

SAFETY DATA SHEET



NOBLE METAL SUPPORTED ON IRON PROMOTED TUNGSTATED
ZIRCONIA EXTRUDATE

Section 1. Identification

Product name : NOBLE METAL SUPPORTED ON IRON PROMOTED TUNGSTATED ZIRCONIA
EXTRUDATE

Product description : Metal Catalyst

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

Identified uses : catalyst

Uses advised against : This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

Supplier : ExxonMobil Catalysts and Licensing LLC
22777 Springwoods Village Parkway
Spring, TX 77389 USA

24-Hour emergency telephone number : 1-800-424-9300 / +1 703-741-5970 / +1-703-527-3887 (CHEMTREC)

Product Technical Information : 832-624-8500

SDS Internet Address : www.sds.exxonmobil.com

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : COMBUSTIBLE DUSTS

GHS label elements

Signal word : Warning

Hazard statements : May form combustible dust concentrations in air.

Supplemental label elements : Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation.

Hazards not otherwise classified : None known.

Note : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

Specific hazards arising from the chemical : Adsorption of water will generate heat and possibly steam; closed containers may get very hot and build up pressure. If contact with water occurs, large quantities of heat and steam may be generated. Avoid contact with eyes. Avoid contact with skin. Avoid conditions which create dust. Avoid inhalation of dusts.

Hazardous combustion products : Metal Oxides

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Assure an extended cooling down period to prevent re-ignition. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Material will sink. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Static Accumulator** : This material is a static accumulator.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
zirconium oxide	<p>NIOSH REL (United States, 10/2020) [zirconium compounds] TWA 10 hours: 5 mg/m³ (as Zr). STEL 15 minutes: 10 mg/m³ (as Zr).</p> <p>CAL OSHA PEL (United States, 5/2018) [zirconium compounds] STEL 15 minutes: 10 mg/m³ (as Zr). TWA 8 hours: 5 mg/m³ (as Zr).</p> <p>OSHA PEL (United States, 5/2018) [Zirconium compounds] TWA 8 hours: 5 mg/m³ (as Zr).</p> <p>OSHA PEL 1989 (United States, 3/1989) [Zirconium compounds (as Zr)] TWA 8 hours: 5 mg/m³ (as Zr). STEL 15 minutes: 10 mg/m³ (as Zr).</p> <p>ACGIH TLV (United States, 1/2024) [Zirconium and compounds] TWA 8 hours: 5 mg/m³ (as Zr). STEL 15 minutes: 10 mg/m³ (as Zr).</p>
tungsten oxide	<p>NIOSH REL (United States, 10/2020) [tungsten] TWA 10 hours: 5 mg/m³. STEL 15 minutes: 10 mg/m³.</p> <p>CAL OSHA PEL (United States, 5/2018) [tungsten, insoluble compounds] STEL 15 minutes: 10 mg/m³ (as W). TWA 8 hours: 5 mg/m³ (as W).</p> <p>OSHA PEL 1989 (United States, 3/1989) [Tungsten (as W), Insoluble compounds] TWA 8 hours: 5 mg/m³ (as W). Form: Insoluble. STEL 15 minutes: 10 mg/m³ (as W). Form: Insoluble.</p> <p>ACGIH TLV (United States, 1/2024) [Tungsten and compounds] TWA 8 hours: 3 mg/m³ (as W). Form: Respirable.</p>
hafnium dioxide	<p>NIOSH REL (United States, 10/2020) [hafnium] TWA 10 hours: 0.5 mg/m³.</p> <p>ACGIH TLV (United States, 1/2024) [Hafnium and compounds] TWA 8 hours: 0.5 mg/m³ (measured as hafnium).</p>
iron oxide (Fe ₂ O ₃)	<p>NIOSH REL (United States, 10/2020) [iron oxide dust and fume] TWA 10 hours: 5 mg/m³ (as Fe). Form: Dust and fumes.</p> <p>CAL OSHA PEL (United States, 5/2018) [rouge] TWA 8 hours: 5 mg/m³. Form: respirable fraction. TWA 8 hours: 10 mg/m³. Form: total dust.</p> <p>CAL OSHA PEL (United States, 5/2018) [iron oxide fume] TWA 8 hours: 5 mg/m³.</p> <p>OSHA PEL (United States, 5/2018) TWA 8 hours: 15 mg/m³. Form: Total dust. TWA 8 hours: 5 mg/m³. Form: Respirable fraction.</p> <p>OSHA PEL 1989 (United States, 3/1989) [Rouge] TWA 8 hours: 10 mg/m³. Form: Total dust. TWA 8 hours: 5 mg/m³. Form: Respirable fraction.</p> <p>OSHA PEL 1989 (United States, 3/1989) [Iron oxide dust and fume (as Fe)] STEL 15 minutes: 10 ppm (as Fe). Form: Total particulates.</p> <p>ACGIH TLV (United States, 1/2024) TWA 8 hours: 5 mg/m³. Form: Respirable fraction.</p>

For dusty conditions, ACGIH recommends for insoluble and poorly soluble particles not otherwise specified an 8-hour TWA of 10 mg/m³ (inhalable particles), 3 mg/m³ (respirable particles).

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Solid. [pellet]
- Color** : Yellow to Brown
- Odor** : Odorless
- Odor threshold** : Not available.
- pH** : Not applicable.
- Melting point/freezing point** : Not available.
- Boiling point or initial boiling point and boiling range** : Not applicable.
- Flash point** : Closed cup: Not applicable.
- Evaporation rate** : Not applicable.
- Flammability** : Ignitable
- Lower and upper explosion limit/flammability limit** : Not applicable.
- Vapor pressure** : Not applicable.

Section 9. Physical and chemical properties and safety characteristics

Relative vapor density	: Not applicable.
Relative density	: 1.2
Bulk density	: 0.5 g/cm ³
Solubility in water	: Complete
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
Particle characteristics	
Median particle size	: Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Moisture., High energy sources of ignition., High dust concentrations.
Incompatible materials	: Strong Acids, Strong Bases, Strong oxidizers, water
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary

Inhalation	: Minimally Toxic. No end point data for material. Based on assessment of the components.
Dermal	: Minimally Toxic. No end point data for material. Based on assessment of the components.
Oral	: Minimally Toxic. No end point data for material. Based on assessment of the components.

Irritation/Corrosion

Conclusion/Summary

Skin	: Negligible irritation to skin at ambient temperatures. No end point data for material. Based on assessment of the components.
Eyes	: May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on assessment of the components.
Respiratory	: Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

Skin	: Not expected to be a skin sensitizer. No end point data for material. Based on assessment of the components.
Respiratory	: Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Section 11. Toxicological information

Conclusion/Summary : Not expected to be a germ cell mutagen. No end point data for material. Based on assessment of the components.

Carcinogenicity

Conclusion/Summary : Not expected to cause cancer. No end point data for material. Based on assessment of the components.

Reproductive toxicity

Conclusion/Summary : Not expected to be a reproductive toxicant. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (single exposure)

Conclusion/Summary : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
NOBLE METAL SUPPORTED ON IRON PROMOTED TUNGSTATED ZIRCONIA EXTRUDATE	Not applicable.	-

Conclusion/Summary : Not expected to cause organ damage from prolonged or repeated exposure. No end point data for material. Based on assessment of the components.

Aspiration hazard

Conclusion/Summary : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. No end point data for material.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

Toxicity

Conclusion/Summary

Acute toxicity : Not expected to be harmful to aquatic organisms.

Chronic toxicity : Not expected to demonstrate chronic toxicity to aquatic organisms.

Persistence and degradability

Biodegradability : Material -- Expected to be persistent.

Bioaccumulative potential

Conclusion/Summary : Material -- Potential to bioaccumulate is low.

Mobility in soil

Mobility : Material -- Can float on water, but will sink when saturated.

Other ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance

Section 13. Disposal considerations

with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Label(s) / Marks				
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

Additional information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) PAIR: tungsten oxide
TSCA 8(a) CDR Exempt/Partial exemption: Not determined

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Section 15. Regulatory information

Classification : COMBUSTIBLE DUSTS

SARA 313

This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

State regulations

Massachusetts : The following components are listed: ZIRCONIUM OXIDE; ROUGE DUST
New York : None of the components are listed.
New Jersey : The following components are listed: IRON OXIDE
Pennsylvania : The following components are listed: IRON OXIDE
Illinois : None of the components are listed.

Inventory list

Australia inventory (AIC) : All components are listed or exempted.
Canada inventory (DSL-NDL) : All components are listed or exempted.
China inventory (IECSC) : All components are listed or exempted.
Japan inventory (CSCL) : All components are listed or exempted.
Japan inventory (Industrial Safety and Health Act) : All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.
Philippines inventory (PICCS) : All components are listed or exempted.
Korea inventory (KECI) : All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI) : All components are listed or exempted.
United States inventory (TSCA 8b) : All components are active or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	0
Flammability		0
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Classification	Justification
COMBUSTIBLE DUSTS	Expert judgment

Section 16. Other information

New Jersey Right to Know Disclosure

Name	CAS #
iron oxide (Fe ₂ O ₃)	1309-37-1
zirconium oxide	1314-23-4
tungsten oxide	1314-35-8
hafnium dioxide	12055-23-1
platinum oxide	1314-15-4
palladium monoxide	1314-08-5

History

Date of issue/Date of revision : 22 July 2024

Date of previous issue : 29 February 2024

Version : 1.01

Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- SGG = Segregation Group
- UN = United Nations

References : Not available.

☑ Indicates information that has changed from previously issued version.

Product code : 1232133

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