Appendix M

Trentwood Black Dross Analyses, 1986

TECHNICAL MEMORANDUM

To
Alan Thieman
Trentwood

Date
September 5, 1986

From
D. D. Przybycien
CFT-20

Copies To
L. R. Barsotti - CFT 20
J. F. Dacquisto - Trentwood
R. C. Hinnenkamp - Trentwood
T. A. Lowe - CFT 08
J. T. Schaefer - Trentwood

Subject
Black Dross Analysis
(ARD No. 86-3818)

One sample of composite black dross obtained from a Trentwood dross pile east of the remelt building was analyzed as requested in your attached memo. These results are to be used for a Material Safety Data Sheet and classification as a waste material.

Data obtained are shown in the attached tables.

DDP:jh

Attachments

TABLE I

DROSS ASSAY

Metals (%)		Anions (%)	
Na	7.6	Cl	26.2
K	11.5	SO_4	0.07
Al	31.5	F	0.86
Ba	0.01	Total Nitrogen	0.63 (N)
Cr	0.002	Carbide	4.0 (Al_3C_4)
Co	0.001	Total Alkalinity as Carbonate	7.8 (CO_3)
Cu	0.01		
Fe	0.14		
Mg	1.9		
Mn	0.04		
Si	0.47		
Ca	0.19		
Zn	0.04		
Ni	<0.001		

8.6
14.5

TABLE II

EPA EXTRACTION PROCEDURE DATA

EP Extractable Toxic Metals	mg/L in Extract	EPA EP Limits
As	0.001	5.0
Ba	0.7	100.
Cd	0.04	1.0
Cr	0.1	5.0
Hg	0.001	0.2
Pb	0.3	5.0
Se	0.001	1.0
Ag	0.04	5.0
Cu	0.1	--
Ni	0.11	--

TABLE III

CALCULATED COMPOSITION

	%
Sodium as Sodium Chloride	19.3
Potassium as Potassium Chloride	21.9
Cryolite (Na_3AlF_6)	1.6
Aluminum Alloy (free metal)	28.3
Aluminum Oxide and other metal oxides*	24.3
Metal Nitrides	0.63 (N)
Metal Carbides	4.0 (Al_3C_4)

*calculated by difference

TABLE IV

PHYSICAL PROPERTIES

Specific Gravity	2.36 g/cc
Melting Point	638.2
pH of a saturated solution	9.7 pH
Solubility in water	56.4%

INTER-OFFICE MEMORANDUM

TO (Name, Location, Zip)
▶ L. R. Barsotti - CFT

DATE July 15, 1986

FROM (Name, Dept., Location, Zip)
▶ Alan Thieman
Env. Engr. Intern
Trentwood
A.T.

COPIES TO
▶
J. F. Dacquisto
R. C. Hinnenkamp
J. T. Schaefer

SUBJECT
▶ BLACK DROSS SAMPLE

Enclosed is a collection of black dross material constituting a composite sample which was taken over a period of 10 days. The total sample was collected in daily portions, and according to the following schedule:

DATE	TIME	LOCATION OF SAMPLE
6-24-86	9:30 AM	Dross Pile East of Remelt Building
6-25-86	9:00 AM	"
6-26-86	9:15 AM	"
6-27-86	9:30 AM	"
6-30-86	9:30 AM	"
7-1-86	9:00 AM	"
7-2-86	10:00 AM	"
7-3-86	9:30 AM	"
7-7-86	11:00 AM	"
7-8-86	9:30 AM	"

The sample should be crushed , pulverized, and analyzed as a single homogeneous sample (Sample No. 67-7-1) for the following constituents:

TOTAL METALS	ANIONS	E.P. EXTRACTABLE TOXIC METALS
Na	Cl	As
K	SO_4	Ba
Al	F	Cd
Ba		
Cr	Nitride	Cr
Co	Carbide	Hg
Cu	Carbonate	Pb
Fe		Se
Mg		Ag
Mn		Cu
Si		Ni
Ca		
Zn		
Ni		
Trace Metals		

From the analysis formulate the percent composition of these materials in the sample:

Sodium Chloride
Potassium Chloride
Cryolite ($NaAl_2F_6$ or KAl_2F_6)
Aluminum Alloy (free metal)
Aluminum Oxide and other metal oxides
Metal Nitrides
Metal Carbides

We would also like the sample to be analyzed for the following physical characteristics:

Specific Gravity
Melting Point
pH of a saturated solution
Solubility in water

The analysis of this sample will be used in the composition of a Material Safety Data Sheet for black dross, and also the classification of black dross as a waste material.

Please return analysis results with attention directed to:

Alan Thieman
Kaiser Aluminum & Chemical Corp.
PO Box 15108
Spokane, WA 99215

AT/sj