



# ID Card

## Disilver oxide

Version 5 August 2013

**Notes:**

- *This ID card is used to support the substance sameness discussions in SIEFs and to describe the substance 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**

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 substance

**Table 1. Identification of the substance**

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



## 2. Synonyms and other identifiers of the substance

Table 2. Synonyms and other identifiers of the substance

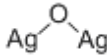
<b>IUPAC name</b>	Silver(I) oxide
<b>CAS name</b>	
<b>Abbreviations</b>	None
<b>Other commercial, brand or international names</b>	Silver oxide Silver(1+) oxide Argentous oxide Disilver monoxide Silver rust
<b>Other identity codes</b>	None

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

None

## 4. Information related to molecular and structural formula of the substance

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

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



## 5. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Typical concentration (range) (%)
<b>Main constituent(s)*</b>	Disilver oxide	Ag <sub>2</sub> O	> 99,5
<b>Main impurity(ies)#</b>	Chlorides	Cl <sup>-</sup>	< 0,25
	Nitrates	NO <sub>3</sub>	< 0,25
	Sulphates	SO <sub>4</sub>	< 0,25
	Carbon dioxide	CO <sub>2</sub>	< 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.

# ≥ 1 %. 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.



## 6. 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.

\*\* Nanofom: 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.

## 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.



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

\* 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

Ames Goldsmith UK Ltd. (United Kingdom) volunteers to be the Lead Registrant for Disilver oxide. The EPMF will provide support to the Lead Registrant as laid down in the EPMF Agreement.



## 9. REACH Strategy

The table below presents the overall Registration Strategy for Disilver oxide 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 Disilver oxide and sets the minimum and maximum set of information that will be gathered and/or produced when preparing the Registration Dossier for Disilver oxide 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 7. REACH strategy for the substance (basis for REACH Registration preparation)**

Item	Description
REACH category	Mono-constituent substance
Highest status	Substance
Highest tonnage band	100 – 1000 t/a
Information requirements	Available / Existing + Annex VII – VIII - IX
Existing classification*	Ox. Sol. 1 (H271) Eye dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic chronic 1 (H410) Acute M-factor 100 Chronic M-factor 100
Registration deadline	2010
Registration update	May 2013

\* Classification notified (February 2012)



### 10. 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 8. Reported uses of the substance**

Description of use	Sector of Use (SU)	Process Category (PROC)	Environmental Release Category (ERC)
Manufacture	<ul style="list-style-type: none"><li>• 8: Manufacture of bulk, large scale chemicals (including petroleum products)</li></ul>	<ul style="list-style-type: none"><li>• 1: Use in closed process, no likelihood of exposure</li><li>• 4: Use in batch and other process (synthesis) where opportunity for exposure arises</li><li>• 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</li><li>• 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting</li><li>• 26: Handling of solid inorganic substances at ambient temperature</li></ul>	<ul style="list-style-type: none"><li>• 1: Manufacture of substances</li></ul>
Use in the production of batteries	<ul style="list-style-type: none"><li>• 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</li><li>• 15: Manufacture of fabricated metal products, except machinery and equipment</li></ul>	<ul style="list-style-type: none"><li>• 1: Use in closed process, no likelihood of exposure</li><li>• 3: Use in closed batch process (synthesis or formulation)</li><li>• 14: Production of preparations or articles by tableting, compression, extrusion, pelletisation</li><li>• 21: Low energy manipulation of substances bound in materials and/or articles</li><li>• 26: Handling of solid inorganic substances at ambient temperature</li></ul>	<ul style="list-style-type: none"><li>• 5: Industrial use resulting in inclusion into or onto a matrix</li></ul>



Use in the production and use of chemicals, catalysts or formulations	<ul style="list-style-type: none"><li>• 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</li><li>• 9: Manufacture of fine chemicals</li></ul>	<ul style="list-style-type: none"><li>• 1: Use in closed process, no likelihood of exposure</li><li>• 3: Use in closed batch process (synthesis or formulation)</li><li>• 4: Use in batch and other process (synthesis) where opportunity for exposure arises</li><li>• 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</li><li>• 26: Handling of solid inorganic substances at ambient temperature</li></ul>	<ul style="list-style-type: none"><li>• 5: Industrial use resulting in inclusion into or onto a matrix</li></ul>
Professional uses of disilver oxide containing articles	<ul style="list-style-type: none"><li>• 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)</li></ul>	<ul style="list-style-type: none"><li>• 21: Low energy manipulation of substances bound in materials and/or articles</li></ul>	<ul style="list-style-type: none"><li>• 5: Industrial use resulting in inclusion into or onto a matrix</li></ul>