

# Pb bullion - Grade 5 (low Cd, Ni, Sb)

Substance Name: <b>Lead, bullion</b>	Substance Information Page: <a href="https://echa.europa.eu/registration-dossier/-/registered-dossier/16014">https://echa.europa.eu/registration-dossier/-/registered-dossier/16014</a>	<b>Legend</b>	Decisive substance sameness criterion
SIEF description:	Lead, bullion is a mixed metallic substance usually formed during the primary production of lead, but may also be from the smelting of secondary lead containing materials. This substance can contain high concentrations of lead and will also contain other metals in varying concentrations depending on the source of the material.		Indicative substance sameness criterion
			No substance sameness criterion

<b>Substance Identity</b>	EC/list name:	Lead, bullion	SMILES:	not applicable
	IUPAC name:		InChI:	not applicable
	Other names	Unrefined lead; crude lead; soft lead; rough lead bullion	Type of substance:	UVCB
	EC/List no.:	308-011-5	origin:	Inorganic
	CAS no.:	97808-88-3	Substance listed	
	Molecular formula:	not applicable		

SID parameters	Sameness criteria	Indication of variability (fixed, low or high variation)
<b>Sources (input materials)</b>	Lead-bearing materials from primary and/or secondary sources including scrap, intermediates. Reductants (usually coke) may be used.	medium
<b>Process</b>	Lead bullion is an intermediate usually produced under reducing conditions in metallurgical furnaces or sometimes in direct smelting processes. The substance is manufactured by smelting and tapping, as described in Section 5.1 of the NFM BREF.  After the manufacture of lead bullion, metallurgical refining is necessary to produce lead metal (EC 231-100-4): molten lead bullion is either cast into solid, massive form (e.g. ingots) for supply to a refinery, or kept molten in holding kettles for on-site refining. Refining methods are described in Section 5.1.4 of the NFM BREF.	low

Elemental composition	Core	min (% w/w)	max (% w/w)	Typical (%w/w)	
	Lead		Min. 30	98.9	high
	Antimony	0	13	13	medium
	Copper	0	40	20	medium
	Tin	0	56	41.9	medium
	Arsenic	0	10	5	low
	Bismuth	0	17	5	low
	Zinc	0	30	15	low
	Iron	0	30	15	low
	Silver	0	10	5	low
	Gold	0	10	5	low
	Aluminium	0	10	5	low
	Silicon	0	3	1.5	low
	Cadmium	0	0.09	0.09	low
	Nickel	0	0.7	0.2	low
	Indium	0	10	5	low
	Selenium	0	0.1	0.05	low
	Tellurium	0	0.4	0.23	low
	Other constituents				
	<b>Sum=</b>			<b>98.9</b>	

Minerological composition			
	Metallic lead	30	99
	<b>Sum=</b>		<b>95</b>

<b>Physical characteristics</b>	physical state (at 20°C, 1013 hPa)	Solid in massive form
	colour	metallic grey

**Conclusion** "Lead, bullion" is a solid in massive form (at 20°C, 1013 hPa), produced by smelting primary and/or secondary lead-containing feeds and requiring subsequent refining. "Lead, bullion" is composed primarily of metallic lead and may contain other intermetallic phases (in particular tin as well as copper, antimony, arsenic, bismuth).