



ID Card

Matte, precious metal

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Notes:

- This ID card is used to support the substance sameness discussions and to describe the substance/group to the best of the members' knowledge.
- It also aims at grouping communications relevant to the request of available data or information and the registration strategy
- 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').

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1. Identification of the group

Table 1. Identification of the group

	Original (in EC inventory)
Name	Matte, precious metal
EC number	308-506-6
CAS number	98072-52-7
* EPMF Description	Substance resulting from the smelting of precious metals and its alloys obtained from primary and secondary sources and including recycled plant intermediates. Matte, precious metal is composed primarily of base metal sulphides containing precious metals and may contain other residual non-ferrous metals and their compounds in varying concentrations.
Composition type	UVCB

* The description has been further detailed by EPMF in the registration dossier IUCLID Reference substance record (Description field) and in the CSR.

2. Synonyms and other identifiers of the group

None

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

Although mattes resulting from other metals refining processes may be very similar to precious metals matte, they are not listed here as they are covered by other consortia and must hence not be registered using the same information or in the same Registration Dossier.

4. Boundary composition of the substance

Table 2. Typical composition

Element	Typical concentration (%)	Minimum concentration (%)	Maximum concentration (%)	Species
Silver	0.25	0.03	0.76	Sulphide, metallic
Gold	0.50	0.00	1.51	Sulphide, metallic
Palladium	1.04	0.00	2.07	compounds (e.g. sulphides)
Platinum	0.75	0.00	1.51	compounds (e.g. sulphides)
Rhodium	0.75	0.00	1.51	compounds (e.g. sulphides)
Aluminium	1.21	0.00	2.40	compounds such as silicates, sulphides
Antimony	1.93	0.00	5.18	intermetallic and/or compounds
Arsenic	2.41	0.23	4.67	intermetallic and/or compounds
Barium	0.08	0.00	0.27	
Cadmium	0.03	0.00	0.09	
Calcium	1.87	0.00	3.11	compounds such as sulphate, silicate
Chromium	0.50	0.00	1.84	
Cobalt	1.68	0.00	4.89	
Copper	18.57	6.36	35.20	Sulphide, metallic
Iron	18.01	3.50	32.36	intermetallic and/or compounds such as sulphides, silicates, oxides
Lead	4.46	0.07	14.70	Sulphide, metallic
Magnesium	0.22	0.00	0.41	
Manganese	0.10	0.00	0.21	
Nickel	11.70	0.31	45.00	Metallic
Potassium	0.23	0.00	0.46	compounds such as silicate
Potassium	0.34	0.00	0.68	compounds such as silicate
Selenium	0.20	0.00	0.37	
Silicon	4.30	0.00	6.82	silicate
Sodium	13.42	9.90	22.59	Metal sulphides
Tellurium	1.52	0.11	4.29	Metallic
Tin	1.63	0.00	2.65	intermetallic and/or compounds
Zinc	1.82	0.00	2.80	compounds (e.g. sulphides)



Elemental composition total: 89.5%				
Species	Typical concentration (%)	Minimum concentration (%)	Maximum concentration (%)	
Total Metal sulphides	70.00	40.00	90.00	
Mineralogical composition total: 70.0%				

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 Consortium by 9 February 2012. This usual content represents the majority of the Matte, precious metal 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. Substance identity profile (SIP) of the substance

Substance Name Matte, precious metal		Substance Information Page http://echa.europa.eu/brief-profile/-/briefprofile/100.098.593			Legend Decisive substance sameness criterion Indicative substance sameness criterion No substance sameness criterion
Substance description: Substance resulting from the smelting of precious metals and its alloys obtained from primary and secondary sources and including recycled plant intermediates. Matte, precious metal is composed primarily of base metal sulfides containing precious metals and may contain other residual non-ferrous metals and their compounds in varying concentrations.					
Substance Identity	EC/list name:	Matte, precious metal	SMILES:	not applicable	
	IUPAC name:		InChI:	not applicable	
	Other names		Type of substance:	UVCB	
	EC/List no.:	308-506-6	origin:	Inorganic	
	CAS no.:	98072-52-7			
	Molecular formula:	not applicable	Substance listed		
SID parameters		Sameness criteria			Indication of variability (fixed, low or high variation)
Sources (input materials)	Precious metal containing primary and secondary (sulphidic) sources and precious metal recycled plant intermediates				high variability
Process	Enriched sulfidic phase from smelting process for the refining of precious metals (ca. 1200 °C), separated by tapping.				low variability
Elemental composition	Core	min (% w/w)	max (% w/w)	Typical (%w/w)	
	Platinum Group Metals (PGMs)	0.001	5.1	2.5	low variability
	Silver and Gold	0.03	2.3	0.8	low variability
	Copper	6.4	35.2	18.6	medium variability
	Iron	3.5	32.4	18.0	medium variability
	Lead	0.1	14.7	4.5	medium variability
	Nickel	0.3	45.0	11.7	medium variability
	Sulfur	9.9	22.6	13.4	low variability
	Sum=			69.50	
Mineralogical composition	Total Metal sulphides	40.0	90.0	70.0	medium variability
	Sum=			70	
Physical characteristics	physical state (at 20°C, 1013 hPa)	Solid massive form with grey to black colour			fixed
Conclusion	Matte, precious metal is a solid massive form with grey to black colour and is the enriched phase from smelting processes applied on primary and secondary precious metal containing sulfidic feeds for the refining of precious metals. Matte, precious metal is composed primarily of base metal sulfides containing precious metals.				

The substance identity profile (SIP) outlines the main substance identifier/qualifiers relevant for substance identity. It reports sameness information on physical state (solid, liquid, gas), physical form (massive, powder), source, process descriptions and composition. Parameters are given a color code depicting importance for substance sameness. Dark green for decisive/fixed/low variability identity criteria, light green for indicative parameters that support the substance identity but are less well defined and/or characterized by medium variability, and white for parameters not relevant for substance identity.

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

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

Physical state	Solid
Appearance	Grey to black
Particle size*	Massive object

* Nanoform: particles in the size range 1 - 100 nm (for full definition of a nanomaterial, see <http://ec.europa.eu/environment/chemicals/nanotech/index.htm#definition>). 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.

7. 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
Elemental analysis			
ICP (ICP-MS or ICP-OES)	X		
Atomic absorption spectroscopy (AAS)			
Glow discharge mass spectrometry (GDMS)			
Molecular analysis			
Infrared (IR) spectroscopy			
Raman spectroscopy			
Mineralogical analysis			
X-Ray Fluorescence (XRF)			
X-Ray Diffraction (XRD)	X		
Morphology and particle sizing			
Optical microscopy and electron microscopy (SEM, TEM, REM)*#	X		
Laser diffraction*#	X		
Particle size by other means (e.g. sieve analysis)#			



Surface area by N-BET*#			
Other			
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.

8. Lead Registrant

Glencore Nikkelverk AS (Norway) is 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.

9. Scope of the Registration Dossier

All UVCB precious metal Refinables have only uses as an intermediate. Moreover, UVCB exposure scenarios are developed on a company / site-specific basis.