



Revision Number: 008.1

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1. IDENTIFICATION

Product name:	LOCTITE TCF 1000 AL known as Thermstrate AL-425-244	IDH number:	563693
Product type/	Phase Change Thermal Interface	Item number:	AL-425-244
Recommended use:	Material (PCTIM)	Region:	United States
Restriction of Use:	None identified	Contact information:	
Company address:	Henkel Corporation One Henkel Way Rocky Hill, Connecticut 06067	Telephone:	+1 (860) 571-5100
		MEDICAL EMERGENCY Phone:	Poison Control Center 1-877-671-4608 (toll free) or 1-303-592-1711
		TRANSPORT EMERGENCY Phone:	CHEMTREC 1-800-424-9300 (toll free) or 1-703-527-3887
		Internet:	www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING: H317 - MAY CAUSE AN ALLERGIC SKIN REACTION.
H351 - SUSPECTED OF CAUSING CANCER.

HAZARD CLASS	HAZARD CATEGORY
SKIN SENSITIZATION	1
CARCINOGENICITY	2

PICTOGRAM(S)



Precautionary Statements

Prevention:	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P261 - Avoid breathing dust or fumes. P272 - Contaminated work clothing should not be allowed out of the workplace.
Response:	P280 - Wear protective gloves, clothing, eye and face protection. P302+P352 - IF ON SKIN: Wash with plenty of water. P308+P313 - IF exposed or concerned: Get medical attention. P333+P313 - If skin irritation or rash occurs: Get medical attention. P362+P364 - Take off contaminated clothing and wash it before reuse.
Storage:	P405 - Store locked up.
Disposal:	P501 - Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Other hazards None if used properly.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Weight %*
Aluminum not powder, dust or fume	7429-90-5	60 - 80
Paraffin waxes and Hydrocarbon waxes	8002-74-2	10 - 30
Zinc oxide	1314-13-2	5 - 10
Petrolatum	8009-03-8	1 - 5
Silicon	7440-21-3	1 - 5
Nickel	7440-02-0	1 - 5
Magnesium powder (pyrophoric)	7439-95-4	1 - 5
Copper Metal	7440-50-8	1 - 5
Manganese	7439-96-5	1 - 5

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

First Aid Measures by likely routes of exposure

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.
Skin contact:	Remove contaminated clothing and footwear. Immediately flush skin with plenty of water (using soap, if available). If symptoms develop and persist, get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical attention immediately.
Ingestion:	DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If symptoms develop and persist, get medical attention.
Most important symptoms and effects (acute and delayed):	The most important known symptoms and effects, both acute and delayed, are described in Section 11: Toxicological Information.
Indication of any immediate medical attention / special treatment needed:	Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Water spray (fog), foam, dry chemical or carbon dioxide. Use extinguishing measures appropriate to local circumstances and the surrounding environment.
Improper extinguishing agents:	Not available.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. Keep unnecessary personnel away. In case of fire, keep containers cool with water spray.
Unusual fire or explosion hazards:	In case of fire, keep containers cool with water spray.

Hazardous combustion products:

Oxides of carbon. Oxides of nitrogen. Metal oxide fumes. Hydrocarbons.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:

Do not allow product to enter sewer or waterways.

Clean-up methods:

Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up. If product is spilled in the solid state, pick up and place in an appropriate waste disposal container. If product is spilled in the molten state, allow product to solidify before scraping up and disposing of in an appropriate waste disposal container. Avoid dust formation.

7. HANDLING AND STORAGE

Handling:

Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. When using do not eat, drink or smoke. Do not taste or swallow. Avoid breathing vapors or mists of this product. Keep container closed. Wash thoroughly after handling.

Storage:

For safe storage, store at or below 35 °C (95°F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Aluminum not powder, dust or fume	1 mg/m ³ TWA Respirable fraction.	None	None	None
Paraffin waxes and Hydrocarbon waxes	2 mg/m ³ TWA Fume.	None	None	None
Zinc oxide	2 mg/m ³ TWA Respirable fraction. 10 mg/m ³ STEL Respirable fraction.	5 mg/m ³ PEL Fume. 5 mg/m ³ PEL Respirable fraction. 15 mg/m ³ PEL Total dust. 15 mg/m ³ TWA Total dust. 5 mg/m ³ TWA Respirable fraction. 15 MPPCF TWA Respirable fraction. 50 MPPCF TWA Total dust.	None	None
Petrolatum	5 mg/m ³ TWA Inhalable fraction.	5 mg/m ³ PEL Mist.	None	None
Silicon	10 mg/m ³ TWA Inhalable particles. 3 mg/m ³ TWA Respirable particles.	5 mg/m ³ PEL Respirable fraction. 15 mg/m ³ PEL Total dust. 15 mg/m ³ TWA Total dust. 5 mg/m ³ TWA Respirable fraction. 50 MPPCF TWA Total dust. 15 MPPCF TWA Respirable fraction.	None	None
Nickel	1.5 mg/m ³ TWA Inhalable fraction.	1 mg/m ³ PEL (as Ni)	None	None
Copper Metal	1 mg/m ³ TWA (as Cu) Dust and mist. 0.2 mg/m ³ TWA (as Cu) Fume.	0.1 mg/m ³ PEL (as Cu) Fume. 1 mg/m ³ PEL (as Cu) Dust and mist.	None	None
Manganese	0.02 mg/m ³ TWA (as Mn) Respirable fraction. 0.1 mg/m ³ TWA (as Mn) Inhalable fraction.	5 mg/m ³ Ceiling (as Mn) Fume.	None	None

Engineering controls:

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection:

Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection:

Safety goggles or safety glasses with side shields.

Skin protection:

Use impermeable gloves and protective clothing as necessary to prevent skin contact. Safety showers and eye wash stations should be available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid (coated aluminum foil substrate)

Color:

Gray / Grey, White

Odor:

None

Odor threshold:

Not available.

pH:

Not applicable, Product is non-soluble (in water).

Vapor pressure:

< 1 hPa (20 °C (68°F))

Boiling point/range:

> 200 °C (> 392°F)

Melting point/ range:	60.0 °C (140°F)
Melting point/ range:	60 °C (140°F) (coating compound)
Melting point/ range:	482 °C (899.6 °F) (aluminum substrate)
Density/Relative density:	2.7 (coating compound)
Relative vapor density:	Not applicable, Product is a solid
Flash point:	221 °C (429.8 °F) Cleveland open cup; (coating compound)
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	The substance or mixture is not classified as pyrophoric.
Flammability:	The product is not flammable.
Evaporation rate:	Not available.
Solubility:	Insoluble Water
Partition coefficient n-octanol/water (logarithmic value):	Not available.
VOC content:	0 %; 0 g/l
Dynamic viscosity:	Not available.
Kinematic viscosity:	Not available.
Particle characteristics:	Not applicable, Product is not powder.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable at normal conditions.
Hazardous reactions:	None under normal processing.
Hazardous decomposition products:	Oxides of carbon. Oxides of nitrogen. Metal oxide fumes. Hydrocarbons.
Incompatible materials:	Strong acids, alkalis and oxidizing agents. Halogenated compounds. Water.
Reactivity:	Not available.
Conditions to avoid:	Heat, flames, sparks and other sources of ignition. Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure:	Skin, Inhalation, Eyes, Ingestion
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Potential Health Effects/Symptoms

Inhalation:	May cause respiratory tract irritation.
Skin contact:	May cause allergic skin reaction.
Eye contact:	May cause irritation.
Ingestion:	Not expected under normal conditions of use. May cause gastrointestinal tract irritation if swallowed.

Hazardous Component(s)	LD50s and LC50s
Aluminum not powder, dust or fume	Inhalation LC50 (Rat, 4 h) = > 0.888 mg/l
Paraffin waxes and Hydrocarbon waxes	None
Zinc oxide	Oral LD50 (Mouse) = 7,950 mg/kg Oral LD50 (Rat) = > 5 g/kg Inhalation LC50 (Rat, 4 h) = > 5,700 mg/m3
Petrolatum	None
Silicon	Inhalation LC50 (Rat, 4 h) = > 2.08 mg/l
Nickel	None
Magnesium powder (pyrophoric)	Inhalation LC50 (Rat, 4 h) = > 2,100 mg/m3 Inhalation LC50 (Rat, 4 h) = > 2.1 mg/l
Copper Metal	Inhalation LC50 (Rat, 4 h) = > 5.11 mg/l
Manganese	Inhalation LC50 (Rat, 4 h) = > 5.14 mg/l

Hazardous Component(s)	Immediate Health Effects	Delayed Health Effects	Chronic Health Effects
Aluminum not powder, dust or fume	Irritant		Central nervous system Lung
Paraffin waxes and Hydrocarbon waxes	Irritant		
Zinc oxide	Irritant		Blood Gastrointestinal Immune system Kidney Metabolic Nervous System Pancreas Respiratory Skin
Petrolatum	Irritant		
Silicon	Irritant Nuisance dust		
Nickel	Irritant	Allergen	Carcinogen Kidney Mutagen Reproductive Respiratory
Magnesium powder (pyrophoric)	Irritant		Skin Gastrointestinal Immune system
Copper Metal	Irritant	Allergen	Blood Central nervous system Developmental Gastrointestinal Immune system Kidney Liver Mutagen Sensory Skin
Manganese	Irritant		Immune system Lung Nervous System Reproductive Respiratory

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Aluminum not powder, dust or fume	No	No	No
Paraffin waxes and Hydrocarbon waxes	No	No	No
Zinc oxide	No	No	No
Petrolatum	No	No	No
Silicon	No	No	No

Nickel	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No
Magnesium powder (pyrophoric)	No	No	No
Copper Metal	No	No	No
Manganese	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any packaging.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed as active or are exempt from listing on the Toxic Substances Control Act (TSCA) inventory.
TSCA 12 (b) Export Notification: None above reporting de minimis
CERCLA/SARA Section 302 EHS: None above reporting de minimis.
CERCLA/SARA Section 311/312: Please refer to the GHS classification in Section 2
CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Aluminum not powder, dust or fume (CAS# 7429-90-5). Zinc oxide (CAS# 1314-13-2). Nickel (CAS# 7440-02-0). Copper Metal (CAS# 7440-50-8). Manganese (CAS# 7439-96-5).
CERCLA Reportable quantity: Nickel (CAS# 7440-02-0) 100 lbs. (45.4 kg)
California Proposition 65: This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: This Safety Data Sheet contains changes from the previous version in Section(s): 11

Prepared by: Product Safety and Regulatory Affairs

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