ID Card
Silver iodide

Version 8 March 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).*

1. Identification of the substance

Table 1. Identification of the substance

	Original (in EC inventory)
Name	Silver iodide
EC number	232-038-0
CAS number	7783-96-2
Description	Not available
Composition type	Mono-constituent substance

2. Synonyms and other identifiers of the substance

Table 2. Synonyms and other identifiers of the substance

IUPAC name	Silver (I) iodide
CAS name	
Abbreviations	None

Other commercial, brand or international names	Iodosilver Silver monoiodide
Other identity codes	

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

Molecular formula	AgI
Structural formula	Each silver ion is surrounded by four iodide ions in a tetrahedral arrangement, and vice versa (wurtzite or zincblende crystal structure) Ag^+ I^-
Smiles notation	[Ag]I
Optical activity	Not applicable
Typical ratio of (stereo) isomers	Not applicable
Molecular Weight / Molecular Weight range	234,77 g/mol

5. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Min & Max concentrations (%)	Typical concentration (%)
Main constituent(s)*	Silver iodide	AgI	80 - 100	> 99,5
Impurity(ies)**	Chlorides	Cl-	0 - 20	< 0,5
	Nitrates	NO3	0 - 20	< 0,5
	Sulphates	SO4	0 - 20	< 0,5

	Copper	Cu	0 - 20	< 0,5
	Iron	Fe	0 – 20	< 0,5
	Lead	Pb	0 – 20	< 0,5
	Nickel	Ni	0 - 20	< 0,5
	Sodium	Na	0 - 20	< 0,5
	Other	N/A	0 - 20	< 0,5

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

****** ≥ 1 % (or lower if contributing to the hazard). An additive is a substance that has been intentionally added to stabilise the substance and which cannot be removed without changing the chemical nature to which it is added.

[#] ≥ 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.

[##] < 1 % and potentially influencing the classification of the substance.

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

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

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

Physical state	Solid (sometimes in suspension)
Physical form*	Crystalline
Appearance	Yellow crystals or powder
Particle size**	Different sizes (from nano to coarse) depending on the application
Does the substance contain 'bound water'?[#]	No
Does the substance contain 'crystallisation water'?[#]	No
Does the solid hydrolyse?[##]	No
Is the solid hygroscopic?[§]	No

***** 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. CuSO4 x 5 H2O, 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
Elemental analysis			
ICP (ICP-MS or ICP-OES)	X		
Atomic absorption spectroscopy (AAS)	X		
Glow discharge mass spectrometry (GDMS)			
Molecular analysis			
Infrared (IR) spectroscopy			X
Raman spectroscopy			X
Mineralogical analysis			
X-Ray Fluorescence (XRF)		X[1]	
X-Ray Diffraction (XRD)		X[1]	
Morphology and particle sizing			
Electron microscopy (SEM, TEM, REM)* #		X	
Laser diffraction* #		X[2]	
Particle size by other means (e.g. sieve analysis)#		X[2]	
Surface area by N-BET* #		X[2]	
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.

[1] Applicable, but not truly a mineralogical analysis.

[2] Applicable on the solid form (not for suspensions).

8. Lead Registrant

Agfa Gevaert volunteers to be the Lead Registrant for Silver iodide. 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 Silver iodide 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 Silver iodide and sets the minimum and maximum set of information that will be gathered and/or produced when preparing the Registration Dossier for Silver iodide 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
Highest status	Substance
Highest tonnage band	1-10 t/a
Information requirements	Available / Existing + Annex VII
Existing classification*	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Acute M-factor 1000 Chronic M-factor 100
Registration deadline	ASAP

***For the pure form, as per latest CLP notification exercise (December 2010 & March 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 of silver iodide in photographic emulsion and subsequent industrial use of silver halide emulsion in the photographic industry[1]	• SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites • SU 6b: Manufacture of pulp, paper and paper products • SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)	• PROC 1: Use in closed process, no likelihood of exposure • PROC 3: Use in closed batch process (synthesis or formulation) • PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises • PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) • PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities • PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities • PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) • PROC 13: Treatment of articles by dipping and pouring • PROC 21: Low energy manipulation of substances bound in materials and/or articles	• ERC 1: Manufacture of substances • ERC 2: Formulation of preparations • ERC 3: Formulation in materials

Manual processing of silver containing films and photo papers by consumer and professionals	• SU 21: Consumer uses: Private households (= general public = consumers) • SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	• PROC 13: Treatment of articles by dipping and pouring	• ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
Automatic processing of silver containing films and photo papers in “dip & dunk machines”, “Minilabs”, “wholesale photofinishing machines” or “table-top paper processors” (professional use)	• SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	• PROC 2: Use in closed, continuous process with occasional controlled exposure	• ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix

[1] Manufacture, formulation and use take place in succession at the same site.

The risk assessment performed in this Dossier is tailored to a specific form of Silver iodide: Silver iodide manufactured as a component of a photographic emulsion and not as a standalone or separate substance. For photographic uses, crystals of one or more Silver halides including Silver iodide are precipitated by the reaction of Silver nitrate with soluble halides like iodide in an aqueous gelatin solution, forming a dispersion typically referred to as a ‘photographic emulsion’. The crystals of the Silver halide or halides are formed in a liquid gelatin medium, and at all stages between formation and the coating of film or paper they are contained in either a liquid gelatin medium or a gel. There is no spontaneous generation of dry particulates in this specific form of Silver iodide and the assessment performed for the purpose of this Registration can thus not be generally assumed to cover any form of Silver iodide registered under the REACH regulation, and especially not those forms where particulates or dust could be formed during manufacture or use of Silver iodide.

Should a registrant manufacture or import Silver iodide in another form than the one described above, the scope of the Registration Dossier may need to be revisited and the (exposure) assessment updated to cover the form of relevance for this registrant.