



Materials Safety Data Sheet

Indium Gallium Zinc Oxide (IGZO) Solid (Targets, Granules)

1. Product and Company Identification

Product Name: Indium Gallium Zinc Oxide

Formula: $\text{In}_2\text{O}_3\text{-Ga}_2\text{O}_3\text{-ZnO}$

CAS: N/A

EC No.: N/A

Synonyms: IGZO

Recommended Use: Laboratory chemicals, Scientific research

Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd

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Email: sales@ulpmat.com

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2. Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Very toxic to aquatic life(Aquatic Acute 1)

Very toxic to aquatic life with long lasting effects (Aquatic Chronic 1)

GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Warning

Hazard statement(s):

H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s):

P273: Avoid release to the environment.

P391: Collect spillage.

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards: Minimize dust generation during machining and processing operations.

3. Composition

Components	CAS	Classification (H)	Concentration
Indium Oxide (In_2O_3)	1312-43-2	Not Classified	49.0 – 52.0 %
Gallium Oxide (Ga_2O_3)	12024-21-4	Not Classified	33.0 – 35.5 %
Zinc Oxide (ZnO)	1314-13-2	H400 H410	13.5 – 15.5 %

4. First Aid Procedures

Description of first aid measures

General Treatment: If symptoms persist, call a physician.

Inhalation: Remove victim to fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

Skin: Take off immediately all contaminated clothing. Rinse skin with water/shower. Seek medical attention.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Most important symptoms and effects, both acute and delayed

The most important symptoms and effects are described in Section 11.

Indication of any immediate medical attention and special treatment needed

Based on the symptoms that appear, provide targeted treatment. Be aware that symptoms may be delayed.

5. Firefighting Measures

Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media: Water jet.

Special hazards arising from the substance or mixture

The intact product is not expected to be flammable. Heating or fire may generate metal oxide fumes or decomposition products.

Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Fight fire from a safe distance and with adequate protection. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately.

Further information

No data available

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Remove persons to safety. Use personal protective equipment as required. Avoid dust formation. Ensure adequate ventilation. Do not use compressed air for cleaning.

For emergency responders: Wear breathing apparatus if exposed to vapours/dust/spray/gases.

Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

Methods and materials for containment and cleaning up

Covering of drains. Take up mechanically.

Sweep up and shovel. Take care not to raise dust. Place in appropriate containers for disposal.

Ventilate affected area.

Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

7. Handling and Storage

Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid formation of dust. Do not get in eyes, on skin, or on clothing. Normal measures for preventive fire protection. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Storage class 13.

Incompatible materials: See section 10.5.

Specific end use(s)

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

8. Exposure Controls/Personal Protection

Exposure controls**Appropriate engineering controls**

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

Personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles) (European standard - EN 166) and face protection.

Skin protection

Protective gloves (The selected protective gloves shall comply with Regulation (EU) 2016/425 and EN ISO 374.) Wear appropriate protective gloves and clothing to prevent skin exposure. Wash hands thoroughly after handling.

Body Protection

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly. Large scale/emergency use: Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended filter type: Particle filter conforming to EN 143. Small scale/laboratory use: Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask: Particle filtering EN 149:2001+A1:2009. When RPE is used a facepiece Fit Test should be conducted.

Control of environmental exposure

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

9. Physical and Chemical Characteristics

Information on basic physical and chemical properties

Appearance

Form: Solid (Targets, Granules)

Colour: Off-white / Gray / Pale yellow

Odor: Odorless

pH: No data available

Melting point/range: No data available

Boiling point/range: No data available

Flash point: No data available

Evaporation rate: Not applicable - Solid

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Relative density: No data available

Water solubility: Insoluble

Partition coefficient: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: Not applicable

Other information

Molecular formula: $\text{In}_2\text{O}_3\text{-Ga}_2\text{O}_3\text{-ZnO}$

Molecular weight: No data available

10. Stability and reactivity

Reactivity

None known, based on information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available.

Conditions to avoid

No data available.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

In the event of fire: see section 5.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

No data available for the mixture.

Skin corrosion/irritation

No data available for the mixture.

Serious eye damage/eye irritation

No data available for the mixture.

Respiratory or skin sensitisation

No data available for the mixture.

Germ cell mutagenicity

No data available for the mixture.

Carcinogenicity

No data available for the mixture.

Reproductive toxicity

No data available for the mixture.

Specific target organ toxicity -single exposure

No data available for the mixture.

Specific target organ toxicity -repeated exposure

No data available for the mixture.

Aspiration hazard

Not applicable. Solid

Additional Information

12. Ecological Information

Toxicity

No data available.

Persistence and degradability

No data available.

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

The mixture does not contain substances identified as PBT or vPvB at concentrations requiring consideration, based on available information.

Other adverse effects

This product does not contain any known or suspected persistent organic pollutant or ozone depleting substance.

13. Disposal Considerations

Waste treatment methods

Recover or recycle material where possible. Dispose of waste in accordance with local and national regulations. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Empty containers should be disposed of in accordance with local and national regulations. Do not incinerate closed containers.

14. Transportation Information

ADR

Not classified as dangerous goods under ADR.

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

IMDG

Not classified as dangerous goods under IMDG.

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

IATA

Not classified as dangerous goods under IATA .

UN number: Not applicable.

Transport hazard class: Not applicable.

Packaging group: Not applicable.

15. Regulatory information

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

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation: Not applicable

Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances: Not applicable

Regulation (EC) 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021: Not applicable

Chemical Safety Assessment

No chemical safety assessment has been carried out for this mixture.

16. Other information

Revision Date:

2026-09-08

Version:

1.0

Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products. This Safety Data Sheet has been prepared in accordance with Regulation (EC) No 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878.