CHEMICAL ANALYSIS REPORT SQC-64050-1

POLLUTANT AREA - Santiago

Applicant	: Abcdust Gestión y Supresión de Polvo	Work Order	: 512383
For	: Carolina Valenzuela	Date of Issue	:28.05.2021
Address	: Avenida Nueva Providencia N°2050, Providência, Chile		

1.- GENERAL BACKGROUND

Date of Receipt	: 19.05.2020
Number of Samples	: One (01)
Type of samples	: Finished Product
Provided by	: Abcdust Gestión y Supresión de Polvo. According to quotation SQC-463829/2021
Execution Date Analysis	: 20.05.2021 to 28.05.20215

2.- TESTING METHODOLOGIES

2.1.- NCh 2754. Of. 2003 (Test TCLP - EPA 1311)

Residues-Leaching procedure to determine the mobility of organic and inorganic toxic analytes.

This standard applies to the determination of the concentration of certain metals that can be naturally leached, according to the environmental conditions of the storage site of a solid waste. This standard applies to exposed and unexposed soils, massive wastes or tailings, solid and/or liquid wastes or sediments from mining or industrial operations.

2.1.1.- Elements of Toxicity Characteristics (Inorganic Compounds) TEST TCLP

ESSAY	METHOD	LIMIT QUANTIFICATION mg/L
Prep. and Extraction	NCh 2754	----
Lead	ICE-131/203-067/0-4 Abs. Atomic	0,069
Cadmium	ICE-131/203-067/0-4 Abs. Atomic	0,031
Mercury	ICE-131/203-067/0-4 A.A./ Cold Steam	0,019
Chrome	ICE-131/203-067/0-4 Abs. Atomic	0,142
Barium	ICE-131/203-067/0-4 Abs. Atomic	0,468
Selenium	ICE-131/203-067/0-4 Abs. Atomic	0,203
Arsenic	ICE-131/203-067/0-4 Abs. Atomic	0,097
Silver	ICE-131/203-067/0-4 Abs. Atomic	0,141

2.1.2.- Elements of Toxicity Characteristics (Organic Compounds) TEST TCLP ICE-131/203- 067/5

These compounds are determined using the Gas Chromatography technique with FID detector and Electronic Capture detector.

2.1.2.1.- Volatile Organic Constituents

ELEMENTS (Volatile Constituents)	LIMIT OF QUANTIFICATION mg/L
Benzene	0,5
Carbon tetrachloride	0,1
Chlorobenzene	5,0
Chloroform	2,0
1,2-dichloroethane	0,5

ELEMENTS (Volatile Constituents)	LIMIT OF QUANTIFICATION mg/L
1,1-dichloroethylene	0,5
Methyl ethyl ketone	5,0
Tetrachloroethylene	0,5
Trichloroethylene	0,5
Vinyl chloride	0,1

2.1.2.2.- Semi-Volatile Organic Constituents

ELEMENT (Semi-Volatile Constituents)	LIMIT OF QUANTIFICATION mg/L
Chlordane	0,0004
o-cresol	0,093
m-cresol	0,424
p-cresol	0,424
Cresol	5,0
Endrín	0,0002
Heptachlor (and its epoxide)	0,0001
Lindane	0,0001
Methoxychlor	0,001
Pentachlorophenol	0,621
2,4,5- trichlorophenol	0,150
2,4,6- trichlorophenol	0,440
1,4- dichlorobenzene	5,0
2,4- dinitrotoluene	0,13
Hexachlorobenzene	0,1
Hexachlorobutadiene	0,5
Hexachloroethane	1,0
Pyridine	5,0
Nitrobenzene	2,0

2.2.- Corrosivity ICE-131/203-017

Test performed according to EPA 1110 A method. This method is used to determine the corrosivity that a waste is capable of producing under certain conditions. Corrosion is determined on a steel sample.

2.3.- Reactivity

Release of Hydrogen Sulfide and/or Hydrocyanic Acid. In general, this concept refers to the possible formation of toxic compounds as a result of chemical reactions between the components of the waste or as a result of the conditions to which it will be exposed.

ESSAY	METHOD	DETECTION LIMIT mg/kg
Hydrocyanic Acid	EPA 9010B / 9014	0,5
Hydrogen Sulfide	EPA 9030B / 9034	10

2.4.- Flammability ICE-131/203-071

In case the sample contains flammable liquids, the test is performed according to EPA 1010 method, this method is based on the determination of the temperature (ºC) at which the residue ignites, using for this purpose the "Pensky Martens" closed cup system. In case the sample corresponds to a solid, the flammability concept corresponds to the speed of displacement of a flame, performing the test under certain experimental conditions (EPA 1030).

3. - SAMPLE IDENTIFICATION

- **M-1 : Dust Suppressor (DS100)**

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4.- RESULTS

4.1.- Extrinsic Toxicity

4.1.1.- Test TCLP Inorganic

Identification Sample	Lead	Cadmium	Mercury	Chrome	Barium	Selenium	Arsenic	Silver
	mg/L							
M-1	<0,069 (*)	<0,031(*)	<0,019(*)	<0,142(*)	<0,468(*)	<0,203(*)	<0,097(*)	<0,141(*)
MPC (**) D.S: 148	**5,0**	**1,0**	**0,2**	**5,0**	**100,0**	**1,0**	**5,0**	**5,0**

(*) Value is below Limit of Quantification
(**) MPC: Maximum Permissible Concentration

4.1.2.- Test TCLP Organic

4.1.2.1.- Volatile Organic Constituents

Compound	M-1	MPC (**) D.S. 148
	mg/L	
Benzene	<0,5(*)	**0,5**
Carbon tetrachloride	<0,1(*)	**0,5**
Chlorobenzene	<5,0(*)	**100**
Chloroform	<2,0(*)	**6,0**
1,2- dichloroethane	<0,5(*)	**0,5**
1,1- dichloroethylene	<0,5(*)	**0,7**
Methyl ethyl ketone	<5,0(*)	**200**
Tetrachloroethylene	<0,5(*)	**0,7**
Trichloroethylene	<0,5(*)	**0,5**
Vinyl chloride	<0,1(*)	**0,2**

(*) Value is below Limit of Quantification
(**) MPC: Maximum Permissible Concentration

4.1.2.2.- Semi-Volatile Organic Constituents

Compound	M-1	MPC (**) D.S. 148
	mg/L	
Chlordane	<0,0004(*)	**0,03**
o-cresol	<0,093(*)	**200**
m-cresol	<0,424(*)	**200**
p-cresol	<0,424(*)	**200**
Cresol	<5,0(*)	**200**
Endrín	<0,0002(*)	**0,02**
Heptachlor (and its epoxide)	<0,0001(*)	**0,008**
Lindane	<0,0001(*)	**0,4**
Methoxychlor	<0,001(*)	**10,0**
Pentachlorophenol	<0,621(*)	**100**
2,4,5- trichlorophenol	<0,150(*)	**400**
2,4,6- trichlorophenol	<0,440(*)	**2,0**
1,4- dichlorobenzene	<5,0(*)	**7,5**
2,4- dinitrotoluene	<0,13(*)	**0,13**
Hexachlorobenzene	<0,1(*)	**0,13**
Hexachlorobutadiene	<0,5(*)	**0,5**
Hexachloroethane	<1,0(*)	**3,0**
Pyridine	<5,0(*)	**5,0**
Nitrobencene	<2,0(*)	**2,0**

(*) Value is below the Limit of Quantification

(**) MPC: Maximum Permissible Concentration

4.2.- Corrosivity - Determination of the Corrosion Rate

ESSAY	Corrosion rate mm/year	
	M-1	Maximum Rate EPA 1110 A
Corrosivity	1,30	**6,35**

(*) Value is below the Limit of Quantification

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4.3.- Reactivity

ESSAY	Concentration mg/kg	
	M-1	Maximum Permissible
Hydrocyanic Acid (EPA-9010B/9014)	<0,5(*)	**250**
Hydro Sulfuric Acid (EPA-9030B/9034)	<10,0(*)	**500**

(*) Value is below Limit of Quantification

4.4.- Flammability Liquid Sample

ESSAY	Ignition temperature °C	
	M-1	Minimum Rate Permissible EPA 1010
Flammability	Non-flammable	**61°C**

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5 Conclusion

- - According to the results obtained for the samples identified as "(M1 Dust Suppressant (DS100)), analyzed according to D.S. 148/2005, for the parameters of; Extrinsic Toxicity (Organic and Inorganic Constituents), Reactivity (Generation of Toxic Gases), Corrosivity (Corrosion Rate and pH), indicated in Resolution No. 292 dated May 31, 2005, plus other methodologies not indicated in said Resolution, it is observed that the values obtained for these specific tests are below the maximum permitted levels. (Arts. 12, 13, 14, 15, 16 and 17 of the Regulation) Therefore, it can be concluded that the analyzed residue does not present hazardous characteristics.

(i) *(i) The results obtained are valid for the samples analyzed, which were supplied by the applicant.*

(ii) *(ii) The Laboratory is not responsible for sampling.*

(iii) *(iii) The information indicated in point 3 of this Report (Identification of samples) is provided by the applicant.*

Note: this report replaces SQC-64050 issued on 05.28.2021.

Karem Ibañez Maureira
Operations Manager