

ENVIRONMENTAL TEST REPORT

Mrs. Priscilla Andhiny
PT Trimegah Bangun Persada
Gedung Bank Panin Lt.2
Jalan Jenderal Sudirman
DKI Jakarta,
Indonesia

Job Number : EV212915
Customer Ref : 10356.r2/IUS-EV/VIII/2021
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis
Refer to PPRI No. 22/2021

Number of samples : 1

Date received : 27-Oct-2021
Date reported : 27-Jan-2022

Approved Signature for:



Reginald C. de Wit
Manager Environmental Services

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This report relates specifically to the sample(s) tested in so far as that the sample(s) is truly representative of the sample source as received.

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SAMPLE INFORMATION

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No.	Laboratory Sample I.D.	Customer Sample I.D.	Sample Matrix	Date Sampled	Time Sampled	Date Received	Sampled By	Coordinates	
1	EV212915-1	Dry Tail (DT-02)	Solid	-	-	27-Oct-21	Customer	-	-

Notes:

NA = Not Analysed
ND= Not Detected
IS = Insufficient Sample
** = Non Accredited Test
*** = Subcontracted Test
1) = Field Measurement
2) = Field Measurement by Customer
3) = Total Pesticides defined as 30 OCP compounds (list available upon request)
4) = Total PAHs defined as 16 PAH compounds (list available upon request)
5) = Total PCBs defined as 20 PCB congeners (list available upon request)
SNR= Sample Not Received



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 to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

Laboratory Sample I.D :			EV212915-1
Customer Sample I.D :			Dry Tail (DT-02)
Date Sampled :			-
Sample Matrix :			Solid
No.	Test Description	Units	Results
TCLP Anions			
1	Chloride, Cl ⁻	mg/L	6.4
2	Cyanide (Total), CN ⁻	mg/L	<0.005
3	Fluoride	mg/L	<0.02
4	Nitrate, NO ₃ -N	mg/L	0.079
5	Nitrite, NO ₂ -N	mg/L	0.284
TCLP Inorganics			
1	Antimony, Sb	mg/L	<0.0005
2	Arsenic, As	mg/L	0.0016
3	Barium, Ba	mg/L	<0.1
4	Beryllium, Be	mg/L	<0.01
5	Boron, B	mg/L	<0.1
6	Cadmium, Cd	mg/L	<0.005
7	Chromium Hexavalent, Cr ⁶⁺	mg/L	0.119
8	Copper, Cu	mg/L	0.12
9	Iodide, I ⁻	mg/L	0.06
10	Lead, Pb	mg/L	<0.05
11	Mercury, Hg	mg/L	<0.00005
12	Molybdenum, Mo	mg/L	<0.1
13	Nickel, Ni	mg/L	9.93
14	Selenium, Se	mg/L	<0.0005
15	Silver, Ag	mg/L	<0.02
16	Tributyl Tin Oxide (as Organotins) **	mg Sn/L	<0.001
17	Zinc, Zn	mg/L	0.033
TCLP Volatile Organic Compound (VOCs)			
1	Benzene	mg/L	<0.001
2	Carbon Tetrachloride	mg/L	<0.001
3	Chlorobenzene	mg/L	<0.001
4	1,4-Dichlorobenzene	mg/L	<0.001
5	1,2-Dichloroethane	mg/L	<0.001
6	1,1-Dichloroethene	mg/L	<0.001
7	Hexachloro-1,3 butadiene	mg/L	<0.001
8	1,2-Dichlorobenzene	mg/L	<0.001
9	Trichloroethene (TCE)	mg/L	<0.001
10	Vinyl Chloride	mg/L	<0.001



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Laboratory Sample I.D :			EV212915-1
Customer Sample I.D :			Dry Tail (DT-02)
Date Sampled :			-
Sample Matrix :			Solid
No.	Test Description	Units	Results
11	1,2-Dichloroethene (Sum)	mg/L	<0.001
12	1,1,1,2-Tetrachloroethane	mg/L	<0.001
13	1,1,1-Trichloroethane	mg/L	<0.001
14	1,1,1,2-Tetrachloroethane	mg/L	<0.001
15	1,1,2-Trichloroethane	mg/L	<0.001
16	Trichlorobenzene	mg/L	<0.001
17	Tetrachloroethene (PCE)	mg/L	<0.001
18	Ethylbenzene	mg/L	<0.001
19	Styrene	mg/L	<0.001
20	Toluene	mg/L	<0.001
21	Xylenes Total	mg/L	<0.003
22	Chloroform	mg/L	<0.001
23	Dichloromethane	mg/L	<0.005
24	Methyl Ethyl Ketone (MEK)	mg/L	<0.001
TCLP Semi Volatile Organic Compound (SVOCs)			
1	Benzo(a)pyrene	mg/L	<0.0001
2	Di(2-Ethylhexyl)Phthalate**	mg/L	<0.0001
3	2,4-Dinitrotoluene	mg/L	<0.0005
4	Hexachloroethane	mg/L	<0.0002
5	Nitrobenzene	mg/L	<0.0005
6	2-Chlorophenol	mg/L	<0.0005
7	2,4-Dichlorophenol	mg/L	<0.0005
8	Total Cresol	mg/L	<0.001
9	Pentachlorophenol	mg/L	<0.0005
10	2,4,5-Trichlorophenol	mg/L	<0.0005
11	2,4,6-Trichlorophenol	mg/L	<0.0005
12	Pyridine, SVOC	mg/L	<0.1



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Laboratory Sample I.D :		EV212915-1	
Customer Sample I.D :		Dry Tail (DT-02)	
Date Sampled :		-	
Sample Matrix :		Solid	
No.	Test Description	Units	Results
TCLP Pesticide			
1	Aldrin	mg/L	<0.000005
2	Chlordane	mg/L	<0.000005
3	Dieldrin	mg/L	<0.000005
4	Endrin	mg/L	<0.00001
5	Heptachlor	mg/L	<0.000005
6	Hexachlorobenzene (HCB)	mg/L	<0.000005
7	BHC, gamma (Lindane)	mg/L	<0.000005
8	Methoxychlor	mg/L	<0.00001
9	DDT (Sum)	mg/L	<0.000005
Miscellaneous			
1	Ethylenediaminetetraacetic acid(EDTA)***	mg/L	<0.5
2	Formaldehyde	mg/L	<1
3	Total Phenols	mg/L	<0.001
TCLP Additional Parameters**			
1	Toxaphene	mg/L	<0.002
2	2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	<0.0001
3	2,4,5- TP (Silvex)	mg/L	<0.0005

Note: Refer to QA/QC – Accuracy page for list of analytical methods used



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Laboratory Sample I.D :			EV212915-1
Customer Sample I.D :			Dry Tail (DT-02)
Date Sampled :			-
Sample Matrix :			Solid
No.	Test Description	Units	Results
	Total Metals		
1	Aluminum, Al	mg/dry kg	20800
2	Antimony, Sb	mg/dry kg	<0.1
3	Arsenic, As	mg/dry kg	4.2
4	Barium, Ba	mg/dry kg	31.3
5	Beryllium, Be	mg/dry kg	0.3
6	Bismuth, Bi	mg/dry kg	0.4
7	Boron, B	mg/dry kg	5
8	Cadmium, Cd	mg/dry kg	0.16
9	Caesium, Cs	mg/dry kg	<0.2
10	Calcium, Ca	mg/dry kg	77200
11	Cerium, Ce	mg/dry kg	9.2
12	Chromium, Cr	mg/dry kg	5740
13	Cobalt, Co	mg/dry kg	1370
14	Copper, Cu	mg/dry kg	103
15	Dysprosium, Dy	mg/dry kg	0.9
16	Erbium, Er	mg/dry kg	0.5
17	Europium, Eu	mg/dry kg	0.3
18	Gadolinium, Gd	mg/dry kg	1.1
19	Gallium, Ga	mg/dry kg	4.2
20	Gold, Au	mg/dry kg	<0.02
21	Hafnium, Hf	mg/dry kg	<0.2
22	Holmium, Ho	mg/ dry kg	<0.2
23	Indium, In	mg/dry kg	0.04
24	Iron, Fe	mg/dry kg	474000
25	Lanthanum, La	mg/dry kg	0.4
26	Lead, Pb	mg/dry kg	1.4
27	Lithium, Li	mg/dry kg	10.8
28	Lutetium, Lu	mg/ dry kg	<0.2
29	Magnesium, Mg	mg/dry kg	15100
30	Manganese, Mn	mg/dry kg	11700
31	Mercury, Hg	mg/dry kg	0.073
32	Molybdenum, Mo	mg/dry kg	0.5
33	Neodymium, Nd	mg/dry kg	4.8
34	Nickel, Ni	mg/dry kg	7040
35	Niobium, Nb	mg/dry kg	0.6
36	Palladium, Pd	mg/dry kg	0.04



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Date Sampled :			-
Sample Matrix :			Solid
No.	Test Description	Units	Results
37	Platinum, Pt	mg/dry kg	0.04
38	Potassium, K	mg/dry kg	42
39	Praseodymium, Pr	mg/dry kg	1.1
40	Rhenium, Re	mg/dry kg	<0.2
41	Rubidium, Rb	mg/dry kg	<0.2
42	Ruthenium, Ru	mg/dry kg	<0.02
43	Samarium, Sm	mg/dry kg	1.0
44	Scandium, Sc	mg/dry kg	99.8
45	Selenium, Se	mg/dry kg	0.8
46	Silver, Ag	mg/dry kg	1.76
47	Sodium, Na	mg/dry kg	2870
48	Strontium, Sr	mg/dry kg	34.3
49	Tantalum, Ta	mg/dry kg	<0.2
50	Tellurium, Te	mg/dry kg	<0.2
51	Terbium, Tb	mg/dry kg	<0.2
52	Thallium, Tl	mg/dry kg	<0.2
53	Thorium, Th	mg/dry kg	1.6
54	Thulium, Tm	mg/dry kg	<0.2
55	Tin, Sn	mg/dry kg	1.3
56	Titanium, Ti	mg/dry kg	288
57	Tungsten, W	mg/dry kg	0.6
58	Uranium, U	mg/dry kg	<0.2
59	Vanadium, V	mg/dry kg	120
60	Yttrium, Y	mg/dry kg	4.5
61	Ytterbium, Yb	mg/dry kg	0.6
62	Zinc, Zn	mg/dry kg	134
63	Zirconium, Zr	mg/dry kg	5.1
Toxicity			
1	LD ₅₀ ^{***}	mg/kg body weight	>5000



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Laboratory Sample I.D :		EV212915-1	
Customer Sample I.D :		Dry Tail (DT-02)	
Date Sampled :		-	
Sample Matrix :		Solid	
No.	Test Description	Units	Results
	Radioactivity***		
1	²¹⁰ Pb	Bq/Kg	<0.03
2	²²⁶ Ra	Bq/Kg	3.50
3	²²⁸ Ra	Bq/Kg	0.57
4	²²⁸ Th	Bq/Kg	1.33
5	²³⁰ Th	Bq/Kg	<0.37
6	²³⁴ Th	Bq/Kg	<0.08
7	²³⁸ U	Bq/Kg	<2.00

Note: Refer to QA/QC – Accuracy page for list of analytical methods used



ACUTE TOXICITY TEST (LD₅₀) DATA SUMMARY**

Customer : PT Trimegah Bangun Persada
Lab. Sample ID : EV212915-01
Test Type : Acute Oral Toxicity Test (Lethal Dose 50)
Test Initiation Date : 17th November 2021

SAMPLE

Sample Identification : Solid
Date Collected : -
Date Received : 27 October 2021
Physical Description : Solid, brick red clay, no odor.

TEST CONDITIONS

Temperature Range (°C) : 20 - 27°C.
Humidity (%) : 50- 74%.
Light intensity (Lux) : 100-150lux
Photoperiod L:D (hours) : 12light-12dark

TEST SPECIES INFORMATION

Species : *Mus musculus*
Average Age : 2.5months
No. Test Subjects : 5 males and 6 females.
Sex : 5 males and 6 females.
Mean of Body Weight (BW) : control : 28.3g.
: treatment : 27.3g.

TEST RESULT

Dosage mg/Kg Body Weight	Initial	Deceased	Alive	% Mortality
0 (Control)	2	0	2	0.0
175	2	0	2	0.0
550	2	0	2	0.0
1,750	2	0	2	0.0
5,000	3	0	3	0.0
Clinical and gross necropsy observations :	No deaths and no abnormal results were observed in the treated and control mice during clinical symptoms observations. Daily weight gain in mice of dose 5,000mg/kgBW were minus 1.21; 0.21 and 0.09 mg/kgBW and in the lower doses of 175mg/kgBW (0.33 and minus 1.54 mg/kgBW), 550mg/kgBW (0.93 and 0.23 mg/KgBW) and 1,750mg/kgBW (0.64 and 0.13 mg/KgBW) indicated a decrease in body weight during treatment in the highest dose of 5000mg/KgBW			
LD-50 TEST RESULT	: more than 5,000mg/KgBW*.			
*The sample was categorized as Toxicity Category Unclassified (>5,000mg/KgBW) - according to PP RI no.101 (2014) and Category IV (harmful if swallowed : >5,000mg/KgBW) according to EPA (in Kojima et.al., 2019) and Toxicity Category Unclassified (>5,000mg/KgBW) according to OECD (2016) and Toxicity Class : Very Low Toxicity (5,000 - 15,000mg/KgBW) to Relatively Harmless (≥5,000mg/KgBW) according Hodge and Sterner Scale.				

METHODS :

SNI 7184.5 : 2017

OECD. 2008. OECD 425 Guidelines for the testing of chemicals, Acute Oral Toxicity - Up and Down Prosedure (UDP).

TOXICITY CATEGORIES

EPA. 1998. Health Effects Test Guidelines. OPPTS 870.1000. Acute Toxicity Testing – Background. EPA 712-C-98-189.

OECD. 2001. Harmonized Integrated Classification System for Human Health and Env. Hazards of Chemicals Substances and Mixtures.

OECD.2016.OECD Environment, Health and Safety Publications. Series on Testing and Assessment no.23. ENV/JM/MONO(2016) 32 .

PP RI no.101 (2014). Government Regulation of the Republic of Indonesia concerning the Management of Hazardous and Toxic Wastes. No.101/2014.

Hodges & Sterner Scale.

Kojima et.al. 2019. Alternatives to Animal Testing.

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QUALITY CONTROL - PRECISION

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Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Units	Laboratory Replicate		% RPD
			EV212915-1	EV212915-1 Duplicate	
TCLP Anions					
1	Chloride, Cl ⁻	mg/L	6.4	6.2	3.5%
2	Cyanide (Total), CN ⁻	mg/L	<0.005	<0.005	-
3	Fluoride	mg/L	<0.02	<0.02	-
4	Nitrate, NO ₃ -N	mg/L	0.079	0.083	5.2%
5	Nitrite, NO ₂ -N	mg/L	0.284	0.283	0.4%
TCLP Inorganics					
1	Antimony, Sb	mg/L	<0.0005	<0.0005	-
2	Arsenic, As	mg/L	0.0016	0.0014	13.6%
3	Barium, Ba	mg/L	<0.1	<0.1	-
4	Beryllium, Be	mg/L	<0.01	<0.01	-
5	Boron, B	mg/L	<0.1	<0.1	-
6	Cadmium, Cd	mg/L	<0.005	<0.005	-
7	Chromium Hexavalent, Cr ⁶⁺	mg/L	0.119	0.120	1.3%
8	Copper, Cu	mg/L	0.12	0.13	6.3%
9	Iodide, I ⁻	mg/L	0.06	0.07	14.6%
10	Lead, Pb	mg/L	<0.05	<0.05	-
11	Mercury, Hg	mg/L	<0.00005	<0.00005	-
12	Molybdenum, Mo	mg/L	<0.1	<0.1	-
13	Nickel, Ni	mg/L	9.93	10.1	1.4%
14	Selenium, Se	mg/L	<0.0005	<0.0005	-
15	Silver, Ag	mg/L	<0.02	<0.02	-
16	Tributyl Tin Oxide (as Organotins) **	mg Sn/L	<0.001	-	-
17	Zinc, Zn	mg/L	0.033	0.033	0.0%
TCLP Volatile Organic Compound (VOCs)					
1	Benzene	mg/L	<0.001	-	-
2	Carbon Tetrachloride	mg/L	<0.001	-	-
3	Chlorobenzene	mg/L	<0.001	-	-
4	1,4-Dichlorobenzene	mg/L	<0.001	-	-
5	1,2-Dichloroethane	mg/L	<0.001	-	-
6	1,1-Dichloroethene	mg/L	<0.001	-	-
7	Hexachloro-1,3 butadiene	mg/L	<0.001	-	-
8	1,2-Dichlorobenzene	mg/L	<0.001	-	-
9	Trichloroethene (TCE)	mg/L	<0.001	-	-
10	Vinyl Chloride	mg/L	<0.001	-	-



QUALITY CONTROL - PRECISION

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No	Description	Units	Laboratory Replicate		% RPD
			EV212915-1	EV212915-1 Duplicate	
11	1,2-Dichloroethene (Sum)	mg/L	<0.001	-	-
12	1,1,1,2-Tetrachloroethane	mg/L	<0.001	-	-
13	1,1,1-Trichloroethane	mg/L	<0.001	-	-
14	1,1,2,2-Tetrachloroethane	mg/L	<0.001	-	-
15	1,1,2-Trichloroethane	mg/L	<0.001	-	-
16	Trichlorobenzene	mg/L	<0.001	-	-
17	Tetrachloroethene (PCE)	mg/L	<0.001	-	-
18	Ethylbenzene	mg/L	<0.001	-	-
19	Styrene	mg/L	<0.001	-	-
20	Toluene	mg/L	<0.001	-	-
21	Xylenes Total	mg/L	<0.003	-	-
22	Chloroform	mg/L	<0.001	-	-
23	Dichloromethane	mg/L	<0.005	-	-
24	Methyl Ethyl Ketone (MEK)	mg/L	<0.001	-	-
	TCLP Semi Volatile Organic Compound (SVOCs)				
1	Benzo(a)pyrene	mg/L	<0.0001	-	-
2	Di(2-Ethylhexyl)Phthalate**	mg/L	<0.0001	-	-
3	2,4-Dinitrotoluene	mg/L	<0.0005	-	-
4	Hexachloroethane	mg/L	<0.0002	-	-
5	Nitrobenzene	mg/L	<0.0005	-	-
6	2-Chlorophenol	mg/L	<0.0005	-	-
7	2,4-Dichlorophenol	mg/L	<0.0005	-	-
8	Total Cresol	mg/L	<0.001	-	-
9	Pentachlorophenol	mg/L	<0.0005	-	-
10	2,4,5-Trichlorophenol	mg/L	<0.0005	-	-
11	2,4,6-Trichlorophenol	mg/L	<0.0005	-	-
12	Pyridine, SVOC	mg/L	<0.1	-	-



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No	Description	Units	Laboratory Replicate		% RPD
			EV212915-1	EV212915-1 Duplicate	
TCLP Pesticide					
1	Aldrin	mg/L	<0.000005	-	-
2	Chlordane	mg/L	<0.000005	-	-
3	Dieldrin	mg/L	<0.000005	-	-
4	Endrin	mg/L	<0.00001	-	-
5	Heptachlor	mg/L	<0.000005	-	-
6	Hexachlorobenzene (HCB)	mg/L	<0.000005	-	-
7	BHC, gamma (Lindane)	mg/L	<0.000005	-	-
8	Methoxychlor	mg/L	<0.00001	-	-
9	DDT (Sum)	mg/L	<0.000005	-	-
Miscellaneous					
1	Ethylenediaminetetraacetic acid(EDTA)***	mg/L	<0.5	-	-
2	Formaldehyde	mg/L	<1	-	-
3	Total Phenols	mg/L	<0.001	-	-
TCLP Additional Parameters**					
1	Toxaphene	mg/L	<0.002	-	-
2	2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	<0.0001	-	-
3	2,4,5- TP (Silvex)	mg/L	<0.0005	-	-
Total Metals					
1	Aluminum, Al	mg/dry kg	20800	20800	0.0%
2	Antimony, Sb	mg/dry kg	<0.1	<0.1	-
3	Arsenic, As	mg/dry kg	4.2	3.8	10.0%
4	Barium, Ba	mg/dry kg	31.3	33.2	5.9%
5	Beryllium, Be	mg/dry kg	0.3	0.4	13.6%
6	Bismuth, Bi	mg/dry kg	0.4	0.3	13.6%
7	Boron, B	mg/dry kg	5	5	0.0%
8	Cadmium, Cd	mg/dry kg	0.16	0.15	6.5%
9	Caesium, Cs	mg/dry kg	<0.2	<0.2	-
10	Calcium, Ca	mg/dry kg	77200	76600	0.9%
11	Cerium, Ce	mg/dry kg	9.2	9.3	1.1%
12	Chromium, Cr	mg/dry kg	5740	5710	0.4%
13	Cobalt, Co	mg/dry kg	1370	1370	0.0%
14	Copper, Cu	mg/dry kg	103	90.9	13.0%
15	Dysprosium, Dy	mg/dry kg	0.9	0.9	0.0%



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No	Description	Units	Laboratory Replicate		% RPD
			EV212915-1	EV212915-1 Duplicate	
16	Erbium, Er	mg/dry kg	0.5	0.5	0.0%
17	Europium, Eu	mg/dry kg	0.3	0.3	0.0%
18	Gadolinium, Gd	mg/dry kg	1.1	1.2	8.7%
19	Gallium, Ga	mg/dry kg	4.2	4.1	2.4%
20	Gold, Au	mg/dry kg	<0.02	<0.02	-
21	Hafnium, Hf	mg/dry kg	<0.2	<0.2	-
22	Holmium, Ho	mg/ dry kg	<0.2	<0.2	-
23	Indium, In	mg/dry kg	0.04	0.04	0.0%
24	Iron, Fe	mg/dry kg	474000	474000	0.0%
25	Lanthanum, La	mg/dry kg	0.4	0.4	0.0%
26	Lead, Pb	mg/dry kg	1.4	1.5	6.9%
27	Lithium, Li	mg/dry kg	10.8	10.5	2.8%
28	Lutetium, Lu	mg/ dry kg	<0.2	<0.2	-
29	Magnesium, Mg	mg/dry kg	15100	15000	0.4%
30	Manganese, Mn	mg/dry kg	11700	11800	1.3%
31	Mercury, Hg	mg/dry kg	0.073	0.078	6.6%
32	Molybdenum, Mo	mg/dry kg	0.5	0.5	0.0%
33	Neodymium, Nd	mg/dry kg	4.8	4.7	2.1%
34	Nickel, Ni	mg/dry kg	7040	7130	1.3%
35	Niobium, Nb	mg/dry kg	0.6	0.7	14.4%
36	Palladium, Pd	mg/dry kg	0.04	0.05	12.2%
37	Platinum, Pt	mg/dry kg	0.04	0.03	13.6%
38	Potassium, K	mg/dry kg	42	40	4.9%
39	Praseodymium, Pr	mg/dry kg	1.1	1.2	8.7%
40	Rhenium, Re	mg/dry kg	<0.2	<0.2	-
41	Rubidium, Rb	mg/dry kg	<0.2	<0.2	-
42	Ruthenium, Ru	mg/dry kg	<0.02	<0.02	-
43	Samarium, Sm	mg/dry kg	1.0	1.1	9.5%
44	Scandium, Sc	mg/dry kg	99.8	99.8	0.0%
45	Selenium, Se	mg/dry kg	0.8	0.8	0.0%
46	Silver, Ag	mg/dry kg	1.76	2.00	12.8%
47	Sodium, Na	mg/dry kg	2870	2830	1.4%
48	Strontium, Sr	mg/dry kg	34.3	35.0	2.0%
49	Tantalum, Ta	mg/dry kg	<0.2	<0.2	-
50	Tellurium, Te	mg/dry kg	<0.2	<0.2	-
51	Terbium, Tb	mg/dry kg	<0.2	<0.2	-
52	Thallium, Tl	mg/dry kg	<0.2	<0.2	-



QUALITY CONTROL - PRECISION

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Units	Laboratory Replicate		% RPD
			EV212915-1	EV212915-1 Duplicate	
53	Thorium, Th	mg/dry kg	1.6	1.4	13.3%
54	Thulium, Tm	mg/dry kg	<0.2	<0.2	-
55	Tin, Sn	mg/dry kg	1.3	1.3	0.0%
56	Titanium, Ti	mg/dry kg	288	294	2.1%
57	Tungsten, W	mg/dry kg	0.6	0.5	14.2%
58	Uranium, U	mg/dry kg	<0.2	<0.2	-
59	Vanadium, V	mg/dry kg	120	119	0.9%
60	Yttrium, Y	mg/dry kg	4.5	4.5	0.0%
61	Ytterbium, Yb	mg/dry kg	0.6	0.6	0.0%
62	Zinc, Zn	mg/dry kg	134	132	1.5%
63	Zirconium, Zr	mg/dry kg	5.1	5.7	11.1%

The laboratory analyzes duplicate aliquots of one or more samples within each batch.

Results are used to estimate analytical precision for that matrix at that concentration.

RPDs of up to 15% are considered acceptable for many test methods (except for results which are < 10x DL)



QUALITY CONTROL - ACCURACY

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
TCLP Anions							
1	Chloride, Cl ⁻	USEPA 1311/APHA 4500Cl E	mg/L	0.5	10	9.3	93%
2	Cyanide (Total), CN ⁻	USEPA 1311/APHA 4500CN C,E	mg/L	0.005	0.238	0.228	96%
3	Fluoride	USEPA 1311/APHA 4500F C	mg/L	0.02	1.58	1.56	99%
4	Nitrate, NO ₃ -N	USEPA 1311/APHA 4500 NO3 E	mg/L	0.005	23.6	23.0	98%
5	Nitrite, NO ₂ -N	USEPA 1311/APHA 4500 NO2 B	mg/L	0.001	3.57	3.48	98%
TCLP Inorganics							
1	Arsenic, As	USEPA 1311/APHA 3125B	mg/L	0.0005	0.764	0.811	106%
2	Barium, Ba	USEPA 1311/APHA 3125B	mg/L	0.1	2.41	2.6	106%
3	Boron, B	USEPA 1311/APHA 3125B	mg/L	0.1	1.64	1.7	103%
4	Cadmium, Cd	USEPA 1311/APHA 3125B	mg/L	0.005	0.422	0.443	105%
5	Chromium Hexavalent, Cr ⁶⁺	USEPA 1311/APHA 3500-Cr B	mg/L	0.002	0.0132	0.014	106%
6	Copper, Cu	USEPA 1311/APHA 3125B	mg/L	0.01	0.739	0.80	108%
7	Lead, Pb	USEPA 1311/APHA 3125B	mg/L	0.05	0.177	0.16	91%
8	Mercury, Hg	USEPA 1311/USEPA 245.7	mg/L	0.00005	0.00513	0.00524	102%
9	Molybdenum, Mo	USEPA 1311/APHA 3125B	mg/L	0.1	0.249	0.3	104%
10	Nickel, Ni	USEPA 1311/APHA 3125B	mg/L	0.02	0.663	0.72	108%
11	Selenium, Se	USEPA 1311/APHA 3125B	mg/L	0.0005	0.973	1.00	103%
12	Silver, Ag	USEPA 1311/APHA 3125B	mg/L	0.02	0.845	0.90	107%
13	Zinc, Zn	USEPA 1311/APHA 3125B	mg/L	0.005	1.12	1.20	107%



QUALITY CONTROL - ACCURACY

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
	TCLP Volatile Organic Compound (VOCs)						
1	Benzene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.848	0.861	102%
2	Carbon Tetrachloride	USEPA 1311/USEPA 8260B	mg/L	0.001	1.15	1.22	106%
3	Chlorobenzene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0178	0.015	82%
4	1,4-Dichlorobenzene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.958	0.994	104%
5	1,2-Dichloroethane	USEPA 1311/USEPA 8260B	mg/L	0.001	1.15	1.21	105%
6	1,1-Dichloroethene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.474	0.507	107%
7	Hexachloro-1,3 butadiene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0098	0.010	103%
8	1,2-Dichlorobenzene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.019	0.019	98%
9	Trichloroethene (TCE)	USEPA 1311/USEPA 8260B	mg/L	0.001	0.851	0.859	101%
10	Vinyl Chloride	USEPA 1311/USEPA 8260B	mg/L	0.001	0.463	0.463	100%
11	1,2-Dichloroethene (Sum)	USEPA 1311/USEPA 8260B	mg/L	0.001	0.01994	0.020	103%
12	1,1,1,2-Tetrachloroethane	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0099	0.010	99%
13	1,1,1-Trichloroethane	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0144	0.015	102%
14	1,1,2-Trichloroethane	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0146	0.015	103%
15	Trichlorobenzene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.02128	0.021	99%
16	Tetrachloroethene (PCE)	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0194	0.019	100%
17	Ethylbenzene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0193	0.020	105%
18	Styrene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.0171	0.018	104%
19	Toluene	USEPA 1311/USEPA 8260B	mg/L	0.001	0.00478	0.005	101%
20	Xylenes Total	USEPA 1311/USEPA 8260B	mg/L	0.003	0.01929	0.019	99%
21	Chloroform	USEPA 1311/USEPA 8260B	mg/L	0.001	0.568	0.582	102%
22	Dichloromethane	USEPA 1311/USEPA 8260B	mg/L	0.005	0.0123	0.013	103%
23	Methyl Ethyl Ketone (MEK)	USEPA 1311/USEPA 8260B	mg/L	0.001	0.01	0.010	95%



QUALITY CONTROL - ACCURACY

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
	TCLP Semi Volatile Organic Compound (SVOCs)						
1	Benzo(a)pyrene	USEPA 1311 /USEPA 8270C	mg/L	0.0001	0.001005	0.0010	101%
2	Di (2-Ethylexyl) phthalate**	USEPA 1311/USEPA 8260B	mg/L	0.0001	0.000998	0.0011	106%
3	2,4-Dinitrotoluene	USEPA 1311 /USEPA 8270C	mg/L	0.0005	0.691	0.724	105%
4	Hexachloroethane	USEPA 1311 /USEPA 8270C	mg/L	0.0002	1.81	1.51	84%
5	Nitrobenzene	USEPA 1311 /USEPA 8270C	mg/L	0.0005	1.88	1.49	79%
6	2-Chlorophenol	USEPA 1311 /USEPA 8270C	mg/L	0.0005	0.000997	0.0010	97%
7	2,4-Dichlorophenol	USEPA 1311 /USEPA 8270C	mg/L	0.0005	0.001006	0.0009	87%
8	Total Cresol	USEPA 1311 /USEPA 8270C	mg/L	0.001	0.002009	0.002	87%
9	Pentachlorophenol	USEPA 1311 /USEPA 8270C	mg/L	0.0005	1.64	1.43	87%
10	2,4,5-Trichlorophenol	USEPA 1311 /USEPA 8270C	mg/L	0.0005	0.616	0.488	79%
11	2,4,6-Trichlorophenol	USEPA 1311 /USEPA 8270C	mg/L	0.0005	1.25	1.16	92%
12	Pyridine, SVOC	USEPA 1311 /USEPA 8270C	mg/L	0.1	0.477	0.5	100%
	TCLP Pesticide						
1	Aldrin	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.00004	0.000040	99%
2	Chlordane	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.00008	0.000070	88%
3	Dieldrin	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.00004	0.000036	91%
4	Endrin	USEPA 1311 /USEPA 8270C	mg/L	0.00001	0.119	0.119	100%
5	Heptachlor	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.052	0.041	79%
6	Hexachlorobenzene (HCB)	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.655	0.579	88%
7	BHC, gamma (Lindane)	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.153	0.154	101%
8	Methoxychlor	USEPA 1311 /USEPA 8270C	mg/L	0.00001	0.08120	0.083	102%
9	DDT (Sum)	USEPA 1311 /USEPA 8270C	mg/L	0.000005	0.00012	0.000110	92%



QUALITY CONTROL - ACCURACY

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
Miscellaneous							
1	Total Phenols	USEPA 9065	mg/L	0.001	2.25	2.15	96%
2	Ethylenediaminetetraacetic acid(EDTA)***	USEPA 8260B	mg/L	0.5	5	4.2	84%
3	2,4-Dichlorophenoxyacetic acid (2,4-D)	MTD / FOD/ CHM-89 (LC-MS/MS)	mg/L	0.0001	-	-	92%
4	2,4,5- TP (Silvex)	MTD / FOD/ CHM-89 (LC-MS/MS)	mg/L	0.0005	-	-	98%
Total Metals							
1	Aluminum, Al	USEPA 3050B/APHA 3125B	mg/dry kg	2	8610	8070	94%
2	Antimony, Sb	USEPA 3050B/APHA 3125B	mg/dry kg	0.1	-	-	-
3	Arsenic, As	USEPA 3050B/APHA 3125B	mg/dry kg	0.1	69.4	63.8	92%
4	Barium, Ba	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	362	341	94%
5	Beryllium, Be	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	223	211	95%
6	Bismuth, Bi	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
7	Boron, B	USEPA 3050B/APHA 3125B	mg/dry kg	2	79.4	87	110%
8	Cadmium, Cd	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	166	175	105%
9	Caesium, Cs	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
10	Calcium, Ca	USEPA 3050B/APHA 3125B	mg/dry kg	1	4650	4950	106%
11	Chromium, Cr	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	249	243	98%
12	Cobalt, Co	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	90.6	88.1	97%
13	Copper, Cu	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	280	272	97%
14	Dysprosium, Dy	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
15	Erbium, Er	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
16	Europium, Eu	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
17	Gadolinium, Gd	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
18	Gallium, Ga	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
19	Gold, Au	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	-	-	-
20	Hafnium, Hf	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
21	Holmium, Ho	USEPA 3050B/APHA 3125B	mg/ dry kg	0.2	-	-	-



QUALITY CONTROL - ACCURACY

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
22	Indium, In	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	-	-	-
23	Iron, Fe	USEPA 3050B/APHA 3125B	mg/dry kg	1	14000	13700	98%
24	Lanthanum, La	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	2060	2.2	0%
25	Lead, Pb	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	225	213	95%
26	Lithium, Li	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
27	Lutetium, Lu	USEPA 3050B/APHA 3125B	mg/ dry kg	0.2	-	-	-
28	Magnesium, Mg	USEPA 3050B/APHA 3125B	mg/dry kg	1	2310	2240	97%
29	Manganese, Mn	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	332	324	98%
30	Mercury, Hg	USEPA 3050B/USEPA245.7	mg/dry kg	0.001	20.3	18.9	93%
31	Molybdenum, Mo	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	158	168	106%
32	Neodymium, Nd	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
33	Nickel, Ni	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	114	112	98%
34	Niobium, Nb	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
35	Palladium, Pd	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	-	-	-
36	Platinum, Pt	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	-	-	-
37	Potassium, K	USEPA 3050B/APHA 3125B	mg/dry kg	1	2060	1920	93%
38	Praseodymium, Pr	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
39	Rhenium, Re	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
40	Rubidium, Rb	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
41	Ruthenium, Ru	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	-	-	-
42	Samarium, Sm	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
43	Scandium, Sc	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	-	-	-
44	Selenium, Se	USEPA 3050B/APHA 3125B	mg/dry kg	0.1	195	195	100%
45	Silver, Ag	USEPA 3050B/APHA 3125B	mg/dry kg	0.02	61.8	60.7	98%
46	Sodium, Na	USEPA 3050B/APHA 3125B	mg/dry kg	1	174	185	106%
47	Strontium, Sr	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	135	131	97%
48	Tantalum, Ta	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
49	Tellurium, Te	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-



QUALITY CONTROL - ACCURACY

Job Number : EV212915
Customer : PT Trimegah Bangun Persada
Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
50	Terbium, Tb	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
51	Thallium, Tl	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	135	132	98%
52	Thulium, Tm	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
53	Tin, Sn	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	176	184	105%
54	Titanium, Ti	USEPA 3050B/APHA 3125B	mg/dry kg	1	479	440	92%
55	Tungsten, W	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
56	Uranium, U	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	23	20.8	90%
57	Vanadium, V	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	86.4	87.4	101%
58	Yttrium, Y	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
59	Ytterbium, Yb	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
60	Zinc, Zn	USEPA 3050B/APHA 3125B	mg/dry kg	1	122	113	93%
61	Zirconium, Zr	USEPA 3050B/APHA 3125B	mg/dry kg	0.2	-	-	-
	Radioactivity***						
1	²¹⁰ Pb	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	0.03	-	-	-
2	²²⁶ Ra	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	0.03	-	-	-
3	²²⁸ Ra	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	0.03	-	-	-
4	²²⁸ Th	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	0.02	-	-	-
5	²³⁰ Th	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	0.37	-	-	-



QUALITY CONTROL - ACCURACY

Job Number : EV212915
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Project Name : Total Concentration, LD-50, Radionuclide & TCLP Analysis Refer to PPRI No. 22/2021
Customer Ref : 10356.r2/IUS-EV/VIII/2021

No	Description	Method	Units	Limit of Reporting	Reference Material		% Recovery
					Expected Value	Result	
6	²³⁴ Th	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	0.08	-	-	-
7	²³⁸ U	IAEA Technical Report Series No.295/SNI ISO 10703:2009	Bq/Kg	2.00	-	-	-

Reference Materials are QC samples of known concentration prepared independently of the calibration standards

Results are used to verify that analytical precision is in control and that the level of bias due to calibration is acceptable. Generally speaking, % Recovery should fall between 85% to 115% (except Gas Chromatography methods)

Limit of Reporting means the lowest concentration at which an analyte can be detected in a sample and its concentration can be reported with a reasonable degree of accuracy and precision based on the analytical methodology used.