Safety Data Sheet

according to WHMIS 2023 and HCS 2024

Date of issue 10/27/2025 Version number 6.01 Revision: 04/22/2025

* 1 Identification

· **Product identifier**

· **Trade name: 8329TFS-B**

· **Other Means of Identification:** Thermally Conductive Epoxy Adhesive (Part B)

· **Related Part Number:** 8329TFS-Part B, 8329TFS-25ML (B), 8329TFS-50ML (B), MC002977 (B)

· **Application of the substance / the mixture** Thermally conductive adhesive hardener

· **Uses advised against** Not for use as a spray coating

· **Details of the supplier of the safety data sheet**

·

Manufacturer/Supplier:
MG Chemicals (Head Office)
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA
+(1) 800-340-0772
+(1) 905-331-1396
info@mgchemicals.com

·

Distributor:
Masline
511 Clinton Ave S
Rochester, New York 14620
United States
+(1) 586-546-5373

· **Information department:** sds@mgchemicals.com

· **Emergency telephone number:**

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA-Call 3E at +1-866-519-4752 or +1-760-476-3962 (Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA-Call CANUTEC collect at +1-613-996-6666 or *666 on cellular phones

2 Hazard identification

· **Classification of the substance or mixture**

Skin Irritation - Category 2	H315 Causes skin irritation.
Eye damage/irritation – Category 1	H318 Causes serious eye damage.
Sensitization - skin – Category 1	H317 May cause an allergic skin reaction.
Aquatic Acute 1	H400 Very toxic to aquatic life.
Aquatic Chronic 1	H410 Very toxic to aquatic life with long lasting effects.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**

GHS05 GHS07 GHS09

· **Signal word** Danger

· **Hazard-determining components of labeling:**
fatty acids, C18-unsatd., dimers, reactionproducts with polyethylenepolyamines
3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine
triethylenetetramine

· **Hazard statements**
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P102	Keep out of reach of children.
P280	Wear protective gloves / eye protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice.
P501	Dispose of contents and container in accordance with local, regional, and national regulations.

· **Other hazards** Not available

3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
1344-28-1	aluminium oxide	39.0% w/w
1314-13-2	zinc oxide	25.0% w/w
68541-13-9	fatty acids, c18-unsat, dimer, polymers, w/3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine	18.0% w/w
68410-23-1	fatty acids, C18-unsatd., dimers, reactionproducts with polyethylenepolyamines	9.0% w/w
4246-51-9	3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine	3.0% w/w
108-65-6	2-methoxy-1-methylethyl acetate	0.9% w/w
1333-86-4	Carbon black	0.9% w/w
8052-41-3	Stoddard solvent	0.5% w/w

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112-24-3	triethylenetetramine	0.1% w/w

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Remove person to fresh air and keep comfortable for breathing.
If feeling unwell: Call a POISON CENTRE or doctor.
· **After skin contact:**
Wash with plenty water.
If skin irritation or rash occurs: Get medical advice or attention.
Take off contaminated clothing and wash it before reuse.
· **After eye contact:**
Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
· **After swallowing:**
Rinse mouth.
Do NOT induce vomiting.
If symptoms persist consult doctor.

· **Most important symptoms and effects, both acute and delayed**
If exposed to metal fumes, chills and fever-like symptoms may occur 4-12 hours after exposure.

· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture**
The flu-like symptoms of metal fever may be delayed, occurring 4 to 12 hours after exposure.
Not flammable or combustible, but burns if involved in a fire. Produces irritating smoke of unknown toxicity in fires.
Prevent fire-fighting wash from entering waterway or sewer system.
Inhalation of metal fumes may cause metal fever and irritate the respiratory tract.
· **Hazardous combustion products:**
Carbon Oxides (COx)
toxic metal fumes
Nitrogen Oxides (NOx)
Boron oxides
Zinc oxides

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· **Advice for firefighters**
· **Protective equipment:** Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Remove or keep away all sources of extreme heat or open flames.
Avoid breathing mist, spray, or vapors.

· **Environmental precautions:**
Avoid release to the environment.
Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Collect liquid in a sealable, chemical-resistant container.
Wash residue with a paper towel and place dirty towels in container.
Use soap and water to remove the last traces of residue.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Precautions for safe handling**
Wear protective gloves and eye protection.
Wash hands and exposed skin thoroughly after handling.
Take off contaminated clothing and wash it before reuse.
Collect spillage.
Contaminated work clothing should not be allowed out of the workplace.
Avoid breathing fumes or vapours.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Keep in a dry and clean area, away from incompatible substances
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.

· **Specific end use(s)** See section 1.2

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8 Exposure controls/ Personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
1333-86-4 Carbon black	
EL (Canada)	TWA: 3 mg/m³ IARC 2B
EV (Canada)	TWA: 3.5 mg/m³
PEL (USA)	TWA: 3.5 mg/m³
REL (USA)	TWA: 3.5* mg/m³ *0.1 in presence of PAHs;See Pocket Guide Apps.A+C
TLV (USA)	TWA: 3* mg/m³ *inhalable fraction, A3
112-24-3 triethylenetetramine	
EV (Canada)	TWA: 3 mg/m³, 0.5 ppm Skin
WEEL (USA)	TWA: 6 mg/m³, 1 ppm Skin

· **Additional information:**
The lists that were valid during the creation were used as basis.
Refer to the national or regional occupational exposure limit regulation for abbreviations and acronyms.

· **Exposure controls**
· **Appropriate engineering controls** No further data; see section 7.
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.
· **Protection of hands:**
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Protective gloves: EN374

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to

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be checked prior to the application.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Safety glasses or tightly sealed goggles: EN 166

* 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Physical state**	Liquid
· **Form:**	Viscous
· **Color:**	Grey
· **Odor:**	Amine-like
· **Odor threshold:**	Not determined.
· **Melting point/Melting range:**	Undetermined. Not available
· **Boiling point/Boiling range:**	>145 °C (>293 °F)
· **Flammability:**	Non flammable
· **Explosion limits:**	
· **Lower:**	Not applicable
· **Upper:**	Not applicable
· **Flash point:**	110 °C (230 °F)
· **Auto igniting:**	Not determined
· **Decomposition temperature:**	Not determined.
· **pH-value:**	Not determined.
· **Viscosity:**	
· **Kinematic at 20 °C (68 °F):**	>20.5 mm²/s
· **Dynamic:**	Not determined.
· **Solubility in / Miscibility with**	
· **Water:**	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	1.96 g/cm³ (16.3562 lbs/gal)
· **Relative density at 25 °C (77 °F):**	2.0
· **Vapor density (air=1):**	Not determined.
· **Particle characteristics**	Not applicable

· **Other information**

· **Important information on protection of health and environment, and on safety.**

· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.

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· **Organic solvents:**	0.90 %
· **VOC content:**	0.900 %
· **Solids content:**	>68.0 %
· **Evaporation rate**	Not determined.

10 Stability and reactivity

· **Reactivity**
Reacts exothermically with amines.
Reacts exothermically with ketones, halogenated hydrocarbons, cyanides, nitriles, and epoxides.

· **Chemical stability** Chemically stable at normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

· **Conditions to avoid** No further relevant information available.

· **Incompatible materials:**
Halogenated compounds
Strong oxidizing agents
Strong acids

· **Hazardous decomposition products:**
No dangerous decomposition products known.
Hazardous combustion products: see section 5.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
1344-28-1 aluminium oxide		
Oral	LD50	>2,000 mg/kg (rat)
Inhalative	LC50/4 h	>2 mg/L (mouse)
1314-13-2 zinc oxide		
Oral	LD50	7,950 mg/kg (rat)
4246-51-9 3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine		
Oral	LD50	4,310 mg/kg (rat)
Dermal	LD50	2,510 mg/kg (rabbit)
108-65-6 2-methoxy-1-methylethyl acetate		
Oral	LD50	8,532 mg/kg (rat)
Dermal	LD/50	5 g/kg (rabbit)

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Inhalative	LC50/4 h	35.7 mg/L (rat)
1333-86-4 Carbon black		
Oral	LD50	>15,400 mg/kg (rat)
Dermal	LD50	>3,000 mg/kg (rabbit)
112-24-3 triethylenetetramine		
Oral	LD50	2,500 mg/kg (rat)
Dermal	LD50	805 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** Sensitization possible through skin contact.

· **Summary of effects and symptoms by route of exposure**
· **Eyes:**
redness, serious irritation
eye damage, pain
· **Skin:**
rash, allergic contact dermatitis
redness, irritation
· **Inhalation:**
Inhalation of fumes may cause metal fever and irritate the respiratory tract.
The flu-like symptoms of metal fume fever may be delayed, occurring 4–12 hours after exposure.
· **Swallowed:**
allergic reactions
irritation to the mouth, throat, esophagus, and stomach
see inhalation symptoms

· **Delayed and immediate effects as well as chronic effects from short and long-term exposure**
Prolonged and repeated exposure to uncured epoxy hardener may lead to skin sensitization.

· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
1333-86-4	Carbon black	2B

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:**
Very toxic to aquatic life with long lasting effect.
Avoid release to the environment.
Collect spillage.

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1314-13-2 zinc oxide	
LC50	0.042 mg/L (fish)
4246-51-9 3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine	
LC50 96h	>1,000 mg/L (fish)
1333-86-4 Carbon black	
EC50/ 24 h	>5,600 mg/L (aquatic invertebrates)
EC50/ 72 h	>10,000 mg/L (aquatic algae and cyanobacteria)
EC0/ 3 h	>800 mg/L (microorganisms)
LC50	>1,000 mg/L (fish)
112-24-3 triethylenetetramine	
EC50/ 48 h	24 mg/L (daphnia)
LC50 96h	420 mg/L (guppie)
IC50 72h	2 mg/L (algae)

· **Persistence and degradability** Not readily biodegradable.

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** This material and its container must be disposed of as hazardous waste.

· **Uncleaned packagings:**
· **Recommendation:**
Containers may still present a chemical hazard/ danger when empty.
Dispose of contents in accordance with all local, regional, national, and international regulations.
Where possible retain label warnings and SDS and observe all notices pertaining to the product.

14 Transport information

· **UN-Number**
· **DOT/TDG, IMDG, IATA** UN3082

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· **UN proper shipping name**

· **DOT/TDG** Environmentally hazardous substance, liquid, n.o.s. (zinc oxide)

· **IMDG** NOT REGULATED by Sea IMDG per 2.10.2.7 for sizes 5L or less.
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (zinc oxide)

· **IATA** NOT REGULATED by Air IATA Special Provision A197 for sizes 5L or less.
Environmentally hazardous substance, liquid, n.o.s. (zinc oxide)

· **Transport hazard class(es)**

· **DOT/TDG, IMDG**

· **Class** 9 Miscellaneous dangerous substances and articles
· **Label** 9

· **IATA**

· **Class** 9 Miscellaneous dangerous substances and articles
· **Label** 9

· **Packing group**
· **DOT/TDG, IMDG, IATA** III

· **Environmental hazards:**
· **Marine pollutant:** MARINE POLLUTANT
· **Special marking (IATA):** ENVIRONMENTALLY HAZARDOUS
Symbol (fish and tree)

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:** Not Regulated

· **DOT/TDG**
· **Quantity limitations** On passenger aircraft/rail: 450 L
On cargo aircraft only: 450 L

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· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **Special precautions for user**	Not applicable.
· **Hazard identification number (Kemler code):**	90
· **EMS Number:**	F-A,S-F
· **Stowage Category**	A
· **UN "Model Regulation":**	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ZINC OXIDE), 9, III

* 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **OSHA Hazard Communication Standard (29 CFR Part 1900)**
The safety data sheet and label comply with HCS 2024.

· **Hazardous Products Act (R.S.C., 1985, c. H-3)**
The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2023.

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

1344-28-1	aluminium oxide
1314-13-2	zinc oxide

· **TSCA (Toxic Substances Control Act):**

1344-28-1	aluminium oxide	ACTIVE
1314-13-2	zinc oxide	ACTIVE
68541-13-9	fatty acids, c18-unsat, dimer, polymers, w/3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine	ACTIVE
68410-23-1	fatty acids, C18-unsatd., dimers, reactionproducts with polyethylenepolyamines	ACTIVE
4246-51-9	3,3'-(oxybis(2,1-ethane-diyloxy))bis-1-propanamine	ACTIVE
108-65-6	2-methoxy-1-methylethyl acetate	ACTIVE
1333-86-4	Carbon black	ACTIVE
112-24-3	triethylenetetramine	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

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· **Proposition 65**

· **Chemicals known to cause cancer:**	
1333-86-4	Carbon black

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **TLV (Threshold Limit Value)**		
1344-28-1	aluminium oxide	A4
1333-86-4	Carbon black	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**	
1333-86-4	Carbon black

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**
All ingredients are listed.

· **Canadian Non-Domestic Substances List (NDSL)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**	
112-24-3	triethylenetetramine

· **Canadian Ingredient Disclosure list (limit 1%)**	
1344-28-1	aluminium oxide
1314-13-2	zinc oxide

· **HMIS-ratings (scale 0 - 4)**
Health = * 2
Fire = 2
Reactivity = 0

· **Europe**

· **RoHS (Restriction of Hazardous Substances Directive)**
This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

· **WEEE (Waste Electrical and Electronic Equipment Directive)**
This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

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· **Per- and polyfluoroalkyl substances (PFAS)**

None of the ingredients is listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Regulatory department
· **Contact:** sds@mgchemicals.com
· **Date of previous version** 04/22/2025
· **Version number of previous version:** 6.00
· **Date of preparation** 10/27/2025
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
· *** Data compared to the previous version altered.**