

# Safety Data Sheet

according to 29 CFR 1910.1200(g)

## UV-Plus Purifier

Revision date: 04/01/2025

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### 1. Identification

#### Product identifier

UV-Plus Purifier

#### Recommended use of the chemical and restrictions on use

##### Use of the substance/mixture

professional use.

The UV Plus Purifier is a gas cleaning system for exclusive use in OES SPECTRO products.

##### Uses advised against

Any non-intended use.

#### Details of the supplier of the safety data sheet

Company name: SPECTRO Analytical Instruments GmbH  
Street: Boschstrasse 10  
Place: D-47533 Kleve  
Telephone: +49 2821892-0  
Internet: <https://www.spectro.com/>  
Responsible Department: [spectro.info@ametek.com](mailto:spectro.info@ametek.com)

#### Emergency phone number:

001 7035273887 (International); 001 8004249300 (USA and Canada);  
CHEMTREC CCN: 619106 Ametek/Spectro

#### Further Information

The product is classified as an article. Providing the Safety Data Sheet takes place on a voluntary basis for information purposes.

### 2. Hazard(s) identification

#### Classification of the chemical

##### 29 CFR Part 1910.1200

Self-heating chemicals: Self-heat. 1

Carcinogenicity: Carc. 1A

Specific target organ toxicity repeated or prolonged exposure: STOT RE 1

#### Label elements

##### 29 CFR Part 1910.1200

Signal word: Danger

Pictograms:



#### Hazard statements

Self-heating; may catch fire

May cause cancer

Causes damage to organs through prolonged or repeated exposure

#### Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep cool. Protect from sunlight.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

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If exposed or concerned: Get medical advice/attention.  
 Store locked up.  
 Maintain air gap between stacks/pallets.  
 Store away from other materials.  
 Dispose of contents/container to local/regional/national/international regulations.

**Additional advice on labelling**

Not required because hazardous substances are incorporated in the material/article and there is no risk in case of skin contact, inhalation or ingestion as long as the material is properly handled and stored.  
 There is no requirement for the product to be specially labelled according to EC directives or the corresponding national laws.

**Hazards not otherwise classified**

This article doesn't contain dangerous substances or preparations intended to be released under normal or reasonably foreseeable conditions of use. Under normal conditions, the product is hermetically sealed.

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

**3. Composition/information on ingredients****Mixtures****Chemical characterization**

Catalyst.

The UV Plus Purifier is a gas cleaning system for exclusive use in OES SPECTRO products. Dispose of only deactivated catalyst residues.

**Relevant ingredients**

CAS No	Components	Quantity
-	activated Copper Oxide	< 50 %
1317-38-0	copper(II) oxide	< 50 %
14808-60-7	Quartz	< 5 %
1314-13-2	zinc oxide	< 1 %

**4. First-aid measures****Description of first aid measures****General information**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

**After inhalation**

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of respiratory tract irritation, consult a physician.

**After contact with skin**

In the event of a damaged container. If material escapes:

After contact with skin, wash immediately with: Water. In all cases of doubt, or when symptoms persist, seek medical advice.

**After contact with eyes**

In the event of a damaged container. If material escapes:

Rinse immediately carefully and thoroughly with eye-bath or water. In case of troubles or persistent symptoms, consult an ophthalmologist.

**After ingestion**

In the event of a damaged container. If material escapes:

Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect). In all cases of doubt, or when symptoms persist, seek medical advice.

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### Most important symptoms and effects, both acute and delayed

See sections 2 and 11

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## 5. Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing media

The product itself does not burn.

In the event of a damaged container. If material escapes:

D powder. Dry sand.

#### Unsuitable extinguishing media

Water.

### Specific hazards arising from the chemical

Can be released in case of fire: Gas/vapors, harmful.

### Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus.

### Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Co-ordinate fire-fighting measures to the fire surroundings.

Use water spray jet to protect personnel and to cool endangered containers.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

#### General advice

Warning: May cause fire.

In case of fire, use fire extinguisher class D.

#### For non-emergency personnel

Wear personal protection equipment (refer to section 8).

#### For emergency responders

No special measures are necessary.

### Environmental precautions

Discharge into the environment must be avoided.

### Methods and material for containment and cleaning up

#### For containment

Dispose of only deactivated catalyst residues.

Take up carefully when dry. Avoid contact with water.

Treat the recovered material as prescribed in the section on waste disposal.

#### For cleaning up

Clean contaminated objects and areas thoroughly observing environmental regulations.

### Reference to other sections

Safe handling: see section 7

Disposal: see section 13

## 7. Handling and storage

### Precautions for safe handling

#### Advice on safe handling

Protect containers against damage.

Under normal conditions, the product is hermetically sealed.

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**Advice on protection against fire and explosion**

Protect containers against damage.  
Under normal conditions, the product is hermetically sealed.  
Usual measures for fire prevention.

**Advice on general occupational hygiene**

No special measures are necessary.

**Further information on handling**

Avoid generation of dust.  
General protection and hygiene measures: refer to section 8

**Conditions for safe storage, including any incompatibilities****Requirements for storage rooms and vessels**

not relevant  
Under normal conditions, the product is hermetically sealed.

**Hints on joint storage**

not relevant  
Under normal conditions, the product is hermetically sealed.

**Further information on storage conditions**

not relevant  
Under normal conditions, the product is hermetically sealed.

**8. Exposure controls/personal protection****Control parameters****Exposure limits**

CAS No	Substance	ppm	mg/m <sup>3</sup>	Category	Origin
1317-38-0	Copper fume (as Cu)	-	0.1	TWA (8 h)	REL
1317-38-0	Copper fume: copper(II) oxide, as Cu	-	0.2	TWA (8 h)	ACGIH-2024
14808-60-7	Silica, crystalline - alpha-quartz (respirable fraction)	-	0.025	TWA (8 h)	ACGIH-2024
14808-60-7	Silica, crystalline (as respirable dust)	-	0.05	TWA (8 h)	REL
14808-60-7	Silica, crystalline quartz, total dust	-	(Z-3)	TWA (8 h)	REL
1314-13-2	Zinc oxide (Dust)	-	5	TWA (8 h)	REL
		-	C 15	Ceiling	REL
1314-13-2	Zinc oxide (respirable fraction)	-	2	TWA (8 h)	ACGIH-2024
		-	10	STEL (15 min)	ACGIH-2024
1314-13-2	Zinc oxide Respirable fraction	-	5	TWA (8 h)	REL

**Additional advice on limit values**

Under normal conditions, the product is hermetically sealed.

**Exposure controls****Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.  
Dust should be exhausted directly at the point of origin.

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**Individual protection measures, such as personal protective equipment****Eye/face protection**

Eye protection: not required.  
Under normal conditions, the product is hermetically sealed.

**Hand protection**

Hand protection: not required.  
Under normal conditions, the product is hermetically sealed.

**Skin protection**

Suitable protective clothing: Lab apron.

**Respiratory protection**

With correct and proper use, and under normal conditions, breathing protection is not required.  
Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

**Environmental exposure controls**

No special precautionary measures are necessary.

**9. Physical and chemical properties****Information on basic physical and chemical properties**

Physical state:	solid	
Color:	not determined	
Odor:	characteristic	
Melting point/freezing point:		not determined
Boiling point or initial boiling point and boiling range:		not applicable
Lower explosion limits:		not applicable
Upper explosion limits:		not applicable
Flash point:		not applicable
Auto-ignition temperature:		not applicable
Decomposition temperature:		not determined
pH-Value:		not applicable
Viscosity / kinematic:		not determined
Water solubility:		not applicable
Solubility in other solvents		not determined
Partition coefficient n-octanol/water:		SECTION 12: Ecological information
Vapor pressure:		not applicable
Density:		not determined
Relative vapour density:		not determined

**Other information****Information with regard to physical hazard classes**

Explosive properties	
not applicable	
Sustained combustibility:	No sustained combustibility
Self-ignition temperature	
Gas:	not determined
Oxidizing properties	
In the event of a damaged container. If material escapes: Self-heating substances and mixtures May cause fire.	

**Other safety characteristics**

Evaporation rate:	not determined
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Solvent separation test:	not determined
Solvent content:	0%
Solid content:	not applicable
Sublimation point:	not determined
Softening point:	not determined
Pour point:	not determined
Viscosity / dynamic:	not applicable
Flow time:	not determined

**10. Stability and reactivity****Reactivity**

No information available.

**Chemical stability**

Stability: Stable

The product is chemically stable under recommended conditions of storage, use and temperature.

**Possibility of hazardous reactions**

Hazardous reactions: May occur

No hazardous reaction when handled and stored according to provisions.

**Conditions to avoid**

Protect against: UV-radiation/sunlight. heat.

**Incompatible materials**

Substances and mixtures which, in contact with water, emit flammable gases. Combustible substance.

Oxidizing agents. Emission of air/oxygen.

**Hazardous decomposition products**Can be released in case of fire: Carbon monoxide, Carbon dioxide (CO<sub>2</sub>).**11. Toxicological information****Route(s) of Entry**

Under normal conditions, the product is hermetically sealed.

In the event of a damaged container. If material escapes: Ingestion: May be harmful. Inhalation: May be harmful. Skin contact: May cause mild irritation. Eye contact: May cause irritation. May cause fire.

**Information on toxicological effects****Toxicokinetics, metabolism and distribution**

No data available.

**Acute toxicity**

Based on available data, the classification criteria are not met.

**ATEmix calculated**

ATE (oral) &gt; 5000 mg/kg; ATE (dermal) &gt; 5000 mg/kg; ATE (inhalation vapour) &gt; 20 mg/l; ATE (inhalation dust/mist) &gt; 5 mg/l

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CAS No	Components				
	Exposure route	Dose	Species	Source	Method
1317-38-0	copper(II) oxide				
	oral	LD50 > 2500 mg/kg	Rat	REACH Dossier	OECD Guideline 423
	dermal	LD50 > 2000 mg/kg	Rat	REACH Dossier	OECD Guideline 402
1314-13-2	zinc oxide				
	oral	LD50 >5000 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	inhalation (4 h) dust/mist	LC50 >5.7 mg/l	Rat	ECHA Dossier	

**Irritation and corrosivity**

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

**Sensitizing effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

May cause cancer (Quartz)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

**Specific target organ toxicity (STOT) - single exposure**

Based on available data, the classification criteria are not met.

**Specific target organ toxicity (STOT) - repeated exposure**

Causes damage to organs through prolonged or repeated exposure (Quartz)

Carcinogenicity (OSHA): Silica dust, crystalline, in the form of quartz or cristobalite (CAS 14808-60-7) is listed.

Carcinogenicity (IARC): Silica dust, crystalline, in the form of quartz or cristobalite (CAS 14808-60-7) is listed in group 1.

Carcinogenicity (NTP): Silica dust, crystalline, in the form of quartz or cristobalite (CAS 14808-60-7) is listed in group Known.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Specific effects in experiment on an animal**

No data available.

**Information on other hazards****Endocrine disrupting properties**

No data available.

**12. Ecological information****Ecotoxicity**

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CAS No	Components					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
1317-38-0	copper(II) oxide					
	Acute fish toxicity	LC50 0.0105-9.15 mg/l	96 h	Fish	REACH Dossier	
	Acute algae toxicity	ErC50 0.016-0.897 mg/l	72 h	algae	REACH Dossier	
	Acute crustacea toxicity	EC50 0.0085-1.21 mg/l	48 h	Crustacea	REACH Dossier	
	Fish toxicity	NOEC 0.022-0.188 mg/l		Fish [7-330d]	REACH Dossier	
	Algae toxicity	NOEC 0.0102 mg/l	19 d	Macrocystis pyrifera	Mar. Ecol. Prog. Ser. 68: 147 - 156 (199)	
	Crustacea toxicity	NOEC 0.004-0.181 mg/l		Crustacea [2-240d]	REACH Dossier	

**Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

**Bioaccumulative potential**

No indication of bioaccumulation potential.

**BCF**

CAS No	Components	BCF	Species	Source
1317-38-0	copper(II) oxide	0.02 - 20	Crangon crangon	

**Mobility in soil**

No data available.

**Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

**Other adverse effects**

No data available.

**Further information**

Do not allow to enter into surface water or drains.

**13. Disposal considerations****Waste treatment methods****Disposal recommendations**

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal. Non-contaminated packages may be recycled.

**RCRA Hazardous wastes (Resource Conservation and Recovery Act)**

D001 Ignitability

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

**14. Transport information**

U.S. DOT 49 CFR 172.101

**UN number or ID number:**

UN 3190



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**Proper shipping name:** SELF-HEATING SOLID, INORGANIC, N.O.S. (activated Copper Oxide)  
**Transport hazard class(es):** 4.2  
**Packing group:** II  
 Hazard label: 4.2

**Marine transport (IMDG)**

**UN number or ID number:** UN 3190  
**UN proper shipping name:** SELF-HEATING SOLID, INORGANIC, N.O.S. (Activated copper oxide)  
**Transport hazard class(es):** 4.2  
**Packing group:** II  
 Hazard label: 4.2



Marine pollutant: YES  
 Special Provisions: 274  
 Limited quantity: 0  
 Excepted quantity: E2  
 EmS: F-A, S-J

**Air transport (ICAO-TI/IATA-DGR)**

**UN number or ID number:** UN 3190  
**UN proper shipping name:** SELF-HEATING SOLID, INORGANIC, N.O.S. (Activated copper oxide)  
**Transport hazard class(es):** 4.2  
**Packing group:** II  
 Hazard label: 4.2



Special Provisions: A3 A803  
 Limited quantity Passenger: Forbidden  
 Passenger LQ: Forbidden  
 Excepted quantity: E2  
 IATA-packing instructions - Passenger: 467  
 IATA-max. quantity - Passenger: 15 kg  
 IATA-packing instructions - Cargo: 470  
 IATA-max. quantity - Cargo: 50 kg

**Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: Yes



Danger releasing substance: copper(II) oxide

**Special precautions for user**

refer to section 6 - 8

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

not relevant

**15. Regulatory information**

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**U.S. Regulations****National Inventory TSCA**

All components are listed in the TSCA 8 (b) inventory as "active" or exempted.  
activated Copper Oxide (CAS: 1317-38-0/1317-39-1)

**National regulatory information**

SARA Section 304 CERCLA:

Zinc compounds (-): Reportable quantity = &amp;

SARA Section 311/312 Hazards:

Quartz (14808-60-7): Delayed (chronic) health hazard

SARA Section 313 Toxic release inventory:

Zinc compounds (-): De minimis limit = 1.0 %, Reportable threshold = Standard

**State Regulations****Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)**

WARNING: This product can expose you to chemicals including Silica, crystalline (airborne particles of respirable size) (cancer), which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

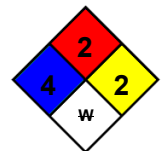
This preparation is hazardous in the sense of regulation 29 CFR Part 1910.1200.

**16. Other information****Hazardous Materials Identification System (HMIS)**

Health:	4
Flammability:	2
Physical Hazard:	2
Personal Protection:	J

**NFPA Hazard Ratings**

Health:	4
Flammability:	2
Reactivity:	2
Unique Hazard:	W

**Changes**

Revision date:	04/01/2025
Revision No:	3,0
Rev. 1.0;	Initial release 23.04.2014
Rev. 1.1;	Changes in section: 2, 7, 9, 10, 14, 15,16
Rev. 2.0;	15.05.2023, Changes in section: 1 - 16
Rev. 3.0;	01.04.2025, Changes in section: 1 - 16

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**Abbreviations and acronyms**

ACGIH: American Conference of Governmental Industrial Hygienists  
ASTM: American Society for Testing and Materials.  
ATE: acute toxicity estimate  
BCF: Bio concentration factor  
ECHA: European Chemicals Agency  
CAS: Chemical Abstracts Service  
CFR: Code of Federal Regulations  
DOT: Department of Transportation  
d: days  
EC50: Half maximal effective concentration  
EN: European Norm  
EPA: Environmental Protection Agency  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
h: hours  
HMIS: Hazardous Materials Identification System  
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER  
IBC: Intermediate Bulk Container  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
LOAEL: Lowest observed adverse effect level  
LOAEC: Lowest observed adverse effect concentration  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
MARPOL: marine pollution  
NOAEL: No observed adverse effect level  
NOAEC: No observed adverse effect concentration  
NTP: National Toxicology Program  
N/A: not applicable  
NFPA: National Fire Protection Association  
UN: United Nations  
OECD: Organisation for Economic Co-operation and Development  
OSHA: Occupational Safety and Health Administration  
PBT: Persistent bioaccumulative toxic  
RTECS: Registry of Toxic Effects of Chemical Substances  
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals  
SARA: Superfund Amendments and Reauthorization Act  
STEL: short-term exposure limits  
TSCA: Toxic Substances Control Act  
TWA: time weighted average  
VOC: Volatile Organic Compounds

**Other data**

Classification according 29 CFR Part 1910.1200: - Classification procedure:  
Health hazards: Calculation method.  
Environmental hazards: Calculation method.  
Physical hazards: On basis of test data and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of

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processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

*(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*