

**MATERION****1. Chemical and company identification**

Name of chemical (Product name)	Ruthenium Targets
Company name	Materion Advanced Materials Germany GmbH
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Emergency telephone number	49.60.23.91.82.0
Reference number	G05

2. Hazards identification**GHS classification**

The product is not classified according to GHS.

GHS label elements

Symbols	None.
Signal words	None.
Hazard statement	The products are classified as articles and, as such, do not present a physical or health hazard in the present form. If the products are processed or handled in ways that generate particles (dust, fume, particles and/or powder), a potential health hazard could exist and risk management measures must be taken to minimize risk.

Precautionary statement

Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.

Other hazards which do not result in classification None known.

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

Main symptoms and emergency overview

Main symptoms	Direct contact with eyes may cause temporary irritation.
Emergency overview	The products are classified as articles and, as such, do not present a physical or health hazard in the present form. If the products are processed or handled in ways that generate particles (dust, fume, particles and/or powder), a potential health hazard could exist and risk management measures must be taken to minimize risk.

3. Composition/information on ingredients

Substance or mixture Substance

Components	CAS Number	Gazette notification		Concentration (%)
		ENCS no.	ISHL no.	
Ruthenium Targets	7440-18-8			100

Synonym(s) Ruthium

4. First aid measures

If inhaled	Move to fresh air. Call a physician if symptoms develop or persist.
If on skin	Wash off with soap and water. Get medical attention if irritation develops and persists.
If in eyes	Rinse with water. Get medical attention if irritation develops and persists.
If swallowed	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Protection of first-aid responders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Notes to physician Treat symptomatically.

5. Fire-fighting measures

Extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Extinguishing media to avoid Do not use water as an extinguisher.

Specific hazards This product is not flammable.

Special fire fighting procedures Use water spray to cool unopened containers.

Protection of fire-fighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

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

Personal precautions, protective equipment and emergency measures Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

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

Methods or materials for containment and cleaning up Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation) No specific recommendations.

Safe handling advice Observe good industrial hygiene practices.

Contact avoidance measures Strong oxidizing agents. For further information, please refer to section 10 of the SDS.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

Storage

Safe storage conditions Store away from incompatible materials (see Section 10 of the SDS).

Safe packaging materials Store in original tightly closed container.

8. Exposure controls/personal protection

Occupational exposure limits No exposure limits noted for ingredient(s).

Engineering measures Good general ventilation (typically 10 air changes per hour) 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.

Personal protective equipment

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

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

Eye protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid.

Color Gray-silver

Odor None.

Odor threshold Not applicable.

pH Not applicable.

Melting point/Freezing point 4233.2 °F (2334 °C) / Not applicable.

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

Flash point Not applicable.

Combustion characteristics (solid, gas) None known.

Upper/lower flammability or explosive limits

Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.

Vapor pressure	Not applicable.
Vapor density	Not applicable.
Evaporation rate	Not applicable.
Specific gravity	Not available.

Solubility(ies)

Solubility (water)	Insoluble.
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Partition coefficient (n-octanol/water)	Not applicable. Not applicable.
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Auto-ignition temperature	Not applicable.
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Decomposition temperature	Not applicable.
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Viscosity (Coefficient of viscosity)	Not applicable.
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Other information

Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Relative density	Not applicable.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
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Chemical stability	Material is stable under normal conditions.
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Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
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Conditions to avoid	Contact with incompatible materials.
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Incompatible materials	Strong oxidizing agents.
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Hazardous decomposition products	No hazardous decomposition products are known.
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11. Toxicological information

Skin corrosion/irritation	Not relevant, due to the form of the product.
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Serious eye damage/eye irritation	Not likely, due to the form of the product.
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Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
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Skin sensitization	Not a skin sensitizer.
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Germ cell mutagenicity	Not classified.
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Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
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Reproductive toxicity	Not classified.
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Specific target organ toxicity - single exposure	Not classified.
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Specific target organ toxicity - repeated exposure	Not classified.
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Aspiration hazard	Not an aspiration hazard.
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Other information	None known.
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12. Ecological information

Ecotoxicity	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.
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Persistence and degradability	No data is available on the degradability of this product.
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Bioaccumulation	No data available.
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Mobility in soil	No data available.
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Hazardous to the ozone layer	No data available.
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Other hazardous 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

Dispose in accordance with all applicable regulations.

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated 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.

Local disposal regulations Contract with a disposal operator licensed by the Law on Disposal and Cleaning. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

National regulations Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act

Notifiable substances

Not regulated.

Labeling substances

Not regulated.

Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Class I specified chemical substances

Not regulated.

Class II specified chemical substances

Not regulated.

Monitoring chemical substances

Not regulated.

Priority Assessment Chemical Substances (PACs)

Not regulated.

Reporting Exempted Substances

Not regulated.

Law concerning Pollutant Release and Transfer Register

Specified class 1 substances (substance name, ordinance number and content)

Not regulated.

Class 1 substances (substance name, ordinance number and content)

Not regulated.

Class 2 substances (substance name, ordinance number and content)

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule Not regulated.

Air Law, Enforcement Rule Not regulated.

Explosives Control Act

Not regulated.

16. Other information

Bibliography

HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"
JIS Z 7253:2012 Hazard communication of chemicals based on GHS – Labelling and Safety Data Sheet (SDS)

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