



MATERIAL SAFETY DATA SHEET

MATERION

1. Chemical product and company identification

| | | |
|--|--|----------------|
| A. Product name | Platinum Targets | |
| Other means of identification | | |
| SDS number | G10 | |
| CAS number | 7440-06-4 | |
| B. Recommended use and Limitations on use | | |
| Recommended use | Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment | |
| C. Supplier information | | |
| Company name | Materion Advanced Materials | |
| Address | 6070 Parkland Boulevard Mayfield Heights OH 44124 United States | |
| Telephone | EH&S | 1.216.383.4019 |
| Email | ehs@materion.com | |
| Contact person | Theodore Knudson | |
| Emergency telephone number | See Section 16. | |
| MSDS number | G10 | |

2. Hazards identification

| | | |
|--|---|---|
| A. Hazard category/Classification | | |
| Physical hazards | Not classified. | |
| Health hazards | Skin corrosion/irritation | Category 2 |
| | Serious eye damage/eye irritation | Category 2 |
| | Sensitization, respiratory | Category 1 |
| | Specific target organ toxicity, single exposure | Category 3 respiratory tract irritation |
| Environmental hazards | Not classified. | |

B. Warning label items including precautionary statement

• Pictogram



• Signal word

Danger

• Hazard statement

| | |
|------|--|
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H335 | May cause respiratory irritation. |

• Precautionary statement

Prevention

| | |
|------|--|
| | Observe good industrial hygiene practices. |
| P261 | Avoid breathing dust/fume/gas/mist/vapors/spray. |
| P264 | Wash thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P284 | Wear respiratory protection. |

Response

| | |
|--------------------|--|
| | Wash hands after handling. |
| P302 + P352 | IF ON SKIN: Wash with plenty of water. |
| P304 + P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P312 | Call a POISON CENTER or doctor/physician if you feel unwell. |
| P332 + P313 | If skin irritation occurs: Get medical advice/attention. |
| P337 + P313 | If eye irritation persists: Get medical advice/attention. |
| P342 + P311 | If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |

Storage

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| | Store away from incompatible materials. |
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P405 | Store locked up. |

Disposal

| | |
|------|---|
| P501 | Dispose of contents/container (in accordance with related regulations). |
|------|---|

C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard) None known.

Supplemental information For further information, please contact the Product Stewardship Department at +1.216.383.4019.

3. Composition/information on ingredients

| Chemical identity | Common and alternative names | CAS number | ID number | Content in percent (%) |
|-------------------|------------------------------|------------|-----------|------------------------|
| Platinum Targets | | 7440-06-4 | KE-28808 | 100 |

4. First aid measures

| | |
|---|--|
| A. In case of eye contact | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. |
| B. In case of skin contact | Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse. |
| C. In case of inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a poison center or doctor/physician. |
| D. In case of swallowing | Rinse mouth. Get medical attention if symptoms occur. |
| E. Note to physician | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. |
| Most important symptoms/effects, acute and delayed | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. Under normal conditions of intended use, this material does not pose a risk to health. |
| General advice | If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

5. Fire-fighting measures

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|---|--|
| A. Suitable (and unsuitable) extinguishing media | |
| Suitable extinguishing media | Water spray, foam, dry powder or carbon dioxide. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| B. Specific hazards arising from the chemical (example: hazardous combustion products) | Not a fire hazard. |

C. Specific methods of fire-fighting

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures Move containers from fire area if you can do so without risk.

General fire hazards No unusual fire or explosion hazards noted.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency measures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.

B. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

C. Methods and materials for containment and cleaning up The product is immiscible with water and will spread on the water surface.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the MSDS.

7. Handling and storage

A. Precautions for safe handling Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

B. Conditions for safe storage (including any incompatibilities) Store locked up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure controls/personal protection

A. Exposure limit values, biological limit values, etc

Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

| Material | Type | Value |
|----------------------------------|------|---------------------|
| Platinum Targets (CAS 7440-06-4) | TWA | 1 mg/m ³ |

US. ACGIH Threshold Limit Values

| Material | Type | Value |
|----------------------------------|------|---------------------|
| Platinum Targets (CAS 7440-06-4) | TWA | 1 mg/m ³ |

Biological limit values No biological exposure limits noted for the ingredient(s).

B. Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Provide eyewash station and safety shower.

C. Personal protective equipment

• **Respiratory protection** Wear positive pressure self-contained breathing apparatus (SCBA).

• **Eye protection** Not available.

• **Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.

• **Body protection** Wear appropriate chemical resistant clothing.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

A. Appearance

Physical state Solid.

Form Solid.

Color Silver-white.

B. Odor None.

C. Odor threshold Not applicable.

D. pH Not applicable.

E. Melting point/freezing point

Melting point 3215.12 °F (1768.4 °C)

Freezing point Not applicable.

F. Boiling point, initial boiling point, and boiling range Not applicable.

G. Flash point Not applicable.

H. Evaporation rate Not applicable.

I. Flammability (solid, gas) None known.

J. Upper/lower limit on flammability or explosive limits

Flammability limit - lower (%) Not applicable.

Flammability limit - lower (%) temperature Not applicable.

Flammability limit - upper (%) Not applicable.

Flammability limit - upper (%) temperature Not applicable.

Explosive limit - lower (%) Not applicable.

Explosive limit - lower (%) temperature Not applicable.

Explosive limit - upper (%) Not applicable.

Explosive limit - upper (%) temperature Not applicable.

K. Vapor pressure Not applicable.

L. Solubility

Solubility (water) Insoluble

M. Vapor density Not applicable.

N. Specific gravity Not applicable.

O. n-octanol/water partition coefficient Not applicable.

P. Auto-ignition temperature Not applicable.

Q. Decomposition temperature Not applicable.

R. Viscosity Not available.

S. Molecular weight 195.08 g/mol

Other data

Density 21.45 g/cm³ estimated

Explosive properties Not explosive.

Molecular formula Pt

Oxidizing properties Not oxidizing.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

A. Stability and hazardous reaction potential

Stability Material is stable under normal conditions.

Hazardous reaction potential No dangerous reaction known under conditions of normal use.

B. Conditions to avoid (e.g. static discharge, shock or vibration, etc) Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.

C. Incompatible materials Aluminum. Phosphorus.

D. Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure

- **Respiratory organs** May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation may be harmful.
- **Skin** Causes skin irritation. Not likely, due to the form of the product.
- **Eyes** Causes serious eye irritation. Not likely, due to the form of the product.
- **Mouth** Expected to be a low ingestion hazard.

B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** Not known.
- **Corrosivity or irritation to the skin** Causes skin irritation. Not relevant, due to the form of the product.
- **Serious eye damage/eye irritation** Causes serious eye irritation. Not likely, due to the form of the product.
- **Respiratory sensitization** May cause allergy or asthma symptoms or breathing difficulties if inhaled. Not a respiratory sensitizer.
- **Skin sensitization** Not a skin sensitizer.
- **Carcinogenic properties /Carcinogenicity** Not classifiable as to carcinogenicity to humans.
- **Mutagenic properties /Mutagenicity** Not classified.
- **Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.
- **Specific target organ toxicity - single exposure** May cause respiratory irritation.
- **Specific target organ toxicity - repeated exposure** Not classified.
- **Aspiration hazard** Not an aspiration hazard.

12. Ecological information

A. Ecotoxicity The product is not classified as environmentally hazardous.

Hazardous to the aquatic environment, acute hazard The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

B. Persistence/degradability No data is available on the degradability of this substance.

C. Bioaccumulative potential No data available.

D. Mobility in soil The product is immiscible with water and will spread on the water surface. No data available.

E. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

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|--|--|
| A. Method of disposal | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container (in accordance with related regulations). |
| B. Disposal considerations (including disposal of contaminated containers or packaging) | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |
| Waste code | The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |

14. Transport information

IATA

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|--|--|
| A. UN number | UN3200 |
| B. UN proper shipping name | Pyrophoric solid, inorganic, n.o.s. (Platinum Targets) |
| C. Transport hazard class(es) | |
| Class | 4.2 |
| Subsidiary risk | - |
| D. Packing group | Not applicable. |
| E. Environmental hazards | No. |
| ERG Code | 4L |
| F. Special precautions for user | Read safety instructions, MSDS and emergency procedures before handling. |
| Other information | |
| Passenger and cargo aircraft | Forbidden |
| Cargo aircraft only | Forbidden |

IMDG

| | |
|--|--|
| A. UN number | UN3200 |
| B. UN proper shipping name | PYROPHORIC SOLID, INORGANIC, N.O.S. (Platinum Targets) |
| C. Transport hazard class(es) | |
| Class | 4.2 |
| Subsidiary risk | - |
| D. Packing group | I |
| E. Environmental hazards | |
| Marine pollutant | No. |
| EmS | F-G, S-M |
| F. Special precautions for user | Read safety instructions, MSDS and emergency procedures before handling. |

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

IATA; IMDG



15. Regulatory information

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|---|
| A. Restrictions under the Industrial Safety and Health Law |
| Harmful Substances Prohibited from Manufacturing |
| Not regulated. |
| Harmful Substances Requiring Permission for Manufacture or Use |
| Not regulated. |

Controlled Hazardous Substances

Platinum Targets (CAS 7440-06-4)

Harmful Substances Requiring Special Medical Examination

Not regulated.

Workplace Environmental Monitoring Harmful Materials

Platinum Targets (CAS 7440-06-4)

Occupational Exposure Limit

Platinum Targets (CAS 7440-06-4)

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)**Accidental Release Prevention Substances**

Not regulated.

Act on the Registration and Evaluation of Chemicals**Banned Toxic Chemicals**

Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

Restricted Chemical Substances

Not regulated.

Toxic Chemicals

Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act**D. Restrictions under the Wastes Control Act****Halogenated Materials in Waste Organic Solvents**

Not regulated.

Hazardous Substances

Not regulated.

E. Restrictions under other foreign or domestic laws**Clean Air Conservation Act****Air Pollutants**

Not regulated.

Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended

Not listed.

Specific Air Pollutants

Not regulated.

Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

Inventory status

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|----------------------|-------------------------------|------------------------|
| Korea | Existing Chemicals List (ECL) | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

A. Source of information

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)
Korea. Accidental Release Prevention Substances (Pres. Decree of Toxic Chemical Control Law, Ex. Order No. 19203, Tables 2 & 3, Dec 28, 2005)
Korea. OELs (ISHL Article 42; MOL Public Notice No. 1986-45, as amended through MOEL Notice 2013-38, August 14, 2013)
Korea. Prohibited Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 4 and 5)
Korea. Restricted Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 2 and 3)
KECI, January 27, 2015, amended through MoE 2016-138, July 13, 2016
Korea. Toxic Chemicals (AREC "K-REACH" Article 20; Designation of Toxic, Restricted or Banned Chemicals Appendix 1)
Korea. Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002)

B. Issue date

10-17-2019

C. Number of revisions and date of most recent revision

06-29-2021 (02 revision)

Further information

Transportation Emergency
Call Chemtrec at:
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402

Disclaimer

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Other information

Revised information in Section 16.