

SAFETY DATA SHEET**ID# SDS-14**

Issue Date: June 1, 2015

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Revision No. 002

Section 1: Identification**Product Identifier:** TIVAR® PolySteel**Manufacturer:**Mitsubishi Chemical Advanced Materials, Inc.
2120 Fairmont Ave.
Reading, PA 19605
(610) 320-6600

In case of an emergency, please call Chemtrec 1-800-424-9300.

Recommended Use: Industrial application for abrasion and chemical resistant applications and low coefficient of friction**Section 2: Hazard Identification****GHS – Classifications****Classification:** None**Signal Word:** None**Pictograms and Symbols:** None**Hazard Statements:** None**Precautionary Statements:** None**Section 3: Composition/Information on Ingredients**

Chemical Name	CAS No.	Weight %
Polyethylene	9002-88-4	≥ 50%
Iron Oxide	1317-61-9	< 50%
Quartz	14808-60-7	< 2%

Section 4: First-Aid Measures

Eyes: Flush with plenty of water for at least 15 minutes. Seek medical attention if irritation continues.

Skin: No health risks concerning skin contact at room temperature. Wash with soap and water. If molten material comes in contact with the skin, cool under running water. Do not attempt to remove the molten material from the skin. Get medical attention immediately.

Inhalation: If inhaled, remove to fresh air. Seek medical attention if respiratory irritation occurs or breathing becomes difficult.

Ingestion: Rinse the victim's mouth with plenty of water. Do not induce vomiting. Seek medical attention.

Section 5: Fire-Fighting Measures

Fire-fighters should protect themselves from decomposition and combustion products (CO₂, CO, etc.) by using a full-face self-contained breathing apparatus and impervious protective clothing. When heated produces respiratory sensitizers gases and/or fumes. Extinguish fires with water, foam, carbon dioxide or dry chemical media.

Dust is flammable and explosive when finely divided and suspended in air.

Section 6: Accidental Release Measures

If a spill occurs, stop the leak at the source and sweep up for disposal. Do not flush to sewers or waterways.

Section 7: Handling and Storage

Precautions for Safe Handling

Personal hygiene such as washing the hands and face immediately after working with this material and before eating is recommended.

Dust may form explosive mixtures with air. Avoid dust formation and control ignition sources. Polyolefin dust particles suspended in air are combustible and may be explosive. Keep away from heat, sparks, flame, and other ignition sources. Prevent dust accumulations and dust clouds. Employ ground, bonding, venting, and explosive relief provisions in accordance with accepted engineering practices and NFPA provisions in any process capable of generating dust and/or static electricity. Explosion hazards apply only to dusts, not granular forms of this product.

The handling of powder in both loading and unloading operations, as well as fabrication, may cause dust to be formed and necessary precautions for personal protection should be used. As with all finely divided materials precautions should be taken to avoid inhalation and eye contact.

If in dust form, transfer from storage with a minimum amount of dusting. Ground all transfer, blending, and dust collecting equipment to prevent static sparks in accordance with NFPA 70 "National Electric Code." Review and comply with all relevant NFPA provisions, including but not limited to NFPA 484 and NFPA 654 related to combustible dust hazards. Remove all ignition sources from material handling, transfer, and processing areas where dust may be present. Local exhaust ventilation should be provided in work area.

High speed fabricating operations may generate enough frictional heat to cause the metal-filled polymer fabrication chips to smolder and ignite. This issue normally occurs after fabricating when the chips are in piles.

Precautions for Safe Storage

Store in a sprinkler protected warehouse. Since TIVAR® products are polyethylene they will burn with a hot flame if ignited. Avoid contact with ignition sources such as open flames. Keep a fire extinguisher near if welding is done in the area of TIVAR® products. If a heat source is present, keep the area well ventilated.

Section 8: Exposure Controls/Personal Protection

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
Particulates	10 mg/m ³	15 mg/m ³ – Total 5 mg/m ³ – Respirable	Not Established
Iron Oxide	5 mg/m ³ – Respirable	10 mg/m ³	5 mg/m ³ – TWA
Crystalline Silica (Quartz)	0.1 mg/m ³ – Respirable	$\frac{10 \text{ mg/m}^3 \text{e}}{\% \text{SiO}_2 + 2}$ – Respirable	0.05 mg/m ³ – Respirable

Engineering Measures:

Provide local exhaust ventilation to keep airborne concentrations below the recommended OEL.

Personal Protective Equipment: Eyes/Face

Safety glasses with side shields.

Personal Protective Equipment: Skin

When handling molten material, protective clothing such as long sleeves or laboratory coat should be worn. Use heat-resistant gloves, boots and face protection.

Personal Protective Equipment: Respiratory

If levels are above published OELs, then a NIOSH approved respirator with particulate filters. If the material is being burned wear an organic filter.

Good industrial hygiene practice should be followed which includes preventing eye contact, minimizing skin contact and minimizing inhalation of dust, vapors or mist.

Section 9: Physical and Chemical Properties

Appearance and Odor	Black waxy solid with waxy odor.
Odor Threshold	No Information Available
Specific Gravity (Relative Density)	1.4-1.5
Solubility in Water	Negligible
VOC Content (%)	<0.4
pH	No data available
Melting Point/Freezing Point	280°F
Vapor Pressure	No data available
Vapor Density	No data available
Evaporation Rate	No data available
Boiling Point	No data available

Flammability	Combustible
Flash Point	>662°F (ASTM-D-1929 Method B)(Setchkin)
Explosion Data	LEL – No data available
	UEL – No data available
Auto ignition Point	>662°F
Partition Coefficient: n-octanol/water	No data available
Decomposition Temperature	No data available
Viscosity	No data available

Section 10: Stability and Reactivity

Reactivity:

None known

Chemical Stability:

Material is stable under normal industrial conditions and is not susceptible to hazardous polymerization.

Possibility of Hazardous Reactions:

Reacts violently with fluorine

Conditions to Avoid:

High temperatures. Incompatible materials

Incompatibility:

Fluorine, strong acids, strong oxidizers

Hazardous Decomposition Products:

Carbon Oxides and Aliphatic Hydrocarbons

Section 11: Toxicological Information

Signs and Symptoms of Overexposure: Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness and swelling. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

Aggravated Medical: None.

Acute Effects: Non-toxic.

Skin Corrosion/Irritation: Not irritating to the skin.

Serious Eye Damage/Irritation: Particulates can be mechanically irritating to the eyes.

Ingestion: None.

Inhalation: Inhalation of particulates may produce respiratory tract irritation. If thermal decomposition occurs, upper respiratory, eye, nose, and throat irritation may result.

This product may contain crystalline silica. Prolonged or repeated exposure may cause lung injury including silicosis. Prolonged exposure to crystalline silica has caused cancer in laboratory animals. Some human studies indicate potential for lung cancer from crystalline silica exposure. Risk of injury depends on duration and level of exposure.

Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

Respiratory or Skin Sensitization: Not expected to be a sensitizer.

Chronic Effects:

Germ Cell Mutagenicity: Not expected to be a germ cell mutagen.

Carcinogenicity: Not classifiable as carcinogen to humans (group 3 IARC).

Reproductive Toxicity: There aren't known reproductive toxicity effects.

STOT-single Exposure: At dust form, may cause respiratory irritation with cough and sneezing.

STOT –multiple Exposure: There aren't known repeated exposure effects.

Aspiration Hazard: No data available. Not expected to be an aspiration hazard.

Primary Route of Entry: Inhalation of particulates.

Section 12: Ecological Information

Ecotoxicity:

There aren't known ecological toxicity values.

Persistence and degradability:

It's expected high persistence and slow degradability. Biodegradation rate <70% in 28 days.

Bioaccumulative Potential:

It's expected moderate to high bioaccumulative potential.

Mobility in Soil:

No data available

Other Adverse Effects:

No data available

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)

Section 13: Disposal Considerations

Dispose of in accordance with federal, state and local regulations.

Section 14: Transportation Information

US Department of Transportation Classification (49CFR)

Not classified as hazardous for transport.

Section 15: Regulatory Information

SARA Section 302 & 304:
No chemicals

SARA Section 311 & 312:
No reporting requirements although it is suggested that storage of >10,000 lbs. of polyethylene in one facility should be listed on a Tier II report.

SARA Section 313:
The following component is subject to reporting levels established by SARA Title III, Section 313:

- None

TSCA:
All components of this product are either listed or are exempt on the TSCA inventory.

Section 16: Other Information

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Signal Word: None

Pictograms and Symbols: None

Hazard Statements: None

Precautionary Statements: None

Hazard data contained herein was obtained from raw material suppliers. The information presented is believed to be factual, as it was derived from the works and opinions of persons believed to be qualified. However, no facts contained in the information are to be taken as a warranty, or representation, for which Mitsubishi Chemical Advanced Materials, Inc. bears legal responsibility. The user should review any recommendation in the specific context of the intended use to determine if they are appropriate.