

MATERIAL SAFETY DATA SHEET (MSDS)

Acc. to regulation (EC) Nr. 1907/2006
Version 3.2 from 20.05.2019

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

1.1 Product identifiers

Product name: **Zn-Cu-In-S/ZnS Quantum Dots**, cadmium free, hydrophilic
Product number: PL-QD-WCF- ...
REACH No.: A registration number is not available for this substance, as the annual tonnage does not require a registration.
CAS-No.: 1314-98-3 (ZnS); 22205-45-4 (Cu₂S); 12030-24-9 (In₂S₃)

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: PlasmaChem GmbH
Schwarzschildstr. 10
D-12489 Berlin
Phone: +49 30 6392 6313
Fax: +49 30 6392 6314
Email address: info@plasmachem.com

1.4 Emergency telephone number

Emergency phone: +49 30 6392 6313

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4)	H302
Acute toxicity, Inhalation (Category 4)	H332
Acute toxicity, Dermal (Category 4)	H312
Skin irritation (Category 2)	H315
Eye irritation (Category 2A)	H319
Specific target organ toxicity – single exposure (Category 3), Respiratory system	H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labeling according Regulation (EC) No 1272/2008

Pictogram: 

Signal word: Warning

Hazard statement(s)

H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary statement(s)

P261	Avoid breathing dust.
P280	Wear protective gloves/ protective clothing.
P305 + P338 +P351	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements: None

2.3 Other hazards

None

SECTION 3 Composition/information on ingredients

3.1 Substances

Synonyms:	QDs; fluorescent markers/nanoparticles
Formula:	Zn-Cu-In-S/ZnS (alloyed sulfides)
Molecular weight:	n.a.
CAS-No.:	1314-98-3 (ZnS); 22205-45-4 (Cu ₂ S); 12030-24-9 (In ₂ S ₃)

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Indium(III) sulfide		
CAS-No.: 12030-24-9	Acute Tox. 4; Skin/eye irritation 2; H302 + H312 + H332, H315, H319, H335	≤ 100%
2,5-Furandione, polymer with 1-octadecene		
	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H315, H319, H335	≥10 - < 30 %

SECTION 4 First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Sulphur oxides, Indium/indium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information

No data available

SECTION 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7 Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: 2 - 8 °C

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8 Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of work

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher-level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder	Color: green to red
b) Odor	No data available	
c) Odor Threshold	No data available	
d) pH	No data available	
e) Melting point/freezing point	No data available	
f) Initial boiling point and boiling range	No data available	
g) Flash point	No data available	
h) Evaporation rate	No data available	
i) Flammability (solid, gas)	No data available	
j) Upper/lower flammability or explosive limits	No data available	
k) Vapor pressure	No data available	
l) Vapor density	No data available	
m) Relative density	No data available	
n) Water solubility	Not dispersible	
o) Partition coefficient: n-octanol/water	No data available	
p) Auto-ignition temperature	No data available	
q) Decomposition temperature	No data available	
r) Viscosity	No data available	
s) Explosive properties	No data available	
t) Oxidizing properties	No data available	

9.2 Other safety information

No data available

SECTION 10 Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Strong acids

10.6 Hazardous decomposition products

Other decomposition products - No data available In the event of fire: see section 5

SECTION 11 Toxicological information

11.1 Information on toxicological effects

Acute toxicity	No data available
Inhalation:	No data available
Dermal:	No data available
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

<u>Reproductive toxicity</u>	No data available
<u>Specific target organ toxicity - single exposure</u>	No data available
<u>Specific target organ toxicity - repeated exposure</u>	No data available
<u>Aspiration hazard</u>	No data available

Additional Information

RTECS: Not available

SECTION 12 Ecological information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bio-accumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

SECTION 13 Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

