Lead, dross, copper-rich

Substance Name:	Substance Information Page:		
Lead, dross, copper rich	https://echa.europa.eu/registration-dossier/-/registered-dossier/15137/1	**Legend**	Decisive substance sameness criterion
			Indicative substance sameness criterion
Substance description:	A scum formed on the surface of molten copper.		No substance sameness criterion
SIEF description:	Lead, dross, copper rich is a solid phase formed during the removal of copper from molten lead during the pyrometallurgical refining of both primary and secondary lead bullion. Lead dross, copper rich consists of variable amounts of lead, copper and other metals in either alloy form or as compounds such as oxides.		

Substance Identity	EC/list name:	Lead, dross, copper-rich	SMILES:	not applicable
	IUPAC name:	copper(2+) lambda2-iron(2+) lambda2-lead(2+) bis(lambda1-copper(1+)) lead tetrasulfanediide	InChI:	not applicable
	Other names		Type of substance:	UVCB
	EC/List no.:	273-925-2	origin:	Inorganic
	CAS no.:	69227-11-8		
	Molecular formula:	not applicable	Substance listed	

SID parameters	**Sameness criteria**	**Indication of variability** (fixed, low or high variation)
Sources (input materials)	(Rough) Lead bullion	Fixed
Process	Production: During pyrometallurgical refining of lead bullion, Copper is the first element to be removed. Molten feed is agitated in kettles and the temperature is cooled to melting conditions (>330°C - 450 °C) so that copper solubility is low. The process is referred to as 'copper drossing' and is described in Section 5.1.4 of the NFM BREF. Sulphur is added at a lower temperature if the input materials are deficient. A solid sulphidic precipitate, known as 'Lead, dross, copper-rich' is formed on the surface of the molten metal.	Low
	Separation: skimming	Fixed
	Post-treatment: Lead dross copper rich can be melted to release entrained lead or recycled to other smelting operations for the recovery of copper metal.	Medium

Elemental composition	**Core**	**min (% w/w)**	**max (% w/w)**	**Typical (%w/w)**	
	Lead	Minimum 10%		93.190	High
	Copper	>0	40	24.000	Medium
	Sulphur	>0	30	15.000	Medium
	Silicon	0	2.5	0.600	Low
	Calcium	0	2.5	0.600	Low
	Aluminium	0	2	0.100	Low
	Zinc	0	10	2.000	Low
	Iron	0	12.5	9.770	Low
	Magnesium	0	12	0.400	Low
	Cobalt	0	1	0.116	Low
	Arsenic	0	10	4.920	Low
	Cadmium	0	4	0.830	Low
	Nickel	0	2.5	2.170	Low
	Silver	0	5	0.906	Low
	Bismuth	0	1	0.450	Low
	Tin	0	40	9.240	Medium
	Selenium	0	3	1.210	Low
	Tellurium	0	3.5	2.490	Low
	Manganese	0	0.5	0.100	Low
	Antimony	0	20	11.000	Low
	Potassium	0	0.5	0.480	Low
	Carbon	0	0.5	0.500	Low
	Sodium	0	2	1.330	Low
	Chromium	0	0.03	0.025	Low
	Other constituents			0.100	Low
	Sum=			**181.53**	

Mineralogical composition				
	Lead: metallic and sulphidic	minimum 20%		
	Copper sulphides	minimum 5%		
	Copper oxide			
	Copper alloys			
	Sum=			**0**

Physical characteristics	**physical state (at 20°C, 1013 hPa)**	Solid
	colour	Metallic grey

Conclusion	**Lead-dross, copper-rich' is a solid at 20°C, 1013 hPa produced by chemical reactions during the cooling of molten lead bullion to temperatures in the range >330°C - 450 °C. The resultant sulphidic precipitate formed on the surface is removed by skimming. 'Lead, dross, copper-rich' is composed primarily of metallic lead, lead sulphides and copper sulphides.**