



# ID Card Lead Bullion, Platinum Group Metals (PGM) Rich

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Please note that discussions on the ID Cards are currently ongoing.  
Should you need further information / detail, please contact [info@epmf.be](mailto:info@epmf.be)  
The content of this ID Card may be adjusted as the Refinables Project develops.

**Notes:**

- This ID card is used to support the substance sameness discussions in SIEFs and to describe the substance/group to the best of the SIEF members' knowledge.
- It also aims at grouping communications relevant to the request of available data or information, the approval of the proposed Lead Registrant and the registration strategy with the SIEF.
- It is the responsibility of each individual registrant to identify their substance and to report company-specific identity in their Registration Dossier (section 1 of IUCLID).

**DISCLAIMER**

The proper identification and characterisation of a substance or intermediate is the responsibility of each registering legal entity. All data and information contained in this document shall be treated by the receiving party (i) in full confidence with the adequate respect of any confidential and/or proprietary nature of such information and (ii) only in the framework of the purpose of agreeing on substance sameness, Lead Registrant and overall REACH Strategy for the concerned Substance under REACH (the 'Purpose'). The receiving party (and any representative) shall not be allowed to use or circulate any or all parts of this document for any other purpose than the Purpose, without the prior written consent of the European Precious Metals Federation (EPMF). The content provided in this document is given for the Purpose and as such, no guarantee or warranty whatsoever (expressed or implied) is given as to its accuracy, completeness, merchantability or fitness for any particular purpose which the receiving party may have. In any case, any use by the receiving party would be made at its sole risk and liability.

**1. Identification of the group**

**Table 1. Identification of the group**

	<b>Proposed by EPMF Refiners Work Group</b>	<b>Original (in EC inventory)</b>
<b>Name</b>	Lead Bullion, Platinum Group Metals Rich	Lead Bullion
<b>EC number</b>		308-011-5
<b>CAS number</b>		97808-88-3
<b>Description</b>	Primary and secondary feed materials usually in the form of residues containing low concentrations of precious metals, together with higher and variable concentrations of base metals and refractory materials that are mixed with fluxes and smelted with a lead collector, resulting in two phases: a lead one which concentrates precious metals, and a silicate slag phase (Slags, precious metals refining). The lead phase, or Platinum Group Metals rich Lead Bullion is used as a feed in the hydrometallurgical upgrading of platinum group metals; it contains predominantly lead with lower concentrations of platinum group metals, silver and gold and other non-ferrous metals in varying concentrations.	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.

**N.B.:** The description proposed above will be further detailed by EPMF for Registration purposes.

List number assigned by ECHA: 931-607-7



## 2. Synonyms and other identifiers of the group

- Lead Precious Metal Ingot
- Lead Precious Metal Grain
- Lead Ingot/Grain

## 3. Substances (with core identifiers) also falling under this group (with justification)

None

## 4. Usual composition of the substance

Table 2. Usual composition

Type	Name of the element	Symbol	Species present	Typical concentration (%)	Concentration range (%)
Precious metals	Silver	Ag	Metallic	11,3	7,5-15
	Gold	Au	Metallic	0,75	0,5-1,0
	Iridium	Ir	Metallic	14	3,0-25
	Palladium	Pd	Metallic	15	5,5-25
	Platinum	Pt	Metallic	15	5,5-25
	Rhodium	Rh	Metallic	14	3,0-25
	Ruthenium	Ru	Metallic	15	5,5-25
Other metals	Antimony	Sb	Metallic	3,8	2,5-5,0
	Arsenic	As	Metallic?	1,5	1,0-2,0
	Bismuth	Bi	Metallic	7,5	5,0-10
	Cadmium	Cd	Metallic	0,045	0-0,09
	Copper	Cu	Metallic	15	10-20
	Lead	Pb	Metallic	70	60-80
	Iron	Fe	Metallic	1,0	0-2,0
	Nickel	Ni	Metallic?	7,5	5,0-10
	Selenium	Se	Metallic?	2,5	0-5,0
	Tellurium	Te	Metallic	7,5	5,0-10
	Tin	Sn	Metallic	1,0	0-2,0
	Zinc	Zn	Metallic	1,0	0-2,0
	<b>Total</b>				203

**N.B.:** Classification drivers are indicated in red (see also Table 6).

Metal species were determined based on information available to registrants and/or mineralogical analysis (by means of XRD analysis).

The composition given above represents the usual elemental/compound content available to the Members of the EPMF by 9 February 2012. This usual content represents the majority of the Lead Bullion, Platinum Group Metals Rich that is placed on the EEA market.

In a UVCB substance, the number of constituents is relatively large and/or; the composition is, to a significant part, unknown and/or; the variability of composition is relatively large or poorly predictable. Hence, concentration ranges outside the ones given above do not exclude sameness and are usually referred to as unusual or exceptional situations. Each potential registrant is responsible for performing its own elemental analysis.



## 5. Information on appearance, physical state and properties of the substance

**Table 3. Appearance / physical state / properties of the substance**

<b>Physical state</b>	Solid
<b>Appearance</b>	Black/metallic
<b>Particle size*</b>	Coarse powder/Massive object (ingot and grain)

\* Fine powder: particles in the size range 100 – 2.500 nm. Coarse powder: particles in the size range 2.500 nm – 1 mm. Massive object: particles in the size range > 1 mm.

## 6. Analytical data

Annex VI of REACH requires the registrant to describe the analytical methods and/or to provide the bibliographical references for the methods used for identification of the substance and, where appropriate, for the identification of impurities and additives. This information should be sufficient to allow the methods to be reproduced.

In addition to analytical data, all registrants should use expert judgment and process knowledge to characterize their substance.

**Table 4. Analytical methods for identification of the substance**

Parameter / Method	Recommended for substance identification and sameness check	Applicable	Not applicable or not recommended
<b>Elemental analysis</b>			
ICP (ICP-MS or ICP-OES)	X		
Atomic absorption spectroscopy (AAS)			
Glow discharge mass spectrometry (GDMS)			
<b>Molecular analysis</b>			
Infrared (IR) spectroscopy			
Raman spectroscopy			
<b>Mineralogical analysis</b>			
X-Ray Fluorescence (XRF)			
X-Ray Diffraction (XRD)	X		
<b>Morphology and particle sizing</b>			
Optical microscopy and electron microscopy (SEM, TEM, REM)* #	X		
Laser diffraction* #			
Particle size by other means (e.g. sieve analysis)#		X	
Surface area by N-BET* #		X	
<b>Other</b>			
Magnetite analyser		X	
S/C analyzer		X	
Separation technique: ion exchange chromatography		X	

\* Analytical techniques particularly (but not exclusively) relevant for nanomaterials.

# The choice of the technique for particle size depends on the size of the material as manufactured/imported/placed on the market/used.



## 7. Lead Registrant

Vale Europe Ltd (United Kingdom) volunteers to be the Lead Registrant for this intermediate. The European Precious Metals Federation (EPMF) will provide support to the Lead Registrant as laid down in the EPMF Agreement.

## 8. REACH Strategy

The table below presents the overall Registration Strategy for Lead Bullion, Platinum Group Metals Rich based on the information available to the EPMF by the date given above on the document.

The Registration Dossier will be prepared for the highest substance status (information requirements associated to a substance or Article 10 Registration being higher than an intermediate handled under strictly controlled conditions or Article 17 or 18 one) and associated tonnage band.

The recap below therefore reflects the scope of work of the EPMF for Lead Bullion, Platinum Group Metals Rich and sets the minimum and maximum set of information that will be gathered and/or produced when preparing the Registration Dossier for Lead Bullion, Platinum Group Metals Rich as described in this ID Card.

If higher information requirements are necessary, these can be included in the Registration dossier (if EPMF is made aware of these additional requirements in-time) as an update to the already submitted dossier.

**Table 5. REACH strategy for the group (basis for REACH Registration preparation)**

Item	Description	Comment
<b>SIEF</b>	Split from 308-011-5	Non-sameness confirmed by Pb Consortium. Need to split SIEF 308-011-5 in three, including one sub-SIEF for Lead bullion, Platinum Group Metals rich. Required sameness discussion in pre-SIEF, split "Lead bullion" SIEF, creating an <i>ad hoc</i> SIEF, and linking registration under a new EC number with previous EC number through pre-registration number. The new EC number was requested in parallel with the registration dossier submission in 2010.
<b>REACH category</b>	UVCB	The composition of lead bullion, Platinum Group Metals rich is metallic, and can hence easily be fully determined by the applicable analytical technique. The variability of the composition of lead bullion, Platinum Group Metals rich both intra- and inter-registrants is large as the bullion manufactured via a specific smelting process will be influenced by the variability of the metallic composition (precious metals and impurities) of the feed material smelted to produce the bullion and the constituents dragged during the chemical transformation of the bullion after use as a collector of precious metals. Lead bullion, Platinum Group Metals rich is truly a substance of variable composition.
<b>Highest status</b>	Non-SCC intermediate	At least one Member of the EPMF has declared this material as an intermediate not handled under strictly controlled conditions (SCC), meaning an Article 10 dossier is required for joint submission.
<b>Intermediate status</b>		Lead bullion, Platinum Group Metals rich is <u>intentionally manufactured</u> as a collector of precious metals in PM containing lead refining. Lead bullion, Platinum Group Metals rich is mixed with fluxes and smelted with a lead collector, resulting in two phases: a lead one which concentrates precious metals, and a silicate slag phase. It is subsequently <u>chemically transformed</u> to extract the precious metal content from the lead bullion in order to manufacture the pure precious metal. It is hence truly an in-process intermediate in the production of pure precious metals.



<b>Highest tonnage band</b>	10-100 t/a	
<b>Information requirements</b>	Available / Existing + Annex VII – VIII	
<b>Existing classification</b>	See Table 6	Classifications for Lead Bullion, Platinum Group Metals rich are proposed in Table 6 as grouped classifications based on composition profile. Compositions or triggers associated to each classification provide a non-exhaustive list of those constituents which can be present in the Refinable.
<b>Registration deadline</b>	2010	Lead bullion, Platinum Group Metals rich was registered as an SCC intermediate in 2010 (Article 17/18 dossier) and will be updated to a full substance registration (Article 10 dossier) in 2014

**Table 6. Classification for the group**

	<b>Classification CLP</b>	<b>Composition / classification drivers</b>
1	Carc. 2, Repro. 1A, STOT Rep 1 (driver: Ni or Pb), ENV Ac 1, ENV Ch 1, Skin sens. 1, Acute tox oral 4	<p>Ni powder <math>\geq 1\%</math>; Pb powder <math>\geq 7\%</math>; Cd <math>&lt; 0,1\%</math></p> <p><math>100 / ( (Te\% + Se\% + Sb\% + As\%)/100 + (Pb \text{ powder}\%)/500 )</math> between 300 – 2000 mg/kg</p> <p><math>100 / ( (Se\% + Sb\% + As\%)/700 + Pb \text{ powder}\%/4500 ) &gt; 5</math> mg/L</p> <p><math>(\%Cu \times 0,4 + \%Pb \times 0,14) &gt; 1</math>  <math>(\%Cu \times 0,05 + \%Pb \times 0,056) &gt; 1</math></p>

# Assume surface area of 1 mm particle size (expressed as m<sup>2</sup>/g) unless provided otherwise by registrant

**N.B.1:** Classification drivers are (worst-case) assumptions and do not necessarily represent real species/mineralogical composition

**N.B.2:** Classification group has a CMR profile

## 9. Scope of the Registration Dossier

The uses included in this Registration Dossier are summarised in the table below and accompanied with the appropriate text.



**Table 7. Reported uses of the substance**

Description of use	Sector of Use (SU)	Process Category (PROC)	Environmental Release Category (ERC)
Manufacture of an intermediate	NA	<ul style="list-style-type: none"><li>• PROC 1: Use in closed process, no likelihood of exposure</li><li>• PROC 2: Use in closed, continuous process with occasional controlled exposure</li><li>• PROC 3: Use in closed batch process (synthesis or formulation)</li><li>• PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises</li><li>• PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</li><li>• PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</li><li>• PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</li><li>• PROC 15: Use as laboratory reagent</li><li>• PROC 21: Low energy manipulation of substances bound in materials and/or articles</li><li>• PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting</li><li>• PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature</li><li>• PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles</li><li>• PROC 26: Handling of solid inorganic substances at ambient temperature</li><li>• PROC 27b: Production of metal powders (wet processes)</li></ul>	<ul style="list-style-type: none"><li>• ERC 1: Manufacture of substances</li></ul>



Description of use	Sector of Use (SU)	Process Category (PROC)	Environmental Release Category (ERC)
Use as an intermediate in metal manufacturing	<ul style="list-style-type: none"><li>• SU 14: Manufacture of basic metals, including alloys</li></ul>	<ul style="list-style-type: none"><li>• PROC 1: Use in closed process, no likelihood of exposure</li><li>• PROC 2: Use in closed, continuous process with occasional controlled exposure</li><li>• PROC 3: Use in closed batch process (synthesis or formulation)</li><li>• PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises</li><li>• PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</li><li>• PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</li><li>• PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</li><li>• PROC 15: Use as laboratory reagent</li><li>• PROC 21: Low energy manipulation of substances bound in materials and/or articles</li><li>• PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting</li><li>• PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature</li><li>• PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles</li><li>• PROC 26: Handling of solid inorganic substances at ambient temperature</li><li>• PROC 27b: Production of metal powders (wet processes)</li></ul>	<ul style="list-style-type: none"><li>• ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)</li></ul>