



ID Card

Disilver oxide

Version 4 July 2023

Notes:

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

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1. Identification of the substance

Table 1. Identification of the substance

	Original (in EC inventory)
Name	Disilver oxide
EC number	243-957-1
CAS number	20667-12-3
Description	Not available
Composition type	Mono-constituent substance

Synonyms and other identifiers of the substance

Table 2. Synonyms and other identifiers of the substance

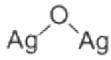
IUPAC name	Silver(I) oxide
CAS name	Silver oxide (Ag ₂ O)
Abbreviations	None
Other commercial, brand or international names	Silver oxide Silver(1+) oxide Argentous oxide Disilver monoxide Silver rust
Other identity codes	None

2. Substances (with core identifiers) also falling under this substance (with justification)

None

3. Information related to molecular and structural formula of the substance

Table 3. Information related to molecular and structural formula of the substance

Molecular formula	Ag ₂ O
Structural formula	
Smiles notation	[Ag]O[Ag]
Optical activity	Not applicable
Typical ratio of (stereo) isomers	Not applicable
Molecular Weight / Molecular Weight range	231,74 g/mol

4. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Typical concentration (range) (%)
Main constituent(s)*	Disilver oxide	Ag ₂ O	> 99,5
Main impurity(ies)#	Chlorides	Cl-	< 0,25
	Nitrates	NO ₃	< 0,25
	Sulphates	SO ₄	< 0,25
	Carbon dioxide	CO ₂	< 0,25
	Copper	Cu	< 0,25
	Iron	Fe	< 0,25
	Lead	Pb	< 0,25
	Nickel	Ni	< 0,25
	Sodium	Na	< 0,25
	Other	N/A	< 0,25

* ≥ 80 % (w/w) for mono-constituent substances; ≥ 10 % (w/w) and < 80 % (w/w) for multi-constituent substances.

An impurity is an unintended constituent present in a substance, as produced. It may originate from the starting materials or be the result of secondary or incomplete reactions during the production process. While impurities are present in the final substance, they were not intentionally added.

The composition given above is typical and should therefore represent the majority of Disilver oxide as manufactured and/or imported in the EEA market. Disilver oxide containing less than 99,5 % Disilver oxide may still be considered to be the same for the purpose of registration under REACH and may be referred to as impure Disilver oxide to distinguish it from the typically pure Disilver oxide.

Damp disilver oxide is available on the market, containing less than 30% water.

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

Table 5. Appearance / physical state / properties of the solid substance

Physical state	Solid
Physical form*	Crystalline
Appearance	Black or dark brown powder
Particle size**	Fine powder / Coarse powder
Does the substance contain 'bound water'?#	No
Does the substance contain 'crystallisation water'?#	No
Does the solid hydrolyse?##	No
Is the solid hygroscopic?§	Yes

* Crystalline form: solid material whose constituent atoms, molecules, or ions are arranged in an ordered pattern extending in all three spatial dimensions. Amorphous form: solid material whose constituent atoms, molecules, or ions are randomly arranged.

**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.

'Bound water': water molecules that are coordinated as bound ligands. 'Crystallisation water' or hydration water: water that occurs in crystals (necessary for the maintenance of crystalline properties) but which is not directly bound to the metal ion (a hydrate contains a definite % of crystallisation water e.g. $\text{CuSO}_4 \times 5 \text{H}_2\text{O}$, an anhydride does not contain any water)

Hydrolysis: decomposition (cleavage of chemical bonds) by the addition of water.

§ Hygroscopic substance: readily attracts moisture from its surroundings in open air, through either absorption or adsorption. Cf. also water/moisture content in Table 4.

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.

Table 6. 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	X		
Raman spectroscopy			X
Mineralogical analysis			
X-Ray Fluorescence (XRF)			
X-Ray Diffraction (XRD)	X		
Morphology and particle sizing			
Electron microscopy (SEM, TEM, REM)* #			
Laser diffraction* #	X		
Particle size by other means (e.g. sieve analysis)#			
Surface area by N-BET* #			
Other			

* 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

Ames Goldsmith Netherlands B.V. is the Lead Registrant for Disilver oxide. The EPMF will provide support to the Lead Registrant as laid down in the EPMF Agreement.

8. Scope of the Registration Dossier

The uses included in this Registration Dossier are listed on the [EPMF website](#).