

Safety Data Sheet

according to 29 CFR 1910.1200(g)

UV-Plus Purifier

Revision date: 05/15/2023

Product code:

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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: Boschstr. 10

Place: D-47533 Kleve

Telephone: +49 2821892-0

Responsible Department: spectro.info@ametek.com

Emergency phone number:

International: +44 1865407333 Spectro 29003-NEC

North America: 011441865407333

Further Information

The product is classified as a device. 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.

If exposed or concerned: Get medical advice/attention.

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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 (>0.1%) 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.

Hazardous components

| 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

No information available.

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 chapter 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 ³ | f/cc | Category | Origin |
|------------|--|-----|-------------------|------|-----------|--------|
| 1317-38-0 | Copper fume (as Cu) | - | 0.1 | | TWA (8 h) | REL |
| 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) | PEL |
| 1314-13-2 | Zinc oxide (Dust) | - | 5 | | TWA (8 h) | REL |
| | | - | C 15 | | Ceiling | REL |
| 1314-13-2 | Zinc oxide Respirable fraction | - | 5 | | TWA (8 h) | PEL |

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.

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

Eye protection: not required.
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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 |

Changes in the physical state

| | |
|---|----------------|
| Melting point/freezing point: | not determined |
| Boiling point or initial boiling point and boiling range: | not applicable |
| Sublimation point: | not determined |
| Softening point: | not determined |
| Pour point: | not determined |
| Flash point: | not applicable |

Explosive properties

not applicable

| | |
|----------------------------|----------------|
| Lower explosion limits: | not applicable |
| Upper explosion limits: | not applicable |
| Auto-ignition temperature: | not applicable |

Self-ignition temperature

| | |
|----------------------------|----------------|
| Gas: | not determined |
| Decomposition temperature: | not determined |
| pH-Value: | not applicable |
| Viscosity / dynamic: | not applicable |
| Viscosity / kinematic: | not determined |
| Flow time: | 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

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Information with regard to physical hazard classes

Sustaining combustion:

Not sustaining combustion

Oxidizing properties

In the event of a damaged container. If material escapes: Self-heating substances and mixtures May cause fire.

Other safety characteristics

Solvent separation test:

not determined

Solvent content:

0%

Solid content:

not applicable

Evaporation rate:

not determined

Further Information**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 productsCan be released in case of fire: Carbon monoxide, Carbon dioxide (CO₂).**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) 5102 mg/kg; ATE (dermal) 5102 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

| CAS No | Components | | | | |
|-----------|------------------|------|---------|--------|--------|
| | Exposure route | Dose | Species | Source | Method |
| 1317-38-0 | copper(II) oxide | | | | |

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| | | | | | | |
|-----------|-------------------------------|---------------|-----------|-----|---------------|--------------------|
| | oral | LD50 mg/kg | > 2500 | Rat | REACH Dossier | OECD Guideline 423 |
| | dermal | LD50 mg/kg | > 2000 | Rat | REACH Dossier | OECD Guideline 402 |
| 1314-13-2 | zinc oxide | | | | | |
| | oral | LD50 mg/kg | >5000 | Rat | ECHA Dossier | |
| | dermal | LD50 mg/kg | >2000 | Rat | ECHA Dossier | |
| | inhalation (4 h) dust/mist | LC50 | >5.7 mg/l | Rat | ECHA Dossier | |

Irritation and corrosivity

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

Sensitizing effects

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

copper(II) oxide: no danger of sensitization. literature information: ECHA Dossier

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.

copper(II) oxide: Ames test negative. Literature information: ECHA Dossier

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**

| CAS No | Components | | | | | |
|-----------|--------------------------|---------------------|-----------|----------------|---------------|--------|
| | Aquatic toxicity | Dose | [h] [d] | Species | Source | Method |
| 1317-38-0 | copper(II) oxide | | | | | |
| | Acute fish toxicity | LC50 9.15 mg/l | 0.0105- | 96 h Fish | REACH Dossier | |
| | Acute algae toxicity | ErC50 0.897 mg/l | 0.016- | 72 h algae | REACH Dossier | |
| | Acute crustacea toxicity | EC50 1.21 mg/l | 0.0085- | 48 h Crustacea | REACH Dossier | |

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| | | | | | | |
|--|--------------------|-----------------------|------|--------------------|---|--|
| | Fish toxicity | NOEC 0.022-0.188 mg/l | | Fish [7-330d] | REACH Dossier | |
| | Algae toxicity | NOEC 0.0102 mg/l | 19 d | Macrocystis pyrife | 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

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

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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 chapter 6 - 8

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

not relevant

15. Regulatory information

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 = &

SARA Section 311/312 Hazards:

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

SARA Section 313 Toxic release inventory:

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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.

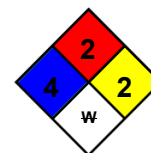
This preparation is hazardous in the sense of regulation 29 CFR Part 1910.1200.

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: | 15.05.2023 |
| Revision No: | 2,0 |
| Rev. 1.0 | Initial release 23.04.2014 |
| Rev. 1.1 | Changes in chapter: 2, 7, 9, 10, 14, 15,16 |
| Rev. 2.0 | 15.05.2023, Changes in chapter: 1 - 16 |

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

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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

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

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