ID Card
Silver bromide

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).*

1. Identification of the substance

Table 1. Identification of the substance

	Original (in EC inventory)
Name	Silver bromide
EC number	232-076-8
CAS number	7785-23-1
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) bromide
CAS name	
Abbreviations	None
Other commercial, brand or international names	Bromargyrite Bromyrite Bromosilver Silver monobromide
Other identity codes	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

Molecular formula	AgBr
Structural formula	Each silver ion is surrounded by six bromide ions in an octahedral arrangement, and vice versa (sodium chloride crystal structure) Ag^+ Br^-
Smiles notation	[Ag]Br
Optical activity	Not applicable
Typical ratio of (stereo) isomers	Not applicable
Molecular Weight / Molecular Weight range	187,77 g/mol

5. Typical composition of the substance

Table 4. Typical composition

	Name	Symbol / Formula	Min & Max concentrations (%)	Typical concentration (%)
Main constituent(s)*	Silver bromide	AgBr	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.

Silver bromide is 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 bromide are precipitated by the reaction of Silver nitrate with soluble halides like bromide in an aqueous gelatine solution, forming a dispersion typically referred to as a 'photographic emulsion'. The crystals of the Silver halide or halides are formed in a liquid gelatine medium, and at all stages between formation and the coating of film or paper they are contained in either a liquid gelatine medium or a gel. There is no spontaneous generation of dry particulates in this specific form of Silver bromide and the assessment performed for the purpose of this Registration can thus not be generally assumed to cover any form of Silver bromide registered under the REACH regulation, and especially not those forms where particulates or dust could be formed during manufacture or use of Silver bromide.

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

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

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	Pale 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. $CuSO_4 \times 5 H_2O$, 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 is the Lead Registrant for Silver bromide. The EPMF will provide support to the Lead Registrant as laid down in the EPMF Agreement.

9. Scope of the Registration Dossier

The uses included in this Registration Dossier are listed on the EPMF website.