Safety Information Sheet

This document must not be considered a Safety Data Sheet according to art. 31 of Regulation (EC) no. 1907/2006 (REACH)

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	**SILVER**
Chemical name and synonyms	Silver (conc > 99.9%)
EC number	231-131-3
CAS number	7440-22-4
REACH reg. no.	01-2119555669-21-0048

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

Intended use	Industrial uses, pharmaceutical sector, precious metals sector.
Uses advised against	Uses other than those stated.

1.3. Details of the supplier of the Safety Information Sheet

Name	TCA Spa
Full address	Zona Ind. Castelluccio, 11
District and Country	52010 Capolona (AR) - ITALY
	Tel. +39 0575 3911
	Fax +39 0575 451337
e-mail address of the competent person	
responsible for the Safety information sheet	tcaspa@pec.tcaspa.com
	Serena Tavanti

1.4. Emergency telephone number

For urgent inquiries refer to	TCA Spa: Tel. +39 0575 3911

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is not classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements).

Hazard classification and indication: --

2.2. Label elements

Hazard pictograms:	--
Signal words:	--
Hazard statements:	--
Precautionary statements:	--

This product is not subject to hazard labeling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

2.3. Other hazards

The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).
The substance does not have endocrine disrupting properties.

SECTION 3. Composition/information on ingredients

3.1. Substances

Contains:

Identification	Conc. %	Classification (EC) 1272/2008 (CLP)
SILVER (MASSIVE FORM)		
INDEX -	>99,9	*Substance with a community workplace exposure limit.*
CE 231-131-3		

CAS 7440-22-4

Reg. REACH 01-2119555669-21-0048

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

No effects requiring implementation of special first aid measures are expected. The following information represents practical indications of correct behaviour in the event of contact with a chemical product, even if not hazardous.
In case of doubt or in the presence of symptoms contact a doctor and show him this document.
In case of more severe symptoms, ask for immediate medical aid.

Rescuer protection
It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

4.2. Most important symptoms and effects, both acute and delayed

In the event of dust generation:
Acute effects
Inhalation: inhalation of dust may cause irritation of the respiratory tract and nose, breathing difficulties, breathlessness and chest pain.
Eyes: May cause eye irritation and/or conjunctivitis.
Skin: May cause skin irritation and dermatitis especially in folds of skin where rubbing may occur as a result of accumulation of dust.

Chronic effects:
Long-term effects or repeated exposure to dust may include respiratory diseases.

4.3. Indication of any immediate medical attention and special treatment needed

If symptoms occur, whether acute or delayed, consult a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products. The product is combustible and, when the powder is released into the air in sufficient concentrations and in the presence of a source of ignition, it can create explosive mixtures with air. Fires may start or get worse by leakage of the solid product from the container, when it reaches high temperatures or through contact with sources of ignition.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel
Do not breathe dust in case of release. Avoid release of dust into the environment. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety information sheet) to prevent any contamination of skin, eyes and personal clothing. Remove any source of ignition, provide adequate ventilation and control the dust. Follow the appropriate internal procedures for personnel not authorised to intervene directly in the event of an accidental release.

6.1.2 For emergency responders
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety information sheet) to prevent any contamination of skin, eyes and personal clothing. Follow the appropriate internal procedures for personnel authorised to intervene directly in the event of an accidental release.

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6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect spilled product in suitable containers for recovery or disposal, using procedures that minimise the generation of dust in the air. Use explosion-proof equipment.
Do not breathe dust. Avoid release of dust (avoid cleaning dust from surfaces using compressed air). Clean the spillage area with a damp cloth.
Make sure the spillage site is well aired. Evaluate the compatibility of the container to be used, by checking section 10. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material information sheet. Avoid spillage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid all ignition sources (sparkles, flames). Avoid dust release. Provide adequate ventilation. Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe dust. Wash hands after use.

7.2. Conditions for safe storage, including any incompatibilities

Store the product in a well ventilated place, far from direct sunlight. Keep the product in clearly labelled containers. Store in a separate and approved area. Keep containers away from any incompatible materials, food or beverage, see section 10 for details. Eliminate all sources of ignition.

7.3. Specific end use(s)

No use other than that indicated in section 1.2 of this safety information sheet.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory references:

AUS	Österreich	Gesamte Rechtsvorschrift für Grenzwerteverordnung 2021 , Fassung vom 14.05.2023
BEL	Belgique	Liste de valeurs limites d'exposition aux agents chimiques, livre VI du code du bien-être au travail
DEU	Deutschland	Forschungsgemeinschaft MAK- und BAT-Werte-Liste 2022 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe Mitteilung 58
DNK	Danmark	Bekendtgørelse om grænseværdier for stoffer og materialer - BEK nr 1458 af 13/12/2019
ESP	España	Límites de exposición profesional para agentes químicos en España 2023
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en FranceDécret n° 2021-1849 du 28 décembre 2021
FIN	Suomi	HTP-VÄRDEN 2020. Koncentrationer som befunnits skadliga. SOCIAL - OCH HÄLSOVÅRDSMINISTERIETS PUBLIKATIONER 2020:25
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről

IRL	Éire	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
LVA	Latvija	Grozījumi Ministru kabineta 2007. gada 15. maija noteikumos Nr. 325 "Darba aizsardzības prasības saskarē ar ķīmiskajām vielām darba vietās" (prot. Nr. 32 18. §; prot. Nr. 1 22. §)
NLD	Nederland	Arbeidsomstandighedenregeling. Lijst van wettelijke grenswaarden op grond van de artikelen 4.3, eerste lid, en 4.16, eerste lid, van het Arbeidsomstandighedenbesluit
POL	Polska	Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy
ROU	România	Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006
SWE	Sverige	Hygieniska gränsvärden, Arbetsmiljöverkets föreskrifter och allmänna råd om hygieniska gränsvärden (AFS 2018:1)
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2024

SILVER (MASSIVE FORM)
Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
MAK	AUS	0,01				INHAL
VLEP	BEL	0,1				
AGW	DEU	0,1				
MAK	DEU	0,1				
TLV	DNK	0,1				
VLA	ESP	0,1				
VLEP	FRA	0,1				
HTP	FIN	0,1				
AK	HUN	0,1				
OELV	IRL	0,1				
RV	LVA	0,1				
TGG	NLD	0,1				
NDS/NDSCh	POL	0,05				INHAL
TLV	ROU	0,1				
NGV/KGV	SWE	0,1				
WEL	GBR	0,1				
OEL	EU	0,1				
TLV-ACGIH		0,1				Metal, dust and fumes

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

During the risk assessment process, it is essential to take into consideration the ACGIH occupational exposure levels for particulate not otherwise classified (PNOC respirable fraction: 3 mg/m3; PNOC inhalable fraction: 10 mg/m3). For values above these limits, use a P type filter, whose class (1, 2 or 3) must be chosen according to the outcome of risk assessment. The above values are not TLVs, but guide values, to be used for particles that do not have their own TLV and that are insoluble or poorly soluble in water and have low toxicity.

Recommended monitoring procedures:
This product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Reference should be made to monitoring standards, such as the following:

- European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy)
- European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- European Standard EN 481 (Workplace atmospheres - Size fraction definitions for measurement of airborne particles).

8.2. Exposure controls

General working hygiene practices involves procedures (such as showering and changing clothes at the end of the work shift) to avoid any contamination of third parties and appropriate cleaning practices (such as regular cleaning, with appropriate cleaning devices), not eating and smoking at the workplace.

Personal protective equipment (PPE) must be CE marked, showing that it complies with applicable standards.
Only use PPE provided for the risk assessment for the specific use of the product. Choose the most suitable PPE after assessing the actual conditions of use of the product.
When choosing PPE, ask your technical equipment supplier for advice.
Make sure that the workplace is well aired through effective local aspiration, based on the specific use of the product.
Provide an emergency shower with face and eye wash station. Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage PPE so as to guarantee maximum protection (e.g. reduction in replacement times).
General PPE procedures:
Provide adequate personnel training for use.
Carry out an inspection of PPE to verify the integrity. Do not use damaged or deteriorated PPE.
Carry out the PPE inspection procedures laid down in the user manual.
Do not use PPE after its expiry date or outside the indications given in the technical data sheet/user manual.
Do not reuse single-use PPE.
PPE that is no longer usable must be disposed according to local applicable regulations.
If PPE is used in an explosive or potentially explosive atmosphere, check the compatibility for the usage.

HAND PROTECTION
When handling chemicals, chemical-resistant waterproof gloves complying with approved standards must always be worn (see standard EN 347)

SKIN PROTECTION
Before handling the product, select suitable personal protective equipment for the body the specific job and related risk assessment. Wear professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION
It is recommended to wear safety glasses complying with approved standards (see standard EN ISO 16321)

RESPIRATORY PROTECTION
If the worker is exposed to dust (during processing) use a respiratory protection with type P filter, whose class (1, 2 or 3) and effective need, must be defined according to the outcome of risk assessment (see standard EN 149).
The concentration of dust, the exposure, the time of exposure have to be evaluated into the risk assessment process.
The risk assessment must provide a PPE even in situations where exposure may not be perceived by the worker.
The choice of the suitable PPE must take into account the maximum concentration limit of the substance/mixture at which the filters guarantee worker protection and the maximum time of usage (see the PPE data sheet). If the filtering mask does not ensure worker protection, or does not ensure the correct time of usage for the specific activity or concentration of the substance/mixture in the air, the risk assessment outcome may provide to wear an open- or closed-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138).

ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	**Value**
Appearance	Solid, massive form
Colour	Grey - white
Odour	Odourless
Melting point / freezing point	962 °C
Initial boiling point	Not applicable based on the physical state
Flammability	Not flammable based on CLP criteria
Lower explosive limit	Not applicable based on the physical state
Upper explosive limit	Not applicable based on the physical state
Flash point	Not applicable based on the physical state
Auto-ignition temperature	Not applicable – the substance does not auto-ignite
Decomposition temperature	Not applicable – the substance does not decompose
pH	Not applicable based on the physical state
Kinematic viscosity	Not applicable based on the physical state
Solubility	Not soluble in water
Partition coefficient: n-octanol/water	Not available

Vapour pressure	Not applicable based on the physical state
Density and/or relative density	10,49 g/cm3
Relative vapour density	Not applicable based on the physical state
Particle characteristics	Not applicable based on the physical state

9.2. Other information

9.2.1. Information with regard to physical hazard classes
Information not available

9.2.2. Other safety characteristics
Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.
10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

Dangerous reactions may form with acetylene. Contact with acids releases flammable gases.
Reacts with strong oxidizing agents. Reacts with strong alkali. Reacts with peroxides and other radical forming substances.

10.4. Conditions to avoid

Avoid environmental dust build-up.

10.5. Incompatible materials

Acetylene, acids, strong oxidizing agents, strong alkali, peroxides and other radical forming substances.

10.6. Hazardous decomposition products

Dangerous decomposition products are not known.

SECTION 11. Toxicological information

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

Metabolism, toxicokinetics, mechanism of action and other information
Information not available

Information on likely routes of exposure
Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Information not available

Interactive effects
Information not available

ACUTE TOXICITY
ATE (Inhalation) of the mixture: not classified
ATE (Oral) of the mixture: not classified
ATE (Dermal) of the mixture: not classified

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION
Does not meet the classification criteria for this hazard class

RESPIRATORY OR SKIN SENSITISATION
Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY
Does not meet the classification criteria for this hazard class

CARCINOGENICITY
Does not meet the classification criteria for this hazard class
REPRODUCTIVE TOXICITY
Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE
Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE
Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD
Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the substance is not listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity
Information not available

12.2. Persistence and degradability
Information not available

12.3. Bioaccumulative potential
Information not available

12.4. Mobility in soil
Information not available

12.5. Results of PBT and vPvB assessment
The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).

12.6. Endocrine disrupting properties
Based on the available data, the substance is not listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects
Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

The hazard level of waste containing this product should be evaluated according to applicable regulations. (Directive 2008/98/EC and subsequent amendments and adjustments and related national transpositions).
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

The legal responsibility for disposal is the producer / holder of the waste.
To this product different CER codes could be applied (European Waste Code) based on the specific circumstances that generated the waste, possible alterations and/or possible contamination.

The suitable final destination of the waste must be evaluated by the manufacturer on the basis of the chemical-physical characteristics of the waste, the compatibility with the authorized facility to which it will be given for recovery, and the definitive treatment or disposal according to the procedures established by current regulations .

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number or ID number
Not applicable

14.2. UN proper shipping name
Not applicable

14.3. Transport hazard class(es)
Not applicable

14.4. Packing group
Not applicable

14.5. Environmental hazards
Not applicable

14.6. Special precautions for user
Not applicable

14.7. Maritime transport in bulk according to IMO instruments
Information not relevant

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EU
None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006
None

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
Not applicable

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Information not available

15.2. Chemical safety assessment

A chemical safety assessment was carried out without any exposition scenarios (art. 14.4 of REACH).

SECTION 16. Other information

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY
1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2019/521 (XII Atp. CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
23. Delegated Regulation (UE) 2023/707
24. Delegated Regulation (UE) 2023/1434 (XIX Atp. CLP)
24. Delegated Regulation (UE) 2023/1435 (XX Atp. CLP)
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website

- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for the recipient of the Safety information Sheet (SIS):
The recipient of this SIS shall make sure of reading and understanding the information included by all people who handle, store, use, or otherwise come into contact in any way with the substance or mixture to which this SIS is referred to. In particular, the recipient shall provide adequate training to the personnel for the use of hazardous substances and/or mixtures. The recipient shall verify the suitability and completeness of the provided information according to the specific use of the substance or mixture.
However, the substance or mixture referred to by this SIS shall not be used for uses other than those specified in Section 1. The Supplier don't assume responsibility for improper uses. Since the use of the product does not fall under the direct control of the Supplier, the user shall, under his own responsibility, fulfill national and EU regulations concerning health and safety.
The information included in this SIS are provided in good faith and are based on the current state of scientific and technical knowledge, at the revision date indicated, available to the Supplier indicated in Section 1 of this SIS. It shall not be meant that the SIS is a guarantee of any specific property of the substance or mixture. The information concern only to the substance or mixture specifically designated in Section 1 and it could not be valid for the substance or mixture used in combination with other materials or in any process not specified in the text. This revision of the SIS replaces all previous versions.

Changes to previous review:
The following sections were modified:
01 / 02 / 03 / 04 / 05 / 06 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 14 / 15 / 16.