Revision n. X dd 06.18.2021
Replaces revision n. IX del 01.21.2019

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Chemical name	AG OXIDE
Registration number	A REACH registration number is not available for this product as the annual quantity produced or imported is less than one ton.
C.A.S. Registry Number	20667-12-3
CE Number	243-957-1
Molecular weight	231,74
Brute formula	Ag_2O
Product code	61

1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended uses	Additive for galvanic baths for industrial use
Advised against uses	None in particular

1.3 Details of the supplier of the safety data sheet

Name	FAGGI ENRICO S.P.A.
Adress	Via Majorana, 101/103 50019 Sesto Fiorentino FI
Telephone number	055311861
Fax number	055311791
Competent person responsible for the safety data sheet	lorenzo.magaldi@faggi.it

1.4 Emergency telephone number

Ph. 0557947819 Poison Control Center of Florence

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture according to Regulation (EC) n. 1272/2008

Hazard classes	Category codes	Hazard statements
Ox. Sol.	1	H271
Eye Damage	1	H318
Aquatic Acute	1	H400
Aquatic Chronic	1	H410

2.2 Label elements

Pictograms

Signal words **DANGEROUS**

Hazard statements

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		H271	May cause fire or explosion; strong oxidiser.
		H318	Causes serious eye damage.
		H410	Very toxic to aquatic life with long lasting effects.
	Precautionary statements	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
		P306+P360	IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
		P371+P380+P375	In case of major fire and large quantities: evacuate area. Fight fire remotely due to the risk of explosion.
		P391	Collect spillage.
2.3	**Other hazards**	It does NOT contain PBT / vPvB substances according to Regulation (EC) 1907/2006, annex XIII. It does NOT contain substances that interfere with the endocrine system in accordance with Regulation (EC) 1907/2006 art.59 paragraph 1 and in accordance with the criteria established in Regulation (EU) 2017/2100 and Regulation (EU) 2018/605.	

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance SILVER OXIDE

CAS Number : 20667-12-3
CE Number : 243-957-1
M factor acute toxicity: 100
M factor chronic toxicity: 100

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Immediately take to fresh air. If breathing is difficult, give oxygen. Artificial respiration if necessary.
Ingestion	Do not induce vomiting. Wash the injured person's mouth. Call a doctor immediately.
Skin contact	Remove contaminated clothing and wash thoroughly with plenty of water and mild soap. Call a doctor immediately.

Eye contact — Rinse with plenty of running water for at least 15 minutes while keeping the eyelids open (remove contact lenses if it is easy to do so). Call a doctor immediately.

Reccomendation:

- **Need to see a doctor immediately** **YES**
- **Possibility of delayed effects following exposure** **YES**
- **Move the exposed individual from the place of exposure to the open air** **YES**
- **Remove the clothing and shoes of the exposed individual** **YES**
- **How to handle contaminated clothing** **With gloves**
- **For those providing first aid, wear DPI** **YES**

4.2 Most important symptoms and effects, both acute and delayed

Destruction of the skin tissue, i.e. a visible necrosis of the epidermis and part of the dermis (reactions after exposure between three minutes and an hour and observations up to 14 days).

4.3 Indication of any immediate medical attention and special treatment needed

Consult a doctor immediately.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: CO_2, powder or water spray extinguishers.

Non suitable extinguishing media: None.

5.2 Special hazards arising from the substance or mixture

Although the substance or mixture is not combustible, it can - generally by releasing oxygen - cause or favor the combustion of other materials.

5.3 Advice for firefighters

General information Prevent the water used to extinguish the fire from flowing into the sewer, groundwater or surface water. Cool containers at risk with water.
If feasible from a safety point of view, move undamaged containers from the area of immediate danger.

Equipment Normal fire-fighting clothing, such as self-contained open-circuit compressed air breathing apparatus (EN137), flame retardant suit (EN469), flame retardant gloves (EN659) and firefighter boots (HOA29 or A30)
Protective measures to be taken:
Remove the containers from the fire area, if this is possible without risk, or cool them, since if the substance is exposed to thermal radiation or if it is directly involved it can give rise to toxic fumes and explosions.
Damaged containers should only be handled by authorized skilled personnel.

Proceed to extinguish the fire at a safe distance from the containers using hoses or automatic fire extinguishing systems with nozzles positioned above the containers

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

6.1.1. For non-emergency personnel

Evacuate the contaminated area.

6.1.2. For emergency responders

Wear protective equipment (anti-acid protective gloves and clothing and eye protection).
Provide adequate ventilation of the premises.
Whenever possible, operate above wind.
Avoid coming into contact with the substance or handling the containers without adequate protection.
Isolate the area until the substance is completely dispersed.

6.2 Environmental precautions

Evacuate the dangerous area and minimize the affected area by containing the leak. Collect the material and store it in a suitable container pending disposal. Do not allow the spill to reach sewers or natural water courses and if it was not possible to immediately notify the competent authorities.

6.3 Methods and material for containment and cleaning up

6.3.1. Advice to contain a spill

Limit the spreading with sand, bentonite or similar. Do not use sawdust or other flammable materials.

6.3.2. Advice to clean-up a spill

Wash the area with plenty of water.

6.3.3 Any other information

None

6.4 Reference to other sections

None

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. Raccomentations to manipulate the substance or the mixture in a safe manner, such as containement measures and prevention of fire and aereosol and powders formation

Use substance only with adequate ventilation and aspiration and with emergency eye wash nearby.

7.1.2. General recommendation on work hygiene

Do not eat, drink, or smoke in work areas; wash hands thoroughly after use and remove contaminated clothing and protective equipment before entering areas where you eat.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1. Risk management associated with explosive atmospheres, corrosive conditions, flammability hazards, incompatible substances or mixtures, evaporative conditions, potential ignition sources

Keep in sealed and labeled containers, separately or only with other oxidizing substances and away from sources of heat and ignition.

7.2.3. Control of weather conditions, ambient pressure, temperature, sunlight, humidity, and vibration

Store at temperatures below 15 ° C and away from sunlight.

7.2.4. Conditions for keeping substances / mixtures intact

Keep in a cool and dry place

7.2.5. Advice regarding the ventilation, specific design for storage rooms or vessels, quantity limits under storage conditions, packaging compatibilities

Storage rooms must be ventilated and closed.

7.3. Specific end use(s)

Industrial use

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

ECTLV TWA 0,01 mg/m3
OEL (IT) TWA 0,01 mg/m3
DNEL e PNEC : N.D.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Periodically carry out personal environmental sampling and clinical examinations.

8.2.2. Individual protection measures, such as personal protective equipment

Eye/face protection	Protective equipment for the eyes compliant with Directive 89/686 / EEC and standard EN166: 2001
Skin protection (hands)	Gloves compliant with EN420 E374 standards
Skin protection (body)	Protective and antacid clothing compliant with UNI EN 13034: 2006 type 6 standards
Respiratory protection	Mask with B, P2 or ABEK P3 filters or self-contained breathing apparatus
Thermal hazards	Protective clothing compliant with UNI EN ISO 11612: 2009 A1-B1-C1-E1

8.2.3. Environmental exposure controls

Maintain suction in all environments where silver nitrate is used, using localized collection and ambient air exchange systems. Convey the aspirated volumes to an abatement system and then into the atmosphere. Do not use air recirculation suction systems. Avoid any spill into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Solid powder
Colour	dark brown
Odour	Odorless
Melting point/freezing point	The substance does not melt but decomposes
Boiling point or initial boiling point and boiling range	Not applicable
Flammability	Not inflammable
Lower and upper explosion limit	Not explosive
Flash point	Not inflammable
Auto-ignition temperature	Not inflammable
Decomposition temperature	230 - 280 ° C
pH	Not applicable
Kinematic viscosity	Not applicable
Solubility	Insoluble in water
Partition coefficient n-octanol/water (log value)	Insoluble in n-octanol
Vapour pressure	Not applicable
Density and/or relative density	7.2 g / cm^3
Relative vapour density	Not applicable
Particle characteristics	Particle size D_{10}: 2.2 µm Particle size D_{50}: 3.9 µm Particle size D_{90}: 6.8 µm

9.2. Other information

None.

10. STABILITY AND REACTIVITY

10.1 Reactivity

The product has oxidizing characteristics. It can decompose slowly when exposed to sunlight with the formation of metallic Ag.

10.2 Chemical stability

The product is stable

10.3 Possibility of hazardous reactions

Risk of explosion with aluminum in the form of dust, ammonia, ethyl alcohol, hydrazines, sodium, organic nitro compounds, carbon monoxide
Risk of ignition or formation of flammable gases or vapors with:
sulfur, hydrogen sulphide, selenium, sulphides, phosphorus, combustible substances.
Exothermic reaction with magnesium.

10.4 Conditions to avoid

Heating

10.5 Incompatible materials

See point 10.3

10.6 Hazardous decomposition prodoucts

None

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (CE) No 1272/2008

Acute toxicity	DNEL (Derived No Effect Level) 0.107 mg/m³ LD50 (orale) **Effect level**> 10000 mg/kg bw LC50 (inalazione) (male and female rats; 4 h) > 750 µg/m^3 LD50 (derma) > 2000 mg/kg
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Corrosive to the eyes
Respiratory or skin sensitization	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Carcinogenicity	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
(STOT) single exposure	Target organs: eyes, skin
(STOT) repeated exposure	Target organs: skin
Aspiration hazard	Mucosal irritation

11.2 Information on other hazards

The main ailment due to poisoning from silver and its salts is called argyria: it usually appears following the intake of silver for long periods (months) and appears as a skin alteration that permanently colors the skin blue, usually not has other associated disorders and is therefore a substantially aesthetic problem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

PNEC aqua (freshwater) 0.04 µg/L
PNEC aqua (marine water) 0.86 µg/L
PNEC STP 0.025 mg/L
PNEC sediment (freshwater) 438.13 mg/kg sediment dw
PNEC sediment (marine water)438.13 mg/kg sediment dw
PNEC soil 1.41 mg/kg soil dw
LC50 96 h (fish) 1.2 µg/L
The 28 day NOEC (mortality and gr/owth) is 130 µg dissolved Ag/L

12.2	**Persistence and degradability**	Not degradable
12.3	**Bioaccumulative potential**	Log Pow = -N / A
12.4	**Mobility in soil**	BCF = 70
12.5	**Results of PBT and vPvB assessment**	Scientifically not justified studies
12.6	**Endocrine disrupting properties**	Not PBT nor vPvB
12.7	**Other adverse effects**	None known

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Either the mixture or packages must be sent to approved facilities for the disposal of industrial wastes.

14. TRANSPORT INFORMATION

14.1	**UN number or ID number**	UN 1479
14.2	**UN proper shipping name**	Oxidising solid, n.o.s.
14.3	**Transport hazard class(es)**	5.1
14.4	**Packing group**	II
14.5	**Environmental hazards**	YES
14.6	**Special precautions for user**	Not applicable
14.7	**Maritime transport in bulk according to IMO instruments**	Not applicable

15. REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	**Applicability**
	Reg. (CE) 1907/2006/CE Reach	YES
	Reg. (CE) 1272/2008 CLP and subsequent amendements	YES
	Reg. (CE) 2037/2000 "Substances that deplete the ozone layer"	NO
	Reg. (CE) 850/2004 "Persistent organic pollutants"	NO
	Reg. (CE) 689/2008 "Export and import of hazardous chemicals''	NO
	Substance listed in Annex I of Dir. 2012/18/EU cd Seveso	YES
	Directive 81/2008 Consolidated Act on protection of health and work safety	YES
	Directive 2014/103/UE "Adr"	YES

15.2 **Chemical safety assessment**

A chemical safety assessment was not carried out.

16. OTHER INFORMATION

Changes compared to the previous edition

Adaptation to current legislation. Amendment to section 14.

Acronim and abbreviation legend

ADR: Agreement concerning the International Carriage of Dangerous Goods by Road
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstract Service

Main references and data sources

ECHA's data bank on registered substances and soon to be registered substances:
http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

Adequate training for workers to guarantee the protection of human health and the environment
Training on the chemical risk ex Directive 81/08 Title IX dangerous substances
Training on DPI