Slags, Pb smelting

Substance Name **Slags, lead smelting**	Substance Information Page http://echa.europa.eu/brief-profile/-/briefprofile/100.098.593	**Legend**	Decisive substance sameness criterion
			Indicative substance sameness criterion
Substance description:	(EC description) Slag formed as the feed progresses through the blast furnace in lead smelting. Consists primarily of metallic elements and oxides of calcium, magnesium and silicon.		No substance sameness criterion
SIEF description:	Slags lead smelting are iron silicate based slags that are produced to remove high melting point impurities during the smelting of lead bearing materials from primary and secondary sources, including intermediates. The iron:silicon ratio is traditionally controlled and further additives are used, such as calcium oxide, to produce a low viscosity slag. Reductants are added during smelting to ensure the slag is low in recoverable metal values.		

Substance Identity	EC/list name:	Slags, lead smelting	SMILES:	not applicable
	IUPAC name:		InChl:	not applicable
	Other names		Type of substance:	UVCB
	EC/List no.:	273-825-9	origin:	Inorganic
	CAS no.:	69029-84-1		
	Molecular formula:	not applicable	Substance listed	

SID parameters	Sameness criteria	Indication of variability (fixed, low or high variation)
Sources (input materials)	Lead-bearing materials from primary and secondary sources, including intermediates. Additives (usually calcium oxide) and reductants (usually coke) are also used.	medium
Process	Production: in blast furnace under a reducing environment. Iron:silicon ratio is controlled; additives are used to produce a low viscosity slag; reductants are used to ensure the slag is low in recoverable metal values.	fixed
	Separation: tapping	fixed
	Post-treatment: slow-cooling, or rapid quenching in water	medium

Elemental composition	Core	min (% w/w)	max (% w/w)	Typical (%w/w)	
	Silicon	0.05	35	29.3	low
	Calcium	0.05	25	24	low
	Aluminium	0	15	7.54	low
	Zinc	0.05	30	14.9	low
	Lead	0	20	3.3	low
	Iron	Minimum 3% Fe		37.5	medium
	Magnesium	0	20	3.91	low
	Sulphur	0	35	4	medium
	Copper	0	10	1.5	low
	Cobalt	0	0.1	0.098	low
	Arsenic	0	10	0.38	low
	Cadmium	0	10	0.02	low
	Nickel	0	10	0.04	low
	Silver	0	0.02	0.01	low
	Bismuth	0	5	0.1	low
	Tin	0	10	1.5	low
	Selenium	0	0.1	0.01	low
	Tellurium	0	0.1	0.023	low
	Chromium	0	5	0.9	low
	Manganese	0	10	1	low
	Antimony	0	10	0.3	low
	Barium	0	2	1.85	low
	Potassium	0	20	0.24	low
	Sodium	0	20	0.71	low
	Chlorine	0	7	0.09	low
	Molybdenum	0	0.02	0.02	low
	Other constituents	0	1	0.1	low
	Sum=			**105.7**	
Mineralogical composition	Total of base metal silicates			88	medium
	Iron silicates			50	low
	Calcium silicates			50	low
	Iron oxides			30	medium
	Lead oxides	Ratio of lead oxides to metallic lead depends on speed of cooling: slow cooling results in mainly metallic lead; rapid quenching results predominantly in lead oxides.			high
	Lead metallic				high
	Sum=			**100**	
Physical characteristics	**physical state (at 20°C, 1013 hPa)**	Solid, granular (coarse lumps) or particulate			Fixed
	colour	dark; black-brown to red/purple-brown to grey-green			Medium

Conclusion	**Slags, lead smelting is a solid in particulate or granular form. It is produced in blast furnace processes, under reducing conditions, applied to primary and secondary lead-containing feeds. Slags, lead smelting is composed primarily of iron and calcium silicates, and has only low levels of lead.**