SAFETY DATA SHEET

1 Product and company identification

Name of chemical (Product name)	:	TSE388-W
Manufacturer/Importer/Distributor Information	:	Momentive Performance Materials Japan LLC Akasaka Park Building 5-2-20 Akasaka, Minato-ku Tokyo Japan
Contact person	:	commercial.services@momentive.com
Telephone	:	+81-3-5544-3100
Telefax	:	+81-3-5544-3101
Emergency telephone number	:	+81-3-5544-3111 +81-276-31-4118 (night / weekend)
Responsible Department	:	Product Stewardship & Compliance Group

2 Hazard(s) identification

GHS classification:

Health Hazards:

Skin sensitizer — Category 1

GHS label elements:

Pictograms:

Signal Word: Warning

Hazard Statement: May cause an allergic skin reaction.

Precautionary Statements:

Prevention: Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/eye protection/face protection.

Response: IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see on this label). Take off contaminated clothing and wash it before reuse.

Storage: Not applicable

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification:
none

3 Composition/information on ingredients

Chemical nature: Silicone compound

Mixtures

Chemical Identity	CAS number	Concentration*
Methyl oxime silane	Trade secret	1.0 - 10%
Aminofunctional Silane	Trade secret	0.1 - 1.0%
TITANIUM DIOXIDE	13463-67-7	0.1 - 1.0%
Tin and its compounds (22% as Tin)	Trade secret	0.1 - 1.0%
Octamethylcyclotetrasiloxane	556-67-2	0.1 - 1.0%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Trade secret information: ** A specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4 First-aid measures

Inhalation: If inhaled, move victim to fresh air and seek medical attention.

Skin Contact: Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur after washing.

Eye contact: Flush thoroughly with water for at least 15 minutes. Get medical assistance.

Ingestion: Do not induce vomiting. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms: None known.

Hazards: No data available.

5 Fire-fighting measures

Extinguishing media: Extinguish with foam, carbon dioxide or dry powder.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unprotected persons away. Remove sources of ignition. Use personal protective equipment. Keep upwind.

Environmental Precautions: Do not allow runoff to sewer, waterway or ground.

Methods or materials for containment and cleaning up: Put in an empty container for recovery after preventing spill by sand or sandbags,if the amount of spill is large. Put in an empty container for recovery after wiping or soaking up in an inert material,if the amount of spill is small.

Prevention of secondary hazards: Remove sources of ignition.

7 Handling and storage

Handling

Technical measures (e.g. Local and general ventilation): Provide adequate general and local exhaust ventilation. Eyewash bottle with clean water.

Safe handling advice: "Wear eye, hand and respiratory protection when in handling." Keep away from sources of ignition - No smoking. Protect from moisture. Seal opened containers and use up as soon as possible. This product release Methyl Ethyl Ketoxime during curing. Use only in well-ventilated areas. Avoid inhalation of vapors and spray mists.

Contact avoidance measures: Wear suitable gloves and eye/face protection.

Hygiene measures: Avoid contact with eyes, skin, and clothing. Wash hands after handling. When using do not eat, drink or smoke.

Storage

Safe storage conditions: Store in a dark, cool place indoors, with container tightly closed.

Safe packaging materials: No data available.

8 Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits:

Chemical name	Type	Exposure Limit Values	Regulation Sources
TITANIUM DIOXIDE - Respirable dust.	TWA	1 mg/m3	Japan. OELs - JSOH (Recommendation of Occupational Exposure Limits), as amended (05 2014)

Chemical name	Type	Exposure Limit Values	Regulation Sources
TITANIUM DIOXIDE - Total dust.	TWA	4 mg/m3	Japan. OELs - JSOH (Recommendation of Occupational Exposure Limits), as amended (05 2014)
TITANIUM DIOXIDE	TWA	0.3 mg/m3	Japan. OELs - JSOH (Recommendation of Occupational Exposure Limits), as amended (05 2014)
TITANIUM DIOXIDE - Dust.	TLV	0.025 mg/m3	Japan. OELs - ISHL. (Workplace Environment Assessment Standards), as amended (04 2020)

Personal protective equipment (ppe)

Respiratory Protection: Gas mask for organic gas if MEKO exposure limits are exceeded (3 ppm 8-hr TWA, recommended workplace exposure guideline.

Hand Protection: Chemical resistant gloves

Eye Protection: Safety glasses with side shields

Skin and Body Protection: Chemical resistant clothing Safety shoes

9 Physical and chemical properties

Physical state: liquid
Form: Paste
Color: White
Odor: Faint
Odor threshold No data available.
Melting point/freezing point Not applied
Initial boiling point and boiling range Not applied
Flammability No data available.
Upper/lower limit on flammability or explosive limits
Flammability limit - upper (%): No data available.
Flammability limit - lower (%): No data available.
Explosive limit - upper: No data available.
Explosive limit - lower: No data available.
Flash Point 135 °C
Evaporation rate No data available.
Auto-ignition temperature 450 °C
Decomposition temperature No data available.
SADT No data available.
pH No data available.
Viscosity, dynamic: No data available.
Viscosity, kinematic: > 7 mm2/s (40 °C)
Solubility(ies)
Solubility in water: Insoluble
Solubility (other): Insoluble

Partition coefficient (n-octanol/water)Log Pow	No data available.
Vapor pressure	Not applied
Density	1.04 g/cm3 (25 °C)
Relative density	No data available.
Vapor density	No data available.

10 Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Keep away from heat, sparks and open flame.
Incompatible Materials:	Moisture. The catalysis of strong acids or bases cause polymerization or decomposition.
Hazardous Decomposition Products:	Reacts with water/moisture liberating Methylethylketoxime (MEKO) = 2-Butanone-oxime. Measurements at temperatures above 150°C in presence of air (oxygen) have shown that small amounts of formaldehyde are formed due to oxidative degradation.

11 Toxicological information

Acute toxicity (list all possible routes of exposure)

Oral

Product: Not classified for acute toxicity based on available data.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	LD 50 (Rat): 2,995 mg/kg
TITANIUM DIOXIDE	LD 50 (Rat): > 10,000 mg/kg
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	LD 50 (Rat): > 4,800 mg/kg

Dermal

Product: Not classified for acute toxicity based on available data.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	LD 50 (Rabbit): > 2,000 mg/kg
TITANIUM DIOXIDE	LD 50 (Rabbit): > 10,000 mg/kg
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	LD 50 (Rat): > 2,375 mg/kg

Inhalation
Product: Not classified for acute toxicity based on available data.

Repeated dose toxicity
Product: No data available.

Components:

Aminofunctional Silane	NOAEL (No Observed Adverse Effect Level) (Rat, Oral, 28 d): >= 500 mg/kg

Skin Corrosion/Irritation
Product: No data available.

Components:

Methyl oxime silane	Corrosive
Aminofunctional Silane	OECD Test Guideline 404 (Rabbit): No skin irritation
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Serious Eye Damage/Eye Irritation
Product: No data available.

Components:

Methyl oxime silane	Irritating to eyes. Category 2
Aminofunctional Silane	OECD Test Guideline 405 (Rabbit): Strongly irritating.

TITANIUM DIOXIDE	No eye irritation
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	OECD-Guideline 405 (Acute Eye Irritation/Corrosion) (Rabbit): Non irritating

Respiratory sensitization

Product: No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Skin sensitization

Product: No data available.

Components:

Methyl oxime silane	Category 1B
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Carcinogenicity

Product: No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Japan Society for Occupational Health: Carcinogen:

No carcinogenic components identified

Japan. ISHL Designated Carcinogen:

No carcinogenic components identified

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	Ames-Test (OECD-Guideline 471 (Genetic Toxicology: Salmonella typhimurium, Reverse Mutation Assay)): negative (not mutagenic) Mouse Lymphoma Assay (OECD Guidline 476): negative (not mutagenic)

In vivo

Product: No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds	No data available.

(22% as Tin)	
Octamethylcyclotetrasiloxane	No data available.

Reproductive toxicity

Product:	No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Specific Target Organ Toxicity - Single Exposure

Product:	No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product:	No data available.

Components:

Methyl oxime silane	Category 2: Cardiovascular system
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Aspiration Hazard

Product: No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Other effects: Toxicity of methyl ethyl ketoxime (MEKO) liberated when the material is in touch with water or moisture in the air, or the material is curing. SKIN CONTACT: May cause mild skin irritation. EYE CONTACT: Causes severe eye irritation may damage tissue. ACUTE ORAL TOXICITY: LD50 = 4ml/kg (rat). ACUTE INHALATION: 4-hr LC50 = > 4.8mg/l (rat). INHALATION TOXICITY: Narcotic(central nervous system)effects in high concentrations.Effects were reversible when exposure was ended.Prolonged overexposure causes adverse effects on the blood. SKIN SENSITIVITY: Positive (guinea pig).No allergic reaction to humans.CARCINOGENICITY: A lifetime (about two years) inhalation study in male and female mice and rats revealed that liver tumors were observed in male mice and rats at a high exposure level of 375 ppm. OTHER LONG-TERM EXPOSURE TESTS: Atrophy of nasal epithelium cells was observed in both mice and rats at all concentrations.The effect appeared reversible at lower concentrations. PERMISSIBLE CONCENTRATION: TWA 3 ppm (supplier's recommended value), Keep well ventilated (STEL 10 ppm or less). The WEEL recommended value of AIHA is TWA 10 ppm.

12 Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment

Fish

Product:	No data available.
Components:	
Aminofunctional Silane	LC50 (Lepomis macrochirus): > 100 mg/l
TITANIUM DIOXIDE	LC0 (Leuciscus idus, 48 h): > 1,000 mg/l

Aquatic Invertebrates

Product:	No data available.
Components:	
Aminofunctional Silane	EC50 (Daphnia magna, 48 h): 87.4 mg/l

Toxicity to Aquatic Plants

Product:	No data available.
Components:	
Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Toxicity to microorganisms

Product:	No data available.
Components	
Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.

TITANIUM DIOXIDE	EC0 (Pseudomonas putida, 24 h): > 10,000 mg/l
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Chronic hazards to the aquatic environment

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Components:

Methyl oxime silane	No data available.
Aminofunctional Silane	No data available.
TITANIUM DIOXIDE	No data available.
Tin and its compounds (22% as Tin)	No data available.
Octamethylcyclotetrasiloxane	No data available.

Persistence and Degradability

Biodegradation

Product: No data available.

Components:

TITANIUM DIOXIDE	0 %
Octamethylcyclotetrasiloxane	3.7 % (29 d, 310 Ready Biodegradability - CO_2 in Sealed Vessels (Headspace Test)) Not readily biodegradable. Persistent

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Components:

Octamethylcyclotetrasiloxane	Bioconcentration Factor (BCF): 12,400

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: No data available.

Hazardous to the ozone layer: No data available.

Further Information: No data available.

13 Disposal considerations

General information: none

Disposal methods: This product falls under Industrial Waste based on Wastes Disposal and Public Cleansing Law. Dispose of in accordance with this law and local regulations.

Contaminated Packaging: Dispose of as unused product.

14 Transport information

International regulations

IMDG - International Maritime Dangerous Goods Code

Not regulated.

IATA

Not regulated.

National Regulations
Domestic Standard: In compliance with domestic law.

15 Regulatory information

Japan CSCL:

Priority Assessment Chemical Substances: Not Regulated

Monitoring Chemical Substances: Not Regulated

Law concerning Pollutant Release and Transfer Register:

Specified Class 1 substance(s): Not Regulated

Class 1 Substance(s): Not Regulated
Class 2 Substance(s): Not Regulated

Industrial Safety and Health Act:

Article 57-2 Regulated Substance(s): TITANIUM DIOXIDE; Tin and its compounds (22% as Tin)

Article 57 Regulated Substance(s) subject to labeling: Not Regulated

Organic Solvent Regulation Not Regulated

Specified Substances Regulation:

Class 1 designated chemical substances:
Not Regulated
Class 2 designated chemical substances:
Not Regulated
Class 3 designated chemical substances:
Not Regulated

Poisonous and Deleterious Substances Control Act:

Specified poisonous substance(s):

Main law: Not Regulated

Cabinet order: Not Regulated

Poisonous Substance(s):

Main law: Not Regulated

Cabinet order: Not Regulated

Deleterious Substance(s):

Main law: Not Regulated

Cabinet order: Not Regulated

Fire Service Law: Group 4: Flammable liquids, Type 3 petroleums, Water insoluble liquid Hazardous rank III
Keep away from fire

High Pressure Gas Safety Law: Not Regulated

Act on Prevention of Marine Pollution and Maritime Disaster: Not Regulated

Inventory Status:

Australia AICS:	On or in compliance with the inventory	Remarks: None.
Canada DSL Inventory List:	Not in compliance with the inventory.	Remarks: None.
EINECS, ELINCS or NLP:	On or in compliance with the inventory	Remarks: None.
Japan (ENCS) List:	On or in compliance with the inventory	Remarks: None.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory	Remarks: None.
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory	Remarks: None.
Canada NDSL Inventory:	Not in compliance with the inventory.	Remarks: None.
Philippines PICCS:	On or in compliance with the inventory	Remarks: None.
US TSCA Inventory:	On or in compliance with the inventory	Remarks: None.
New Zealand Inventory of Chemicals:	On or in compliance with the inventory	Remarks: None.
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory	Remarks: None.
REACH:	If purchased from Momentive Performance Materials GmbH in Leverkusen, Germany, all substances in this product have been registered by Momentive Performance Materials GmbH or upstream in our supply chain or are exempt from registration under Regulation (EC) No 1907/2006 (REACH). For polymers, this includes the constituent monomers and other reactants.	Remarks: None.

16 Other Information

Revision Information: ARGLO_INVSTSARGHS_JP
Issue Date: 11/25/2021
SDS No.:

Disclaimer:

Notice to reader

This material is developed and manufactured for industrial applications only. For medical or other special applications, use after performing safety testing on the product and confirming safety. Never use for human applications such as implant, impregnation, or where a residue may possibly remain in the body.

Further Information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only asa guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warrantyor quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Literature Reference: No data available.