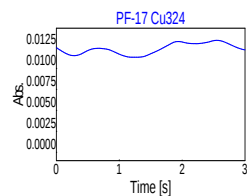
Cu324

Conc.1 0.1545 0.0037 2.4 0.0287 mg/L

Conc.2 0.1545 0.0037 2.4 0.0287 mg/L

Abs 0.01283 0.00044 3.4

Single values (Abs.): #1: 0.01234 #2: 0.01303 #3: 0.01314 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
PF-18	default(1)				Date:	2021-10-31 20:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

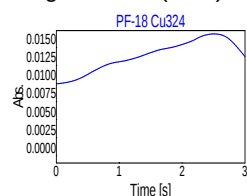
Cu324

Conc.1 0.1589 0.0050 3.1 0.0287 mg/L

Conc.2 0.1589 0.0050 3.1 0.0287 mg/L

Abs 0.01336 0.00059 4.4

Single values (Abs.): #1: 0.01384 #2: 0.01353 #3: 0.01270 (SEV: 345V)



PF-19	default(1)				Date:	2021-10-31 20:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

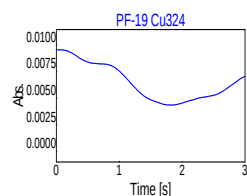
Cu324

Conc.1 0.1042 0.0042 4.0 0.0299 mg/L

Conc.2 0.1042 0.0042 4.0 0.0299 mg/L

Abs 0.00688 0.00050 7.3

Single values (Abs.): #1: 0.00649 #2: 0.00671 #3: 0.00744 (SEV: 345V)



PF-20	default(1)				Date:	2021-10-31 20:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

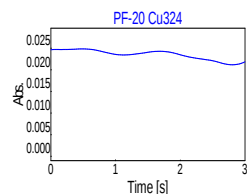
Cu324

Conc.1 0.2462 0.0046 1.9 0.0271 mg/L

Conc.2 0.2462 0.0046 1.9 0.0271 mg/L

Abs 0.02369 0.00055 2.3

Single values (Abs.): #1: 0.02349 #2: 0.02431 #3: 0.02326 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.4	default(1)				Date:	2021-10-31 20:12

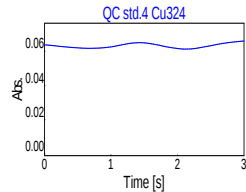
Cu324

Conc.1 0.5998 0.0226 3.8 0.0266 mg/L

Abs 0.06554 0.00268 4.1

Single values (Abs.): #1: 0.06326 #2: 0.06487 #3: 0.06849 (SEV: 345V)

QC:Nominal val.=0.6000 mg/L Recovery=100.0 % OK



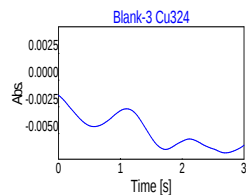
Blank-3	default(1)				Date:	2021-10-31 20:12
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Cu324

Conc.1 0.0180 0.0108 60.2 0.0320 mg/L

Abs -0.00332 0.00128 38.6

Single values (Abs.): #1: -0.00480 #2: -0.00263 #3: -0.00253 (SEV: 345V)



EA-1	default(1)				Date:	2021-10-31 20:13
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

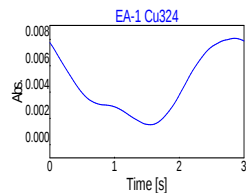
Cu324

Conc.1 0.0725 0.0125 17.2 0.0306 mg/L

Conc.2 0.0725 0.0125 17.2 0.0306 mg/L

Abs 0.00313 0.00147 47.0

Single values (Abs.): #1: 0.00456 #2: 0.00323 #3: 0.00161 (SEV: 345V)



EA-2	default(1)				Date:	2021-10-31 20:13
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

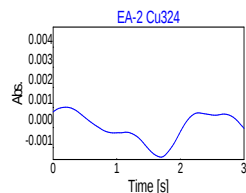
Cu324

Conc.1 0.0521 0.0096 18.4 0.0311 mg/L

Conc.2 0.0521 0.0096 18.4 0.0311 mg/L

Abs 0.00072 0.00114 157.5

Single values (Abs.): #1: 0.00006 #2: 0.00203 #3: 0.00007 (SEV: 345V)



Operator:

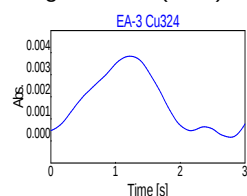
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
EA-3	default(1)				Date:	2021-10-31 20:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0600	0.0035	5.8	0.0309	mg/L
Conc.2	0.0600	0.0035	5.8	0.0309	mg/L
Abs	0.00165	0.00041	24.8		

Single values (Abs.): #1: 0.00171 #2: 0.00202 #3: 0.00121 (SEV: 345V)

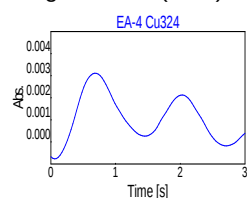


EA-4	default(1)				Date:	2021-10-31 20:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0565	0.0043	7.6	0.0310	mg/L
Conc.2	0.0565	0.0043	7.6	0.0310	mg/L
Abs	0.00124	0.00051	41.1		

Single values (Abs.): #1: 0.00104 #2: 0.00181 #3: 0.00085 (SEV: 345V)

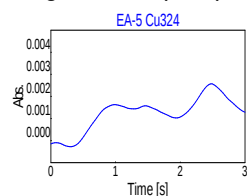


EA-5	default(1)				Date:	2021-10-31 20:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0505	0.0053	10.5	0.0312	mg/L
Conc.2	0.0505	0.0053	10.5	0.0312	mg/L
Abs	0.00052	0.00063	120.5		

Single values (Abs.): #1: 0.00123 #2: 0.00003 #3: 0.00031 (SEV: 345V)



Operator:

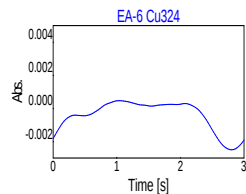
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
EA-6	default(1)				Date:	2021-10-31 20:16
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0396	0.0030	7.6	0.0315	mg/L
Conc.2	0.0396	0.0030	7.6	0.0315	mg/L
Abs	-0.00077	0.00035	46.2		

Single values (Abs.): #1: -0.00043 #2: -0.00113 #3: -0.00074 (SEV: 345V)

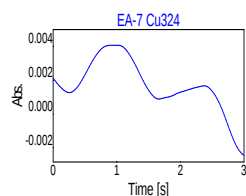


EA-7	default(1)				Date:	2021-10-31 20:16
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0515	0.0077	15.0	0.0311	mg/L
Conc.2	0.0515	0.0077	15.0	0.0311	mg/L
Abs	0.00065	0.00092	141.9		

Single values (Abs.): #1: 0.00168 #2: -0.00008 #3: 0.00034 (SEV: 345V)

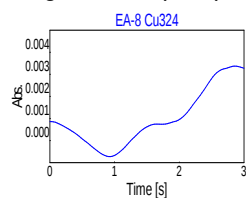


EA-8	default(1)				Date:	2021-10-31 20:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0487	0.0056	11.4	0.0312	mg/L
Conc.2	0.0487	0.0056	11.4	0.0312	mg/L
Abs	0.00031	0.00066	210.2		

Single values (Abs.): #1: 0.00099 #2: -0.00032 #3: 0.00026 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.4	default(1)				Date:	2021-10-31 20:18

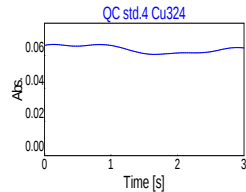
Cu324

Conc.1 0.6042 0.0182 3.0 0.0266 mg/L

Abs 0.06605 0.00215 3.3

Single values (Abs.): #1: 0.06389 #2: 0.06819 #3: 0.06607 (SEV: 345V)

QC:Nominal val.=0.6000 mg/L Recovery=100.7 % OK



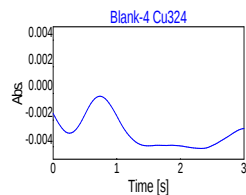
Blank-4	default(1)				Date:	2021-10-31 20:18
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Cu324

Conc.1 0.0185 0.0035 18.8 0.0320 mg/L

Abs -0.00327 0.00041 12.6

Single values (Abs.): #1: -0.00292 #2: -0.00315 #3: -0.00372 (SEV: 345V)



EA-9	default(1)				Date:	2021-10-31 20:19
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

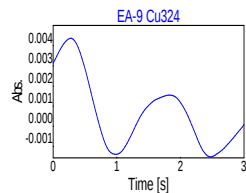
Cu324

Conc.1 0.0522 0.0039 7.4 0.0311 mg/L

Conc.2 0.0522 0.0039 7.4 0.0311 mg/L

Abs 0.00073 0.00046 62.3

Single values (Abs.): #1: 0.00066 #2: 0.00122 #3: 0.00032 (SEV: 345V)



EA-10	default(1)				Date:	2021-10-31 20:19
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

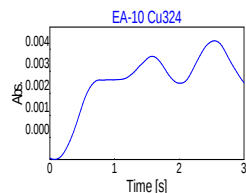
Cu324

Conc.1 0.0621 0.0058 9.4 0.0309 mg/L

Conc.2 0.0621 0.0058 9.4 0.0309 mg/L

Abs 0.00189 0.00069 36.4

Single values (Abs.): #1: 0.00251 #2: 0.00202 #3: 0.00115 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
EY-1	default(1)				Date:	2021-10-31 20:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

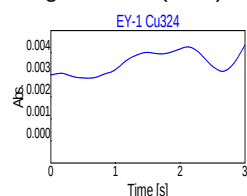
Cu324

Conc.1 0.0788 0.0061 7.8 0.0305 mg/L

Conc.2 0.0788 0.0061 7.8 0.0305 mg/L

Abs 0.00387 0.00073 18.7

Single values (Abs.): #1: 0.00353 #2: 0.00471 #3: 0.00338 (SEV: 345V)



EY-2	default(1)				Date:	2021-10-31 20:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

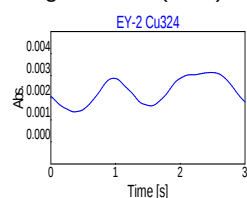
Cu324

Conc.1 0.0607 0.0052 8.6 0.0309 mg/L

Conc.2 0.0607 0.0052 8.6 0.0309 mg/L

Abs 0.00174 0.00062 35.7

Single values (Abs.): #1: 0.00231 #2: 0.00183 #3: 0.00108 (SEV: 345V)



EY-3	default(1)				Date:	2021-10-31 20:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

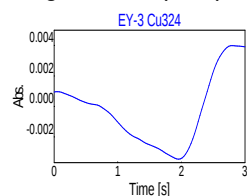
Cu324

Conc.1 0.0577 0.0122 21.1 0.0310 mg/L

Conc.2 0.0577 0.0122 21.1 0.0310 mg/L

Abs 0.00138 0.00144 104.3

Single values (Abs.): #1: -0.00028 #2: 0.00209 #3: 0.00234 (SEV: 345V)



Operator:

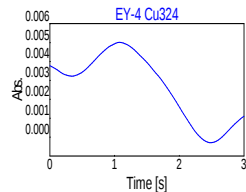
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
EY-4	default(1)				Date:	2021-10-31 20:22
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0677	0.0091	13.5	0.0307	mg/L
Conc.2	0.0677	0.0091	13.5	0.0307	mg/L
Abs	0.00256	0.00108	42.3		

Single values (Abs.): #1: 0.00265 #2: 0.00143 #3: 0.00359 (SEV: 345V)

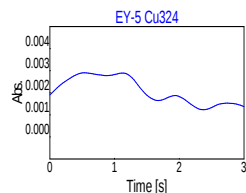


EY-5	default(1)				Date:	2021-10-31 20:22
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0613	0.0062	10.1	0.0309	mg/L
Conc.2	0.0613	0.0062	10.1	0.0309	mg/L
Abs	0.00181	0.00074	40.7		

Single values (Abs.): #1: 0.00209 #2: 0.00097 #3: 0.00235 (SEV: 345V)

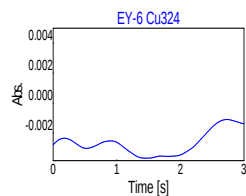


EY-6	default(1)				Date:	2021-10-31 20:23
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0334	0.0088	26.3	0.0316	mg/L
Conc.2	0.0334	0.0088	26.3	0.0316	mg/L
Abs	-0.00150	0.00104	69.5		

Single values (Abs.): #1: -0.00268 #2: -0.00072 #3: -0.00109 (SEV: 345V)



Operator:

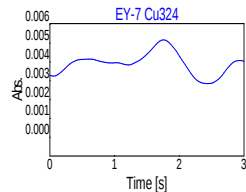
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
EY-7	default(1)				Date:	2021-10-31 20:23
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0726	0.0058	8.0	0.0306	mg/L
Conc.2	0.0726	0.0058	8.0	0.0306	mg/L
Abs	0.00314	0.00069	21.8		

Single values (Abs.): #1: 0.00391 #2: 0.00260 #3: 0.00292 (SEV: 345V)

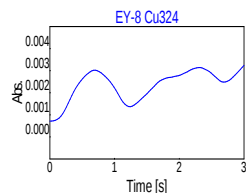


EY-8	default(1)				Date:	2021-10-31 20:24
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0604	0.0063	10.4	0.0309	mg/L
Conc.2	0.0604	0.0063	10.4	0.0309	mg/L
Abs	0.00169	0.00074	43.9		

Single values (Abs.): #1: 0.00235 #2: 0.00184 #3: 0.00089 (SEV: 345V)

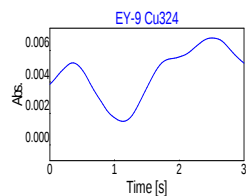


EY-9	default(1)				Date:	2021-10-31 20:24
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0730	0.0124	17.0	0.0306	mg/L
Conc.2	0.0730	0.0124	17.0	0.0306	mg/L
Abs	0.00318	0.00146	46.0		

Single values (Abs.): #1: 0.00456 #2: 0.00164 #3: 0.00335 (SEV: 345V)



Operator:

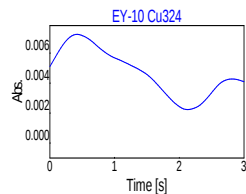
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
EY-10	default(1)				Date:	2021-10-31 20:25
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0742	0.0122	16.4	0.0306	mg/L
Conc.2	0.0742	0.0122	16.4	0.0306	mg/L
Abs	0.00333	0.00144	43.4		

Single values (Abs.): #1: 0.00471 #2: 0.00183 #3: 0.00346 (SEV: 345V)

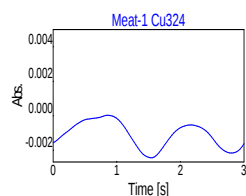


Meat-1	default(1)				Date:	2021-10-31 20:26
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0424	0.0075	17.6	0.0314	mg/L
Conc.2	0.0424	0.0075	17.6	0.0314	mg/L
Abs	-0.00043	0.00088	203.4		

Single values (Abs.): #1: -0.00110 #2: -0.00076 #3: 0.00057 (SEV: 345V)

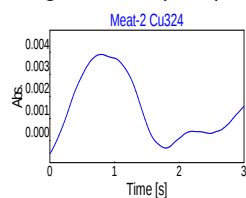


Meat-2	default(1)				Date:	2021-10-31 20:26
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0574	0.0005	0.9	0.0310	mg/L
Conc.2	0.0574	0.0005	0.9	0.0310	mg/L
Abs	0.00135	0.00006	4.7		

Single values (Abs.): #1: 0.00141 #2: 0.00134 #3: 0.00128 (SEV: 345V)



Operator:

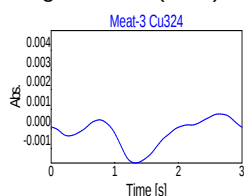
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Meat-3	default(1)				Date:	2021-10-31 20:27
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0564	0.0125	22.1	0.0310	mg/L
Conc.2	0.0564	0.0125	22.1	0.0310	mg/L
Abs	0.00122	0.00148	120.9		

Single values (Abs.): #1: -0.00017 #2: 0.00106 #3: 0.00277 (SEV: 345V)

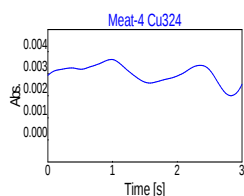


Meat-4	default(1)				Date:	2021-10-31 20:27
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0641	0.0068	10.7	0.0308	mg/L
Conc.2	0.0641	0.0068	10.7	0.0308	mg/L
Abs	0.00214	0.00081	37.8		

Single values (Abs.): #1: 0.00300 #2: 0.00140 #3: 0.00201 (SEV: 345V)

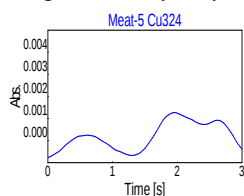


Meat-5	default(1)				Date:	2021-10-31 20:28
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0553	0.0073	13.3	0.0311	mg/L
Conc.2	0.0553	0.0073	13.3	0.0311	mg/L
Abs	0.00109	0.00087	79.5		

Single values (Abs.): #1: 0.00021 #2: 0.00195 #3: 0.00111 (SEV: 345V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.4	default(1)				Date:	2021-10-31 20:28

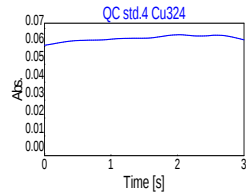
Cu324

Conc.1 0.6045 0.0128 2.1 0.0266 mg/L

Abs 0.06609 0.00152 2.3

Single values (Abs.): #1: 0.06447 #2: 0.06748 #3: 0.06633 (SEV: 345V)

QC:Nominal val.=0.6000 mg/L Recovery=100.8 % OK



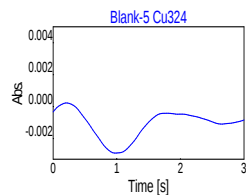
Blank-5	default(1)				Date:	2021-10-31 20:29
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Cu324

Conc.1 0.0302 0.0094 31.2 0.0317 mg/L

Abs -0.00187 0.00112 59.7

Single values (Abs.): #1: -0.00107 #2: -0.00315 #3: -0.00140 (SEV: 345V)



Meat-6	default(1)				Date:	2021-10-31 20:30
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

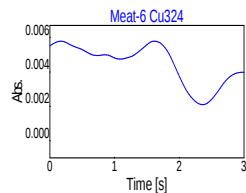
Cu324

Conc.1 0.0687 0.0137 20.0 0.0307 mg/L

Conc.2 0.0687 0.0137 20.0 0.0307 mg/L

Abs 0.00268 0.00163 60.7

Single values (Abs.): #1: 0.00448 #2: 0.00223 #3: 0.00132 (SEV: 345V)



Meat-7	default(1)				Date:	2021-10-31 20:30
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

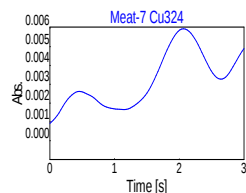
Cu324

Conc.1 0.0704 0.0066 9.3 0.0307 mg/L

Conc.2 0.0704 0.0066 9.3 0.0307 mg/L

Abs 0.00288 0.00078 27.0

Single values (Abs.): #1: 0.00319 #2: 0.00200 #3: 0.00346 (SEV: 345V)



Operator:

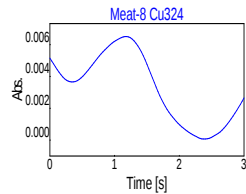
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Meat-8	default(1)				Date:	2021-10-31 20:31
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0656	0.0127	19.4	0.0308	mg/L
Conc.2	0.0656	0.0127	19.4	0.0308	mg/L
Abs	0.00231	0.00150	65.1		

Single values (Abs.): #1: 0.00324 #2: 0.00311 #3: 0.00058 (SEV: 345V)

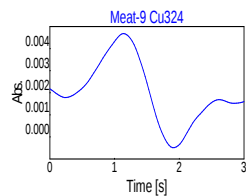


Meat-9	default(1)				Date:	2021-10-31 20:31
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0629	0.0184	29.2	0.0309	mg/L
Conc.2	0.0629	0.0184	29.2	0.0309	mg/L
Abs	0.00200	0.00218	109.0		

Single values (Abs.): #1: 0.00199 #2: -0.00018 #3: 0.00418 (SEV: 345V)

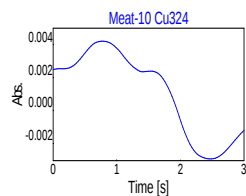


Meat-10	default(1)				Date:	2021-10-31 20:32
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Cu324

Conc.1	0.0590	0.0116	19.6	0.0310	mg/L
Conc.2	0.0590	0.0116	19.6	0.0310	mg/L
Abs	0.00154	0.00137	89.1		

Single values (Abs.): #1: 0.00109 #2: 0.00307 #3: 0.00045 (SEV: 345V)



Operator: Tazul

Laboratory: Chem.

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 12/28/1800 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Pb217	Pb	217.0	Single-beam	HCL	2	-	1.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Pb217	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Pb217	65	6

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Pb217	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Pb [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.2
3	Cal-Std	80	-	0.4
4	Cal-Std	81	-	0.8
5	Cal-Std	82	-	1

Statistics Parameters

Statistics: Mean stat.

CI calc.: absolute

Confidence level: 95.4%

Operator: Tazul

Laboratory: Agri. Chem.

Repl./sample: 3

Repl./calib.samp 3

Repl./QC: 3

Pre-runs: 0

Grubbs test: off

QCS Parameters

Type: QC std.2

Name: QC std.2

Reaction: flag

Blank correction: off

Unit: mg/L

Pb217: 0.4 [-10,+10]%

QCC Parameters

RSD/RR% check:

Calib. check:

Recal. check:

Operator: Tazul

Laboratory: Chem.

Results

Results file: C:\Doc...\20210829_Noman_Mir_MB_Pb-.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	8/28/2021 22:34

Pb217

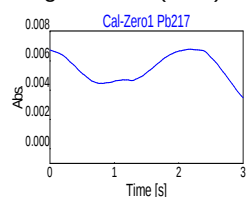
Cal-Zero1	default(1)				Date:	8/28/2021 22:34
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Pb217

Conc.1 0 mg/L

Abs 0.00292 0.00229 78.1

Single values (Abs.): #1: 0.00552 #2: 0.00206 #3: 0.00120 (SEV: 521V)



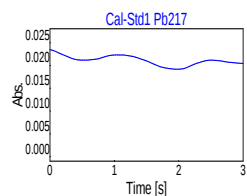
Cal-Std1	default(1)				Date:	8/28/2021 22:35
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Pb217

Conc.1 0.2 mg/L

Abs 0.02027 0.00195 9.6

Single values (Abs.): #1: 0.02110 #2: 0.02167 #3: 0.01804 (SEV: 521V)



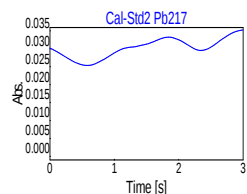
Cal-Std2	default(1)				Date:	8/28/2021 22:35
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Pb217

Conc.1 0.4 mg/L

Abs 0.03250 0.00205 6.3

Single values (Abs.): #1: 0.03018 #2: 0.03324 #3: 0.03408 (SEV: 521V)



Operator: Tazul

Laboratory: Chem.

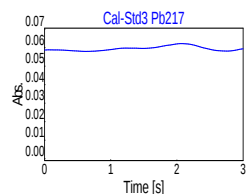
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	8/28/2021 22:36

Pb217

Conc.1 0.8 mg/L

Abs 0.06078 0.00160 2.6

Single values (Abs.): #1: 0.05944 #2: 0.06256 #3: 0.06034 (SEV: 521V)



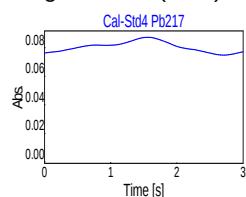
Cal-Std4	default(1)				Date:	8/28/2021 22:37
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Pb217

Conc.1 1 mg/L

Abs 0.07961 0.00121 1.5

Single values (Abs.): #1: 0.08041 #2: 0.08020 #3: 0.07822 (SEV: 521V)

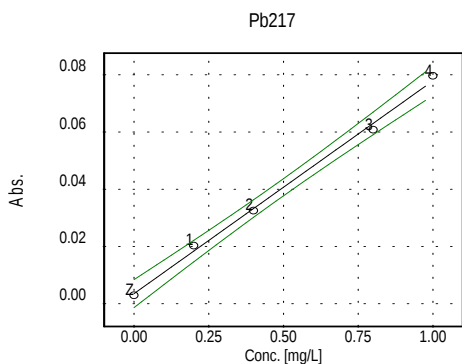


Compute calib.	Pb217				Date:	8/28/2021 22:37
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Pb217R²(adj.): 0.993492141 Slope: 0.07437 Abs./mg/L Char.conc.: 0.05862 mg/L/1%A

Method SD: 0.02736 y=a+bx a=0.0035186 b=0.0743721

mg/L



Show Cal. plots					Date:	8/28/2021 22:37
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QC std.2	default(1)				Date:	8/28/2021 22:37
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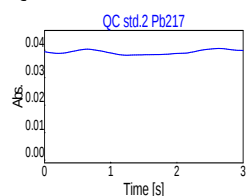
Pb217

Conc.1 0.4878 0.0197 4.0 0.0569 mg/L

Abs 0.03980 0.00147 3.7

Single values (Abs.): #1: 0.03929 #2: 0.03865 #3: 0.04145 (SEV: 521V)

QC:Nominal val.=0.4000 mg/L Recovery=122.0 % ! no react.



Operator: Tazul

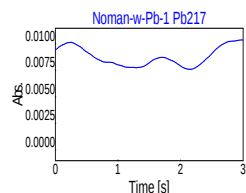
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-w-Pb-1	default(1)				Date:	8/28/2021 22:38
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.0859	0.0188	21.9	0.0712	mg/L
Conc.2	0.0859	0.0188	21.9	0.0712	mg/L
Abs	0.00990	0.00140	14.1		

Single values (Abs.): #1: 0.00879 #2: 0.00945 #3: 0.01147 (SEV: 521V)

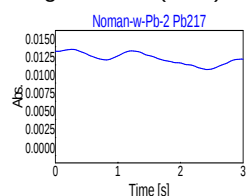


Noman-w-Pb-2	default(1)				Date:	8/28/2021 22:38
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1364	0.0145	10.6	0.0680	mg/L
Conc.2	0.1364	0.0145	10.6	0.0680	mg/L
Abs	0.01366	0.00108	7.9		

Single values (Abs.): #1: 0.01338 #2: 0.01485 #3: 0.01275 (SEV: 521V)

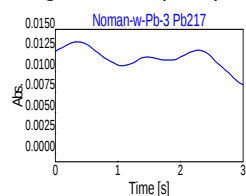


Noman-w-Pb-3	default(1)				Date:	8/28/2021 22:39
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1012	0.0256	25.3	0.0702	mg/L
Conc.2	0.1012	0.0256	25.3	0.0702	mg/L
Abs	0.01104	0.00191	17.3		

Single values (Abs.): #1: 0.01172 #2: 0.01252 #3: 0.00889 (SEV: 521V)



Operator: Tazul

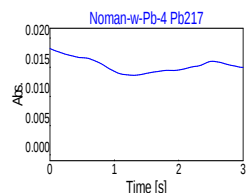
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-w-Pb-4	default(1)				Date:	8/28/2021 22:40
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1651	0.0114	6.9	0.0664	mg/L
Conc.2	0.1651	0.0114	6.9	0.0664	mg/L
Abs	0.01580	0.00084	5.3		

Single values (Abs.): #1: 0.01531 #2: 0.01677 #3: 0.01531 (SEV: 521V)

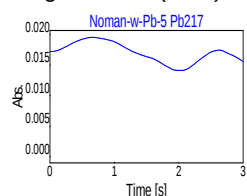


Noman-w-Pb-5	default(1)				Date:	8/28/2021 22:40
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1732	0.0119	6.9	0.0659	mg/L
Conc.2	0.1732	0.0119	6.9	0.0659	mg/L
Abs	0.01640	0.00089	5.4		

Single values (Abs.): #1: 0.01705 #2: 0.01539 #3: 0.01676 (SEV: 521V)

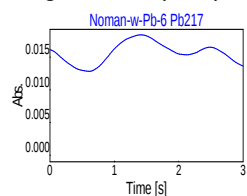


Noman-w-Pb-6	default(1)				Date:	8/28/2021 22:41
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1525	0.0105	6.9	0.0671	mg/L
Conc.2	0.1525	0.0105	6.9	0.0671	mg/L
Abs	0.01486	0.00078	5.2		

Single values (Abs.): #1: 0.01564 #2: 0.01485 #3: 0.01409 (SEV: 521V)



Operator: Tazul

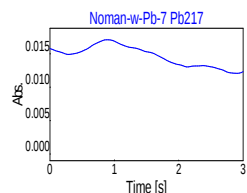
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-w-Pb-7	default(1)				Date:	8/28/2021 22:41
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1778	0.0250	14.1	0.0657	mg/L
Conc.2	0.1778	0.0250	14.1	0.0657	mg/L
Abs	0.01674	0.00186	11.1		

Single values (Abs.): #1: 0.01461 #2: 0.01808 #3: 0.01752 (SEV: 521V)

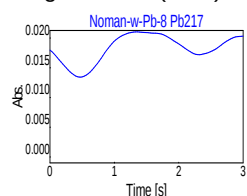


Noman-w-Pb-8	default(1)				Date:	8/29/2021 20:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1927	0.0113	5.9	0.0649	mg/L
Conc.2	0.1927	0.0113	5.9	0.0649	mg/L
Abs	0.01785	0.00084	4.7		

Single values (Abs.): #1: 0.01824 #2: 0.01842 #3: 0.01689 (SEV: 521V)

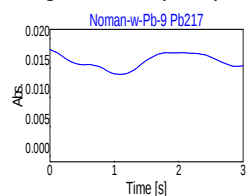


Noman-w-Pb-9	default(1)				Date:	8/29/2021 20:01
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1719	0.0050	2.9	0.0660	mg/L
Conc.2	0.1719	0.0050	2.9	0.0660	mg/L
Abs	0.01630	0.00037	2.3		

Single values (Abs.): #1: 0.01615 #2: 0.01672 #3: 0.01602 (SEV: 521V)



Operator: Tazul

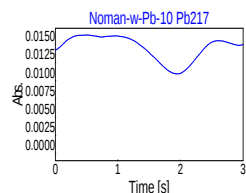
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-w-Pb-10	default(1)				Date:	8/29/2021 20:02
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1682	0.0243	14.4	0.0662	mg/L
Conc.2	0.1682	0.0243	14.4	0.0662	mg/L
Abs	0.01603	0.00181	11.3		

Single values (Abs.): #1: 0.01457 #2: 0.01805 #3: 0.01548 (SEV: 521V)

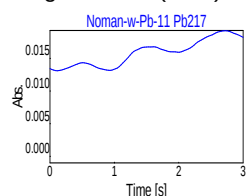


Noman-w-Pb-11	default(1)				Date:	8/29/2021 20:02
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1727	0.0135	7.8	0.0660	mg/L
Conc.2	0.1727	0.0135	7.8	0.0660	mg/L
Abs	0.01636	0.00100	6.1		

Single values (Abs.): #1: 0.01583 #2: 0.01752 #3: 0.01573 (SEV: 521V)



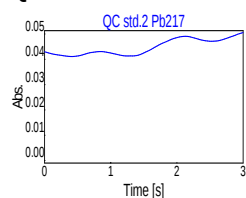
QC std.2	default(1)				Date:	8/29/2021 20:03
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Pb217

Conc.1	0.5231	0.0277	5.3	0.0571	mg/L
Abs	0.04242	0.00206	4.8		

Single values (Abs.): #1: 0.04477 #2: 0.04156 #3: 0.04093 (SEV: 521V)

QC:Nominal val.=0.4000 mg/L Recovery=130.8 % ! no react.



Operator: Tazul

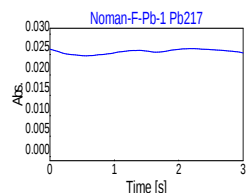
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-F-Pb-1	default(1)				Date:	8/29/2021 20:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3016	0.0175	5.8	0.0601	mg/L
Conc.2	0.3016	0.0175	5.8	0.0601	mg/L
Abs	0.02595	0.00130	5.0		

Single values (Abs.): #1: 0.02570 #2: 0.02479 #3: 0.02736 (SEV: 521V)

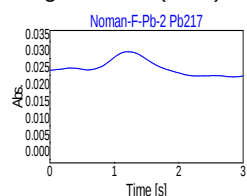


Noman-F-Pb-2	default(1)				Date:	8/29/2021 20:04
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3399	0.0219	6.5	0.0589	mg/L
Conc.2	0.3399	0.0219	6.5	0.0589	mg/L
Abs	0.02880	0.00163	5.7		

Single values (Abs.): #1: 0.02718 #2: 0.03044 #3: 0.02878 (SEV: 521V)

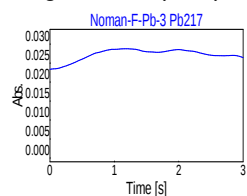


Noman-F-Pb-3	default(1)				Date:	8/29/2021 20:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3090	0.0085	2.8	0.0599	mg/L
Conc.2	0.3090	0.0085	2.8	0.0599	mg/L
Abs	0.02650	0.00064	2.4		

Single values (Abs.): #1: 0.02723 #2: 0.02614 #3: 0.02613 (SEV: 521V)



Operator: Tazul

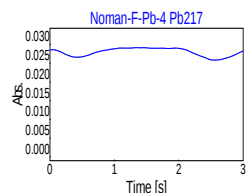
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Noman-F-Pb-4	default(1)				Date:	8/29/2021 20:05
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3206	0.0070	2.2	0.0595	mg/L
Conc.2	0.3206	0.0070	2.2	0.0595	mg/L
Abs	0.02736	0.00052	1.9		

Single values (Abs.): #1: 0.02796 #2: 0.02698 #3: 0.02716 (SEV: 521V)

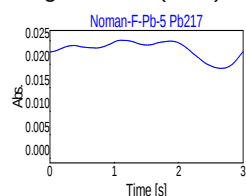


Noman-F-Pb-5	default(1)				Date:	8/29/2021 20:06
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2756	0.0270	9.8	0.0611	mg/L
Conc.2	0.2756	0.0270	9.8	0.0611	mg/L
Abs	0.02402	0.00201	8.4		

Single values (Abs.): #1: 0.02309 #2: 0.02265 #3: 0.02632 (SEV: 521V)



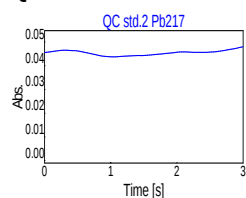
QC std.2	default(1)				Date:	8/29/2021 20:07
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Pb217

Conc.1	0.5566	0.0187	3.4	0.0575	mg/L
Abs	0.04492	0.00139	3.1		

Single values (Abs.): #1: 0.04544 #2: 0.04597 #3: 0.04334 (SEV: 521V)

QC:Nominal val.=0.4000 mg/L Recovery=139.2 % ! no react.



Operator: Tazul

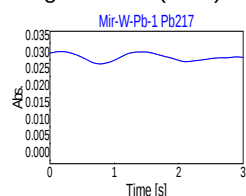
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-Pb-1	default(1)				Date:	8/29/2021 20:07
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3509	0.0144	4.1	0.0586	mg/L
Conc.2	0.3509	0.0144	4.1	0.0586	mg/L
Abs	0.02961	0.00107	3.6		

Single values (Abs.): #1: 0.03077 #2: 0.02865 #3: 0.02942 (SEV: 521V)

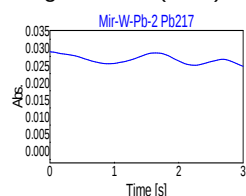


Mir-W-Pb-2	default(1)				Date:	8/29/2021 20:08
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3830	0.0363	9.5	0.0579	mg/L
Conc.2	0.3830	0.0363	9.5	0.0579	mg/L
Abs	0.03200	0.00270	8.4		

Single values (Abs.): #1: 0.02912 #2: 0.03449 #3: 0.03240 (SEV: 521V)

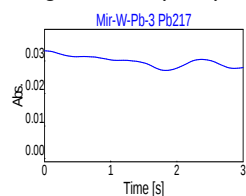


Mir-W-Pb-3	default(1)				Date:	8/29/2021 20:08
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3687	0.0129	3.5	0.0582	mg/L
Conc.2	0.3687	0.0129	3.5	0.0582	mg/L
Abs	0.03094	0.00096	3.1		

Single values (Abs.): #1: 0.02988 #2: 0.03119 #3: 0.03174 (SEV: 521V)



Operator: Tazul

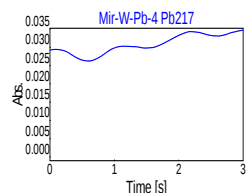
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-Pb-4	default(1)				Date:	8/29/2021 20:09
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3761	0.0109	2.9	0.0580	mg/L
Conc.2	0.3761	0.0109	2.9	0.0580	mg/L
Abs	0.03149	0.00081	2.6		

Single values (Abs.): #1: 0.03080 #2: 0.03128 #3: 0.03239 (SEV: 521V)

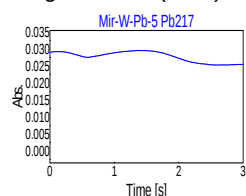


Mir-W-Pb-5	default(1)				Date:	8/29/2021 20:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3583	0.0006	0.2	0.0584	mg/L
Conc.2	0.3583	0.0006	0.2	0.0584	mg/L
Abs	0.03017	0.00005	0.2		

Single values (Abs.): #1: 0.03022 #2: 0.03014 #3: 0.03014 (SEV: 521V)

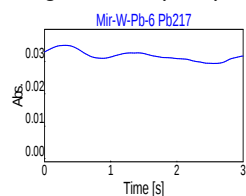


Mir-W-Pb-6	default(1)				Date:	8/29/2021 20:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3629	0.0215	5.9	0.0583	mg/L
Conc.2	0.3629	0.0215	5.9	0.0583	mg/L
Abs	0.03051	0.00160	5.2		

Single values (Abs.): #1: 0.03176 #2: 0.03104 #3: 0.02871 (SEV: 521V)



Operator: Tazul

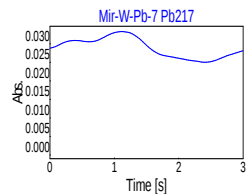
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-Pb-7	default(1)				Date:	8/29/2021 20:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3374	0.0032	1.0	0.0590	mg/L
Conc.2	0.3374	0.0032	1.0	0.0590	mg/L
Abs	0.02862	0.00024	0.8		

Single values (Abs.): #1: 0.02889 #2: 0.02842 #3: 0.02854 (SEV: 521V)

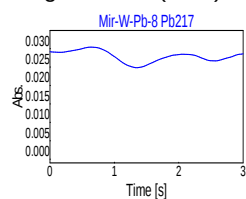


Mir-W-Pb-8	default(1)				Date:	8/29/2021 20:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3283	0.0031	0.9	0.0593	mg/L
Conc.2	0.3283	0.0031	0.9	0.0593	mg/L
Abs	0.02793	0.00023	0.8		

Single values (Abs.): #1: 0.02790 #2: 0.02772 #3: 0.02818 (SEV: 521V)

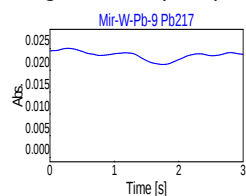


Mir-W-Pb-9	default(1)				Date:	8/29/2021 20:12
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3194	0.0449	14.1	0.0595	mg/L
Conc.2	0.3194	0.0449	14.1	0.0595	mg/L
Abs	0.02727	0.00334	12.2		

Single values (Abs.): #1: 0.02348 #2: 0.02980 #3: 0.02853 (SEV: 521V)



Operator: Tazul

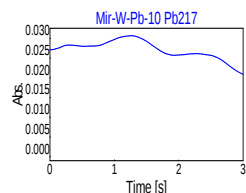
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-Pb-10	default(1)				Date:	8/29/2021 20:12
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3138	0.0085	2.7	0.0597	mg/L
Conc.2	0.3138	0.0085	2.7	0.0597	mg/L
Abs	0.02685	0.00063	2.4		

Single values (Abs.): #1: 0.02712 #2: 0.02613 #3: 0.02731 (SEV: 521V)

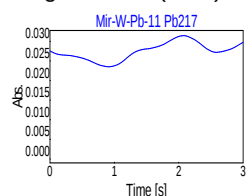


Mir-W-Pb-11	default(1)				Date:	8/29/2021 20:13
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3061	0.0336	11.0	0.0600	mg/L
Conc.2	0.3061	0.0336	11.0	0.0600	mg/L
Abs	0.02629	0.00250	9.5		

Single values (Abs.): #1: 0.02742 #2: 0.02802 #3: 0.02342 (SEV: 521V)

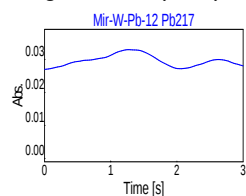


Mir-W-Pb-12	default(1)				Date:	8/29/2021 20:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3589	0.0159	4.4	0.0584	mg/L
Conc.2	0.3589	0.0159	4.4	0.0584	mg/L
Abs	0.03021	0.00118	3.9		

Single values (Abs.): #1: 0.02961 #2: 0.03158 #3: 0.02945 (SEV: 521V)



Operator: Tazul

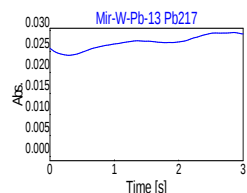
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Mir-W-Pb-13	default(1)				Date:	8/29/2021 20:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3278	0.0110	3.4	0.0593	mg/L
Conc.2	0.3278	0.0110	3.4	0.0593	mg/L
Abs	0.02790	0.00082	2.9		

Single values (Abs.): #1: 0.02711 #2: 0.02874 #3: 0.02783 (SEV: 521V)

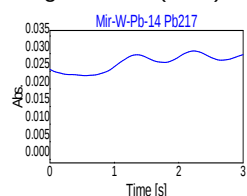


Mir-W-Pb-14	default(1)				Date:	8/29/2021 20:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3268	0.0053	1.6	0.0593	mg/L
Conc.2	0.3268	0.0053	1.6	0.0593	mg/L
Abs	0.02782	0.00039	1.4		

Single values (Abs.): #1: 0.02738 #2: 0.02812 #3: 0.02797 (SEV: 521V)



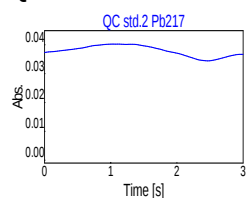
QC std.2	default(1)				Date:	8/29/2021 20:15
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Pb217

Conc.1	0.4689	0.0096	2.0	0.0569	mg/L
Abs	0.03839	0.00071	1.9		

Single values (Abs.): #1: 0.03789 #2: 0.03808 #3: 0.03920 (SEV: 521V)

QC:Nominal val.=0.4000 mg/L Recovery=117.2 % ! no react.



Operator: Tazul

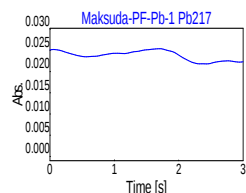
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:16
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2533	0.0166	6.5	0.0620	mg/L
Conc.2	0.2533	0.0166	6.5	0.0620	mg/L
Abs	0.02236	0.00123	5.5		

Single values (Abs.): #1: 0.02375 #2: 0.02142 #3: 0.02190 (SEV: 521V)

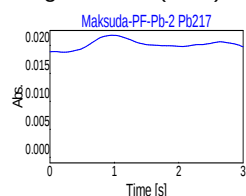


Maksuda-PF-Pb-2	default(1)				Date:	8/29/2021 20:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2175	0.0122	5.6	0.0636	mg/L
Conc.2	0.2175	0.0122	5.6	0.0636	mg/L
Abs	0.01969	0.00091	4.6		

Single values (Abs.): #1: 0.02021 #2: 0.01864 #3: 0.02022 (SEV: 521V)

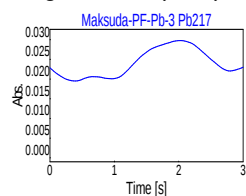


Maksuda-PF-Pb-3	default(1)				Date:	8/29/2021 20:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2654	0.0253	9.5	0.0615	mg/L
Conc.2	0.2654	0.0253	9.5	0.0615	mg/L
Abs	0.02326	0.00188	8.1		

Single values (Abs.): #1: 0.02393 #2: 0.02471 #3: 0.02113 (SEV: 521V)



Operator: Tazul

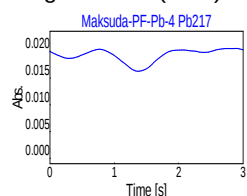
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-4	default(1)				Date:	8/29/2021 20:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2110	0.0262	12.4	0.0640	mg/L
Conc.2	0.2110	0.0262	12.4	0.0640	mg/L
Abs	0.01921	0.00195	10.1		

Single values (Abs.): #1: 0.01928 #2: 0.02113 #3: 0.01724 (SEV: 521V)

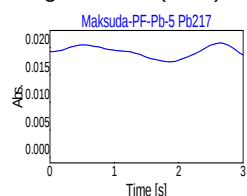


Maksuda-PF-Pb-5	default(1)				Date:	8/29/2021 20:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2283	0.0245	10.7	0.0631	mg/L
Conc.2	0.2283	0.0245	10.7	0.0631	mg/L
Abs	0.02050	0.00182	8.9		

Single values (Abs.): #1: 0.01924 #2: 0.01966 #3: 0.02258 (SEV: 521V)

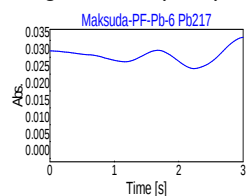


Maksuda-PF-Pb-6	default(1)				Date:	8/29/2021 20:19
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.3768	0.0135	3.6	0.0580	mg/L
Conc.2	0.3768	0.0135	3.6	0.0580	mg/L
Abs	0.03154	0.00101	3.2		

Single values (Abs.): #1: 0.03041 #2: 0.03233 #3: 0.03189 (SEV: 521V)



Operator: Tazul

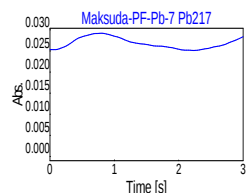
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-7	default(1)				Date:	8/29/2021 20:19
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2985	0.0127	4.3	0.0602	mg/L
Conc.2	0.2985	0.0127	4.3	0.0602	mg/L
Abs	0.02572	0.00095	3.7		

Single values (Abs.): #1: 0.02681 #2: 0.02515 #3: 0.02520 (SEV: 521V)

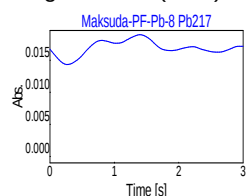


Maksuda-PF-Pb-8	default(1)				Date:	8/29/2021 20:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1860	0.0100	5.4	0.0652	mg/L
Conc.2	0.1860	0.0100	5.4	0.0652	mg/L
Abs	0.01736	0.00074	4.3		

Single values (Abs.): #1: 0.01691 #2: 0.01694 #3: 0.01821 (SEV: 521V)

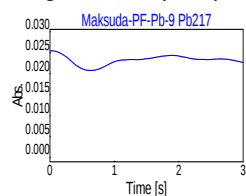


Maksuda-PF-Pb-9	default(1)				Date:	8/29/2021 20:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2456	0.0413	16.8	0.0623	mg/L
Conc.2	0.2456	0.0413	16.8	0.0623	mg/L
Abs	0.02178	0.00307	14.1		

Single values (Abs.): #1: 0.02326 #2: 0.01825 #3: 0.02384 (SEV: 521V)



Operator: Tazul

Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

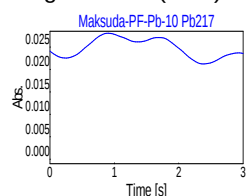
Pb217

Conc.1 0.2747 0.0305 11.1 0.0611 mg/L

Conc.2 0.2747 0.0305 11.1 0.0611 mg/L

Abs 0.02395 0.00227 9.5

Single values (Abs.): #1: 0.02473 #2: 0.02572 #3: 0.02139 (SEV: 521V)



QC std.2	default(1)				Date:	8/29/2021 20:22
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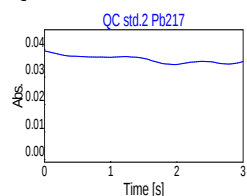
Pb217

Conc.1 0.4489 0.0086 1.9 0.0570 mg/L

Abs 0.03690 0.00064 1.7

Single values (Abs.): #1: 0.03646 #2: 0.03661 #3: 0.03763 (SEV: 521V)

QC:Nominal val.=0.4000 mg/L Recovery=112.2 % ! no react.



Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:22
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

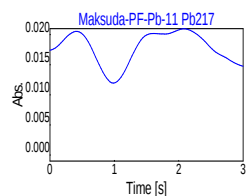
Pb217

Conc.1 0.2141 0.0264 12.3 0.0638 mg/L

Conc.2 0.2141 0.0264 12.3 0.0638 mg/L

Abs 0.01944 0.00196 10.1

Single values (Abs.): #1: 0.01782 #2: 0.02162 #3: 0.01888 (SEV: 521V)



Operator: Tazul

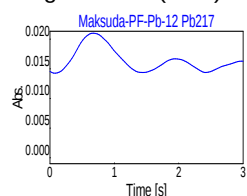
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:23
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1894	0.0165	8.7	0.0651	mg/L
Conc.2	0.1894	0.0165	8.7	0.0651	mg/L
Abs	0.01761	0.00122	7.0		

Single values (Abs.): #1: 0.01639 #2: 0.01884 #3: 0.01758 (SEV: 521V)

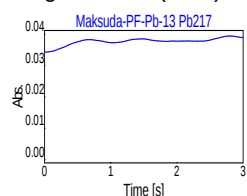


Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:24
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.4388	0.0181	4.1	0.0571	mg/L
Conc.2	0.4388	0.0181	4.1	0.0571	mg/L
Abs	0.03616	0.00135	3.7		

Single values (Abs.): #1: 0.03770 #2: 0.03555 #3: 0.03522 (SEV: 521V)

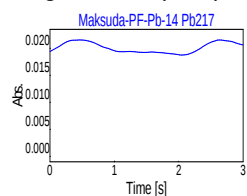


Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:24
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2339	0.0104	4.4	0.0629	mg/L
Conc.2	0.2339	0.0104	4.4	0.0629	mg/L
Abs	0.02091	0.00077	3.7		

Single values (Abs.): #1: 0.02013 #2: 0.02168 #3: 0.02093 (SEV: 521V)



Operator: Tazul

Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-15	default(1)				Date:	8/29/2021 20:25
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

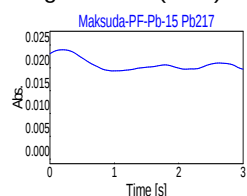
Pb217

Conc.1 0.2570 0.0242 9.4 0.0618 mg/L

Conc.2 0.2570 0.0242 9.4 0.0618 mg/L

Abs 0.02263 0.00180 7.9

Single values (Abs.): #1: 0.02076 #2: 0.02435 #3: 0.02279 (SEV: 521V)



Maksuda-PF-Pb-16	default(1)				Date:	8/29/2021 20:25
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

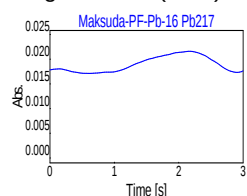
Pb217

Conc.1 0.1862 0.0182 9.8 0.0652 mg/L

Conc.2 0.1862 0.0182 9.8 0.0652 mg/L

Abs 0.01737 0.00135 7.8

Single values (Abs.): #1: 0.01892 #2: 0.01646 #3: 0.01672 (SEV: 521V)



Maksuda-PF-Pb-17	default(1)				Date:	8/29/2021 20:26
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

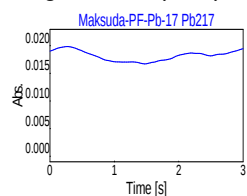
Pb217

Conc.1 0.1904 0.0121 6.3 0.0650 mg/L

Conc.2 0.1904 0.0121 6.3 0.0650 mg/L

Abs 0.01768 0.00090 5.1

Single values (Abs.): #1: 0.01819 #2: 0.01664 #3: 0.01820 (SEV: 521V)



Operator: Tazul

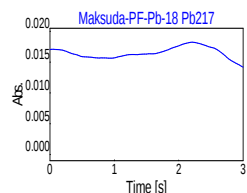
Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:26
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1757	0.0091	5.2	0.0658	mg/L
Conc.2	0.1757	0.0091	5.2	0.0658	mg/L
Abs	0.01658	0.00068	4.1		

Single values (Abs.): #1: 0.01650 #2: 0.01595 #3: 0.01730 (SEV: 521V)

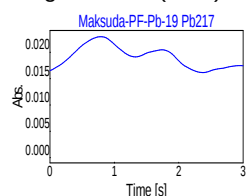


Maksuda-PF-Pb-1	default(1)				Date:	8/29/2021 20:27
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2144	0.0045	2.1	0.0638	mg/L
Conc.2	0.2144	0.0045	2.1	0.0638	mg/L
Abs	0.01947	0.00034	1.7		

Single values (Abs.): #1: 0.01910 #2: 0.01976 #3: 0.01954 (SEV: 521V)

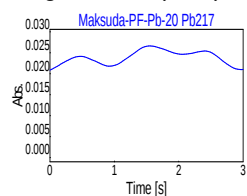


Maksuda-PF-Pb-2	default(1)				Date:	8/29/2021 20:28
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2579	0.0137	5.3	0.0618	mg/L
Conc.2	0.2579	0.0137	5.3	0.0618	mg/L
Abs	0.02270	0.00102	4.5		

Single values (Abs.): #1: 0.02386 #2: 0.02225 #3: 0.02198 (SEV: 521V)



Operator: Tazul

Laboratory: Chem.

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.2	default(1)				Date:	8/29/2021 20:28

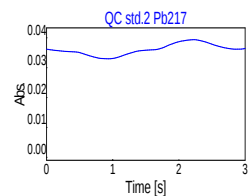
Pb217

Conc.1 0.4659 0.0269 5.8 0.0569 mg/L

Abs 0.03817 0.00200 5.2

Single values (Abs.): #1: 0.03607 #2: 0.04005 #3: 0.03839 (SEV: 521V)

QC:Nominal val.=0.4000 mg/L Recovery=116.5 % ! no react.



Operator:

Laboratory:

Method Parameters Technique: Flame

Name: (Method is not saved)

Version: 1

Created: 1800-12-28 0:00

Operator:

Comment:

Lines

Line	Elem.	Wavel. [nm]	Optic. mode	Lamp	Current [mA]	Boost [mA]	Slit [nm]	Meas time. [s]	PMT [V]
Pb217	Pb	217.0	Single-beam	HCL	2	-	1.2	3.0	300

Evaluation/Background correction

Line	Background	Int.mode	AZDK	Smooth	D2 cur. [mA]	HC/BC rat.
Pb217	no background	Mean	off	on	-	-

Flame Parameters

Type: C2H2/air

Ox. control: off

Burner type: 100 mm

Burner angle: 0 deg

Nebulizer rate: 0 mL/min

Line	C2H2/air [L/h]	Burner height [mm]
Pb217	65	6

Sample Transport

Autosampler: Yes

Delay time: 5 s

Dilution if conc.
exceeded: none

Injection switch: No

Wash: after sample

Wash time: 5 s

Mixing cup cycles: 1

Calibration

Method: std. cal.

Std. prep.: manual

Calibration Curve Parameters

Line	Calib.func..	Intercept	Weighting	Check	Unit
Pb217	linear	calculate	none	none	mg/L

Calibration table

No.	Type	Pos	Rec	Pb [mg/L]
1	Cal-Zero	78	-	0
2	Cal-Std	79	-	0.1
3	Cal-Std	80	-	0.2
4	Cal-Std	81	-	0.4
5	Cal-Std	82	-	0.6
6	Cal-Std	83	-	0.8
7	Cal-Std	84	-	1

Operator:

Laboratory:

Statistics Parameters

<i>Statistics:</i>	Mean stat.	<i>CI calc.:</i>	absolute	<i>Confidence level:</i>	95.4%
<i>Repl./sample:</i>	3	<i>Repl./calib.samp</i>	3	<i>Repl./QC:</i>	3
<i>Pre-runs:</i>	0	<i>Grubbs test:</i>	off		

QCS Parameters

<i>Type:</i>	QC std.3	<i>Name:</i>	QC std.3		
<i>Reaction:</i>	flag	<i>Blank correction:</i>	off	<i>Unit:</i>	mg/L

Pb217: 0.4 [-10,+10]%

QCC Parameters

<i>RSD/RR% check:</i>	<i>Calib. check:</i>	<i>Recal. check:</i>
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Operator:

Laboratory:

Results

Results file: C:\Use...\Pb-Mir-Mak-2021-12-26-4.tps

Instrument: novAA 400P
#140n4P1059

Technique: Flame

Comment:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Autozero	default(1)				Date:	2021-12-26 19:05

Pb217

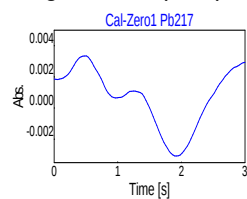
Cal-Zero1	default(1)				Date:	2021-12-26 19:05
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Pb217

Conc.1 0 mg/L

Abs 0.00149 0.00106 71.2

Single values (Abs.): #1: 0.00071 #2: 0.00106 #3: 0.00270 (SEV: 566V)



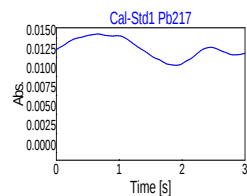
Cal-Std1	default(1)				Date:	2021-12-26 19:06
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Pb217

Conc.1 0.1 mg/L

Abs 0.01315 0.00094 7.1

Single values (Abs.): #1: 0.01367 #2: 0.01207 #3: 0.01372 (SEV: 566V)



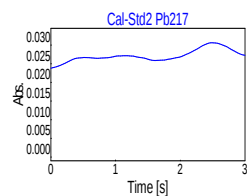
Cal-Std2	default(1)				Date:	2021-12-26 19:06
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Pb217

Conc.1 0.2 mg/L

Abs 0.02769 0.00085 3.1

Single values (Abs.): #1: 0.02716 #2: 0.02867 #3: 0.02724 (SEV: 566V)



Operator:

Laboratory:

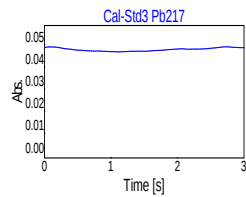
Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Cal-Std3	default(1)				Date:	2021-12-26 19:07

Pb217

Conc.1 0.4 mg/L

Abs 0.04851 0.00069 1.4

Single values (Abs.): #1: 0.04779 #2: 0.04917 #3: 0.04858 (SEV: 566V)



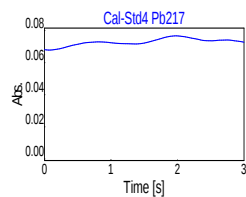
Cal-Std4	default(1)				Date:	2021-12-26 19:08
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Pb217

Conc.1 0.6 mg/L

Abs 0.07457 0.00147 2.0

Single values (Abs.): #1: 0.07289 #2: 0.07521 #3: 0.07562 (SEV: 566V)



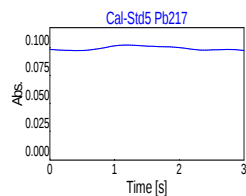
Cal-Std5	default(1)				Date:	2021-12-26 19:08
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Pb217

Conc.1 0.8 mg/L

Abs 0.09924 0.00033 0.3

Single values (Abs.): #1: 0.09948 #2: 0.09937 #3: 0.09886 (SEV: 566V)



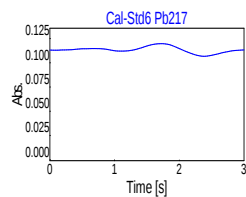
Cal-Std6	default(1)				Date:	2021-12-26 19:09
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Pb217

Conc.1 1 mg/L

Abs 0.11584 0.00352 3.0

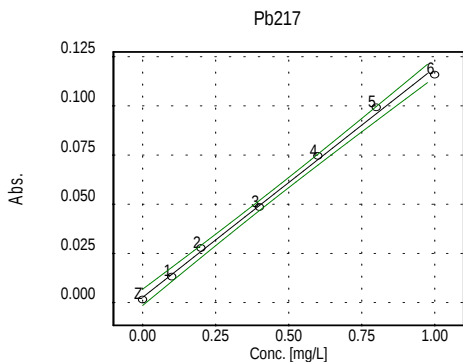
Single values (Abs.): #1: 0.11333 #2: 0.11434 #3: 0.11987 (SEV: 566V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Compute calib.	Pb217				Date:	2021-12-26 19:09

Pb217R²(adj.): 0.995727044 Slope: 0.11674 Abs./mg/L Char.conc.: 0.03735 mg/L/1%AMethod SD: 0.02187 y=a+bx a=0.0026583 b=0.1167410
mg/L

Show Cal. plots		Date:	2021-12-26 19:09
QC std.3	default(1)	Date:	2021-12-26 19:10

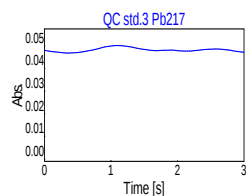
Pb217

Conc.1 0.4037 0.0116 2.9 0.0357 mg/L

Abs 0.04979 0.00135 2.7

Single values (Abs.): #1: 0.04823 #2: 0.05056 #3: 0.05058 (SEV: 566V)

QC:Nominal val.=0.4000 mg/L Recovery=100.9 % OK



Pb-Mir-Soil-1	default(1)	Date:			2021-12-26 19:10
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off

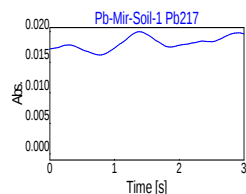
Pb217

Conc.1 0.1257 0.0074 5.9 0.0409 mg/L

Conc.2 0.1257 0.0074 5.9 0.0409 mg/L

Abs 0.01733 0.00087 5.0

Single values (Abs.): #1: 0.01813 #2: 0.01745 #3: 0.01641 (SEV: 566V)



Operator:

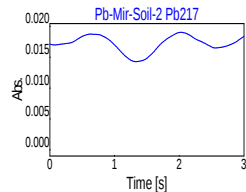
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mir-Soil-2	default(1)				Date:	2021-12-26 19:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1351	0.0108	8.0	0.0406	mg/L
Conc.2	0.1351	0.0108	8.0	0.0406	mg/L
Abs	0.01844	0.00127	6.9		

Single values (Abs.): #1: 0.01718 #2: 0.01972 #3: 0.01841 (SEV: 566V)

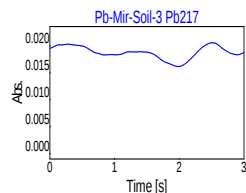


Pb-Mir-Soil-3	default(1)				Date:	2021-12-26 19:11
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1374	0.0053	3.9	0.0405	mg/L
Conc.2	0.1374	0.0053	3.9	0.0405	mg/L
Abs	0.01870	0.00062	3.3		

Single values (Abs.): #1: 0.01879 #2: 0.01927 #3: 0.01804 (SEV: 566V)

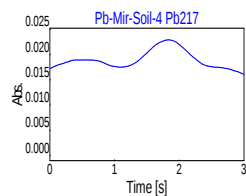


Pb-Mir-Soil-4	default(1)				Date:	2021-12-26 19:12
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1272	0.0109	8.6	0.0408	mg/L
Conc.2	0.1272	0.0109	8.6	0.0408	mg/L
Abs	0.01751	0.00127	7.3		

Single values (Abs.): #1: 0.01894 #2: 0.01711 #3: 0.01649 (SEV: 566V)



Operator:

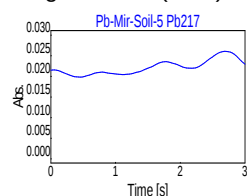
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mir-Soil-5	default(1)				Date:	2021-12-26 19:13
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1509	0.0146	9.7	0.0401	mg/L
Conc.2	0.1509	0.0146	9.7	0.0401	mg/L
Abs	0.02028	0.00170	8.4		

Single values (Abs.): #1: 0.02219 #2: 0.01893 #3: 0.01972 (SEV: 566V)

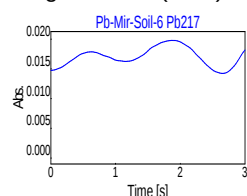


Pb-Mir-Soil-6	default(1)				Date:	2021-12-26 19:13
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1406	0.0197	14.0	0.0404	mg/L
Conc.2	0.1406	0.0197	14.0	0.0404	mg/L
Abs	0.01907	0.00230	12.1		

Single values (Abs.): #1: 0.01701 #2: 0.02155 #3: 0.01865 (SEV: 566V)

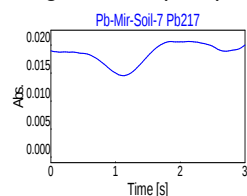


Pb-Mir-Soil-7	default(1)				Date:	2021-12-26 19:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1451	0.0104	7.2	0.0403	mg/L
Conc.2	0.1451	0.0104	7.2	0.0403	mg/L
Abs	0.01960	0.00121	6.2		

Single values (Abs.): #1: 0.01851 #2: 0.01938 #3: 0.02091 (SEV: 566V)



Operator:

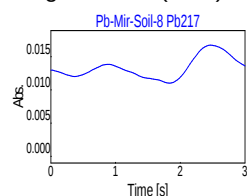
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mir-Soil-8	default(1)				Date:	2021-12-26 19:14
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1148	0.0222	19.4	0.0412	mg/L
Conc.2	0.1148	0.0222	19.4	0.0412	mg/L
Abs	0.01606	0.00260	16.2		

Single values (Abs.): #1: 0.01332 #2: 0.01849 #3: 0.01636 (SEV: 566V)

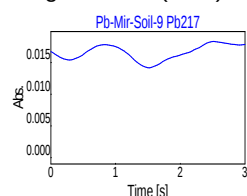


Pb-Mir-Soil-9	default(1)				Date:	2021-12-26 19:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1207	0.0018	1.5	0.0410	mg/L
Conc.2	0.1207	0.0018	1.5	0.0410	mg/L
Abs	0.01675	0.00021	1.2		

Single values (Abs.): #1: 0.01658 #2: 0.01698 #3: 0.01670 (SEV: 566V)

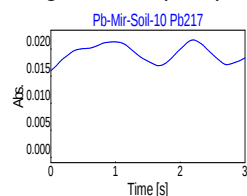


Pb-Mir-Soil-10	default(1)				Date:	2021-12-26 19:15
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1392	0.0112	8.0	0.0405	mg/L
Conc.2	0.1392	0.0112	8.0	0.0405	mg/L
Abs	0.01890	0.00131	6.9		

Single values (Abs.): #1: 0.01921 #2: 0.01747 #3: 0.02003 (SEV: 566V)



Operator:

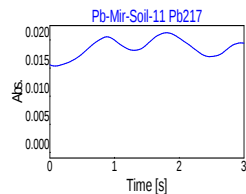
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mir-Soil-11	default(1)				Date:	2021-12-26 19:16
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1429	0.0115	8.1	0.0404	mg/L
Conc.2	0.1429	0.0115	8.1	0.0404	mg/L
Abs	0.01934	0.00135	7.0		

Single values (Abs.): #1: 0.01861 #2: 0.01853 #3: 0.02090 (SEV: 566V)

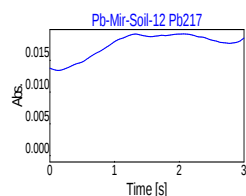


Pb-Mir-Soil-12	default(1)				Date:	2021-12-26 19:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1199	0.0095	7.9	0.0411	mg/L
Conc.2	0.1199	0.0095	7.9	0.0411	mg/L
Abs	0.01666	0.00110	6.6		

Single values (Abs.): #1: 0.01742 #2: 0.01539 #3: 0.01717 (SEV: 566V)

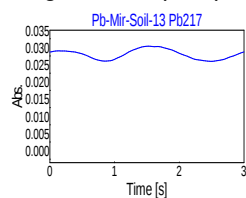


Pb-Mir-Soil-13	default(1)				Date:	2021-12-26 19:17
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.2348	0.0057	2.4	0.0380	mg/L
Conc.2	0.2348	0.0057	2.4	0.0380	mg/L
Abs	0.03007	0.00067	2.2		

Single values (Abs.): #1: 0.03045 #2: 0.03047 #3: 0.02930 (SEV: 566V)



Operator:

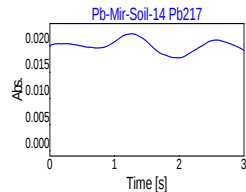
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mir-Soil-14	default(1)				Date:	2021-12-26 19:18
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.1406	0.0076	5.4	0.0404	mg/L
Conc.2	0.1406	0.0076	5.4	0.0404	mg/L
Abs	0.01907	0.00089	4.7		

Single values (Abs.): #1: 0.02010 #2: 0.01857 #3: 0.01855 (SEV: 566V)



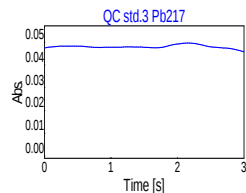
QC std.3	default(1)				Date:	2021-12-26 19:18
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Pb217

Conc.1	0.3825	0.0068	1.8	0.0358	mg/L
Abs	0.04731	0.00079	1.7		

Single values (Abs.): #1: 0.04803 #2: 0.04743 #3: 0.04647 (SEV: 566V)

QC:Nominal val.=0.4000 mg/L Recovery= 95.6 % OK

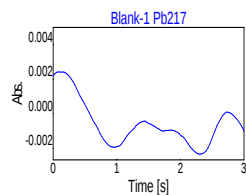


Blank-1	default(1)				Date:	2021-12-26 19:19
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Pb217

Conc.1	-0.0321	0.0061	18.9	0.0466	mg/L	<KAL
Abs	-0.00109	0.00071	65.1			<KAL

Single values (Abs.): #1: -0.00056 #2: -0.00081 #3: -0.00189 (SEV: 566V)



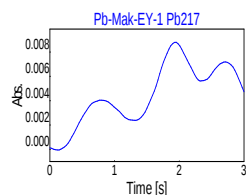
Pb-Mak-EY-1	default(1)				Date:	2021-12-26 19:20
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Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	
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Pb217

Conc.1	-0.0042	0.0191	450.2	0.0455	mg/L	<KAL
Conc.2	-0.0042	0.0191	450.2	0.0455	mg/L	<KAL
Abs	0.00216	0.00223	103.0			<KAL

Single values (Abs.): #1: 0.00447 #2: 0.00199 #3: 0.00002 (SEV: 566V)



Operator:

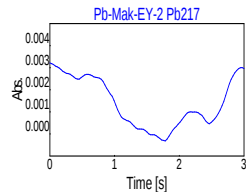
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mak-EY-2	default(1)				Date:	2021-12-26 19:20
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0027	0.0136	499.3	0.0454	mg/L	<KAL
Conc.2	-0.0027	0.0136	499.3	0.0454	mg/L	<KAL
Abs	0.00234	0.00159	67.7			<KAL

Single values (Abs.): #1: 0.00142 #2: 0.00143 #3: 0.00417 (SEV: 566V)

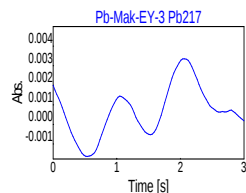


Pb-Mak-EY-3	default(1)				Date:	2021-12-26 19:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0146	0.0023	15.4	0.0459	mg/L	<KAL
Conc.2	-0.0146	0.0023	15.4	0.0459	mg/L	<KAL
Abs	0.00095	0.00026	27.7			<KAL

Single values (Abs.): #1: 0.00070 #2: 0.00093 #3: 0.00122 (SEV: 566V)

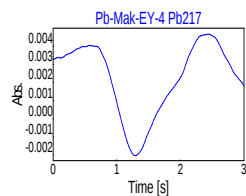


Pb-Mak-EY-4	default(1)				Date:	2021-12-26 19:21
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.0018	0.0090	489.6	0.0452	mg/L	<KAL
Conc.2	0.0018	0.0090	489.6	0.0452	mg/L	<KAL
Abs	0.00287	0.00105	36.6			<KAL

Single values (Abs.): #1: 0.00230 #2: 0.00224 #3: 0.00409 (SEV: 566V)



Operator:

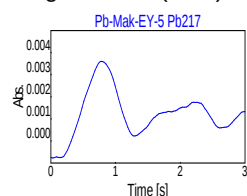
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mak-EY-5	default(1)				Date:	2021-12-26 19:22
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0258	0.0117	45.2	0.0463	mg/L	<KAL
Conc.2	-0.0258	0.0117	45.2	0.0463	mg/L	<KAL
Abs	-0.00035	0.00136	385.6			<KAL

Single values (Abs.): #1: 0.00121 #2: -0.00100 #3: -0.00127 (SEV: 566V)

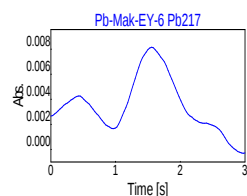


Pb-Mak-EY-6	default(1)				Date:	2021-12-26 19:23
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0096	0.0143	149.2	0.0457	mg/L	<KAL
Conc.2	-0.0096	0.0143	149.2	0.0457	mg/L	<KAL
Abs	0.00154	0.00166	107.9			<KAL

Single values (Abs.): #1: 0.00346 #2: 0.00064 #3: 0.00053 (SEV: 566V)

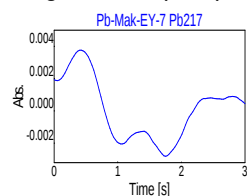


Pb-Mak-EY-7	default(1)				Date:	2021-12-26 19:23
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0201	0.0022	11.0	0.0461	mg/L	<KAL
Conc.2	-0.0201	0.0022	11.0	0.0461	mg/L	<KAL
Abs	0.00031	0.00026	83.1			<KAL

Single values (Abs.): #1: 0.00011 #2: 0.00022 #3: 0.00060 (SEV: 566V)



Operator:

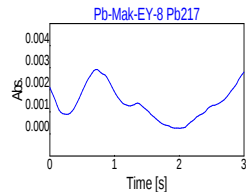
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mak-EY-8	default(1)				Date:	2021-12-26 19:24
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.0046	0.0141	309.1	0.0451	mg/L	<KAL
Conc.2	0.0046	0.0141	309.1	0.0451	mg/L	<KAL
Abs	0.00319	0.00165	51.6			<KAL

Single values (Abs.): #1: 0.00139 #2: 0.00462 #3: 0.00356 (SEV: 566V)

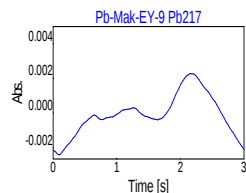


Pb-Mak-EY-9	default(1)				Date:	2021-12-26 19:24
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0256	0.0018	7.0	0.0463	mg/L	<KAL
Conc.2	-0.0256	0.0018	7.0	0.0463	mg/L	<KAL
Abs	-0.00033	0.00021	64.1			<KAL

Single values (Abs.): #1: -0.00010 #2: -0.00035 #3: -0.00052 (SEV: 566V)

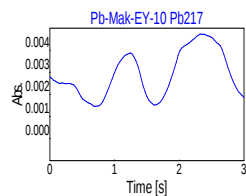


Pb-Mak-EY-10	default(1)				Date:	2021-12-26 19:25
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0030	0.0082	274.8	0.0454	mg/L	<KAL
Conc.2	-0.0030	0.0082	274.8	0.0454	mg/L	<KAL
Abs	0.00231	0.00096	41.7			<KAL

Single values (Abs.): #1: 0.00292 #2: 0.00281 #3: 0.00120 (SEV: 566V)



Operator:

Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
QC std.3	default(1)				Date:	2021-12-26 19:26

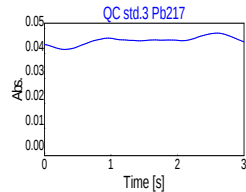
Pb217

Conc.1 0.3659 0.0205 5.6 0.0360 mg/L

Abs 0.04538 0.00239 5.3

Single values (Abs.): #1: 0.04524 #2: 0.04306 #3: 0.04783 (SEV: 566V)

QC:Nominal val.=0.4000 mg/L Recovery= 91.5 % OK



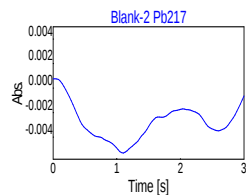
Blank-2	default(1)				Date:	2021-12-26 19:26
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Pb217

Conc.1 -0.0490 0.0062 12.7 0.0473 mg/L <KAL

Abs -0.00306 0.00073 23.8 <KAL

Single values (Abs.): #1: -0.00274 #2: -0.00390 #3: -0.00255 (SEV: 566V)



Pb-Mak-EA-1	default(1)				Date:	2021-12-26 19:27
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

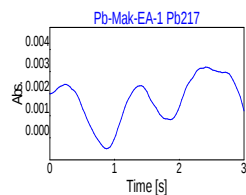
Pb217

Conc.1 -0.0168 0.0096 57.2 0.0460 mg/L <KAL

Conc.2 -0.0168 0.0096 57.2 0.0460 mg/L <KAL

Abs 0.00070 0.00112 160.5 <KAL

Single values (Abs.): #1: 0.00173 #2: 0.00086 #3: -0.00049 (SEV: 566V)



Pb-Mak-EA-2	default(1)				Date:	2021-12-26 19:27
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Pre-DF: 1 Wt.[g]: Vol.[mL]: 100 AS-DF: 1.0 Blank corr.: off

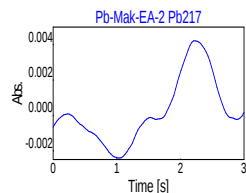
Pb217

Conc.1 -0.0206 0.0014 6.9 0.0461 mg/L <KAL

Conc.2 -0.0206 0.0014 6.9 0.0461 mg/L <KAL

Abs 0.00025 0.00017 66.2 <KAL

Single values (Abs.): #1: 0.00023 #2: 0.00010 #3: 0.00043 (SEV: 566V)



Operator:

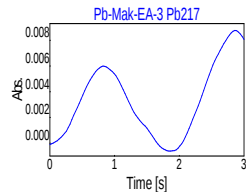
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mak-EA-3	default(1)				Date:	2021-12-26 19:28
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	0.0073	0.0065	90.1	0.0450	mg/L
Conc.2	0.0073	0.0065	90.1	0.0450	mg/L
Abs	0.00351	0.00076	21.8		

Single values (Abs.): #1: 0.00332 #2: 0.00434 #3: 0.00286 (SEV: 566V)

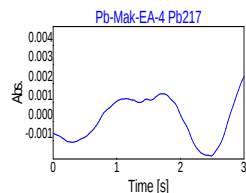


Pb-Mak-EA-4	default(1)				Date:	2021-12-26 19:28
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0304	0.0090	29.6	0.0465	mg/L	<KAL
Conc.2	-0.0304	0.0090	29.6	0.0465	mg/L	<KAL
Abs	-0.00089	0.00105	118.2			<KAL

Single values (Abs.): #1: 0.00010 #2: -0.00199 #3: -0.00078 (SEV: 566V)

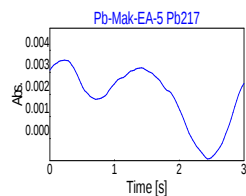


Pb-Mak-EA-5	default(1)				Date:	2021-12-26 19:29
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0133	0.0057	42.7	0.0458	mg/L	<KAL
Conc.2	-0.0133	0.0057	42.7	0.0458	mg/L	<KAL
Abs	0.00110	0.00066	60.2			<KAL

Single values (Abs.): #1: 0.00186 #2: 0.00065 #3: 0.00079 (SEV: 566V)



Operator:

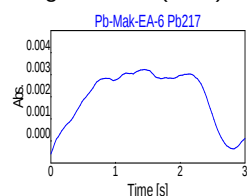
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mak-EA-6	default(1)				Date:	2021-12-26 19:30
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0169	0.0121	71.6	0.0460	mg/L	<KAL
Conc.2	-0.0169	0.0121	71.6	0.0460	mg/L	<KAL
Abs	0.00068	0.00142	208.6			<KAL

Single values (Abs.): #1: 0.00196 #2: 0.00093 #3: -0.00084 (SEV: 566V)

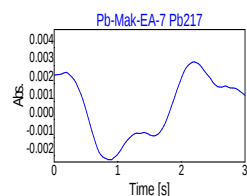


Pb-Mak-EA-7	default(1)				Date:	2021-12-26 19:30
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0176	0.0018	10.1	0.0460	mg/L	<KAL
Conc.2	-0.0176	0.0018	10.1	0.0460	mg/L	<KAL
Abs	0.00061	0.00021	34.3			<KAL

Single values (Abs.): #1: 0.00073 #2: 0.00073 #3: 0.00037 (SEV: 566V)

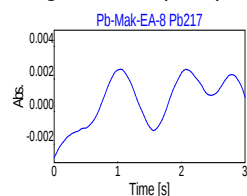


Pb-Mak-EA-8	default(1)				Date:	2021-12-26 19:31
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0174	0.0138	79.2	0.0460	mg/L	<KAL
Conc.2	-0.0174	0.0138	79.2	0.0460	mg/L	<KAL
Abs	0.00063	0.00161	256.1			<KAL

Single values (Abs.): #1: 0.00066 #2: -0.00100 #3: 0.00222 (SEV: 566V)



Operator:

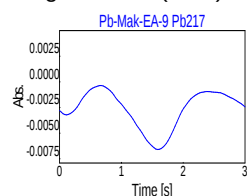
Laboratory:

Line	Mean	SD	RSD[%]	CI	Unit	Rem.
Pb-Mak-EA-9	default(1)				Date:	2021-12-26 19:31
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0393	0.0089	22.7	0.0469	mg/L	<KAL
Conc.2	-0.0393	0.0089	22.7	0.0469	mg/L	<KAL
Abs	-0.00193	0.00104	54.0			<KAL

Single values (Abs.): #1: -0.00261 #2: -0.00073 #3: -0.00244 (SEV: 566V)



Pb-Mak-EA-10	default(1)				Date:	2021-12-26 19:32
Pre-DF: 1	Wt.[g]:	Vol.[mL]: 100	AS-DF: 1.0	Blank corr.:	off	

Pb217

Conc.1	-0.0427	0.0029	6.8	0.0470	mg/L	<KAL
Conc.2	-0.0427	0.0029	6.8	0.0470	mg/L	<KAL
Abs	-0.00233	0.00034	14.5			<KAL

Single values (Abs.): #1: -0.00251 #2: -0.00194 #3: -0.00254 (SEV: 566V)

