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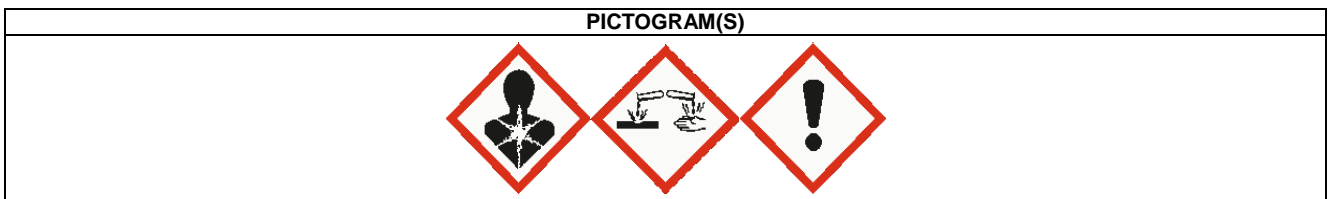
1. PRODUCT AND COMPANY IDENTIFICATION

| | | | |
|----------------------------|--|-----------------------------|---|
| Product name: | LOCTITE EA 3472 B HARDENER known as LOCTITE FM STEEL LIQUID 1LB PTB | IDH number: | 702245 |
| Product type/use: | Epoxy Hardener | Item number: | 97483_239000 |
| Restriction of Use: | None identified | Region: | United States |
| Company address: | Henkel Corporation One Henkel Way Rocky Hill, Connecticut 06067 | Contact information: | 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 | |
|--------------------|---|
| DANGER: | HARMFUL IF SWALLOWED OR IN CONTACT WITH SKIN. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. MAY CAUSE AN ALLERGIC SKIN REACTION. MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED. SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD. |

| HAZARD CLASS | HAZARD CATEGORY |
|---------------------------|-----------------|
| ACUTE TOXICITY ORAL | 4 |
| ACUTE TOXICITY DERMAL | 4 |
| SKIN CORROSION | 1B |
| SERIOUS EYE DAMAGE | 1 |
| RESPIRATORY SENSITIZATION | 1 |
| SKIN SENSITIZATION | 1 |
| REPRODUCTIVE TOXICITY | 2 |



Precautionary Statements

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| Prevention: | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing vapors, mist, or spray. Wash affected area thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, clothing, eye and face protection. In case of inadequate ventilation wear respiratory protection. |
| Response: | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical attention. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse. |
| Storage: | Store locked up. |
| Disposal: | Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations. |

4 % of the mixture consists of ingredient(s) of unknown acute toxicity.

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 | Percentage* |
|---|------------|-------------|
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer | 68082-29-1 | 30 - 60 |
| 3,6-diazaoctanethylenediamin | 112-24-3 | 30 - 60 |
| N-Aminoethylpiperazine | 140-31-8 | 10 - 30 |
| 4-nonylphenol, branched | 84852-15-3 | 5 - 10 |
| Fatty acids, tall-oil, reaction products with tetraethylenepentamine | 68953-36-6 | 1 - 5 |
| Glycerypoly(oxypropylene)triamine | 64852-22-8 | 1 - 5 |
| Diethylenetriamine | 111-40-0 | 1 - 5 |
| 4,4'-Isopropylidenediphenol | 80-05-7 | 0.1 - 1 |
| Tetraethylene pentamine | 112-57-2 | 0.1 - 1 |

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

4. FIRST AID MEASURES

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|----------------------|--|
| Inhalation: | Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention. |
| Skin contact: | Remove contaminated clothing and footwear. Immediately flush skin with plenty of water (using soap, if available). Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse. |
| Eye contact: | Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. |
| Ingestion: | DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention. |
| Symptoms: | See Section 11. |

5. FIRE FIGHTING MEASURES

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| Extinguishing media: | Water spray (fog), foam, dry chemical or carbon dioxide. |
| Special firefighting procedures: | Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. |
| Unusual fire or explosion hazards: | None |
| Hazardous combustion products: | Oxides of carbon. Oxides of nitrogen. Ammonia. Aldehydes. Acids. Phenolics. Toxic fumes. Irritating vapors. |

6. ACCIDENTAL RELEASE MEASURES

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

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|-----------------------------------|--|
| Environmental precautions: | Do not allow product to enter sewer or waterways. |
| Clean-up methods: | Ensure adequate ventilation. Wear appropriate personal protective equipment. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal. |

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Do not taste or swallow. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Storage: Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Keep away from heat, spark and flame.

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 |
|---|---------------------|----------|---|-------|
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer | None | None | None | None |
| 3,6-diazaoctanethylenediamin | None | None | 1 ppm (6 mg/m3) TWA (SKIN) | None |
| N-Aminoethylpiperazine | None | None | None | None |
| 4-nonylphenol, branched | None | None | None | None |
| Fatty acids, tall-oil, reaction products with tetraethylenepentamine | None | None | None | None |
| Glycerylpoly(oxypropylene)triamine | None | None | None | None |
| Diethylenetriamine | 1 ppm TWA (SKIN) | None | None | None |
| 4,4'-Isopropylidenediphenol | None | None | None | None |
| Tetraethylene pentamine | None | None | 1 ppm (5 mg/m3) TWA Aerosol. (SKIN) Aerosol. (Skin sensitizer) | None |

Engineering controls: Use local ventilation if general ventilation is insufficient to maintain vapor concentration below established 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. Full face protection should be used if the potential for splashing or spraying of product exists.

Skin protection: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|
| Physical state: | Liquid |
| Color: | Blue |
| Odor: | Ammoniacal |
| Odor threshold: | Not available. |
| pH: | Not available. |
| Vapor pressure: | Not available. |
| Boiling point/range: | 137 - 293 °C (278.6 - 559.4 °F) |
| Melting point/ range: | Not available. |
| Specific gravity: | 0.99 |
| Vapor density: | Not available. |
| Flash point: | > 93 °C (> 199.4 °F) |
| Flammable/Explosive limits - lower: | Not available. |
| Flammable/Explosive limits - upper: | Not available. |
| Autoignition temperature: | Not available. |
| Flammability: | Not applicable |
| Evaporation rate: | Not available. |
| Solubility in water: | Soluble |
| Partition coefficient (n-octanol/water): | Not available. |
| VOC content: | < 1.0 %; < 10 g/l (value for resin and hardener together) (estimated) |
| Viscosity: | Not available. |
| Decomposition temperature: | Not available. |

10. STABILITY AND REACTIVITY

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| Stability: | Stable under normal conditions of storage and use. |
| Hazardous reactions: | None under normal processing. |
| Hazardous decomposition products: | Oxides of carbon. Ammonia. Aldehydes. Acids. Phenolics. Toxic fumes. Irritating vapors. |
| Incompatible materials: | Strong oxidizing agents. Strong Lewis acids. Strong mineral acids. Strong bases. Aldehydes. Ketones. Acrylates. Organic halides. |
| Reactivity: | Not available. |
| Conditions to avoid: | Keep away from heat, ignition sources and incompatible materials. |

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

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|----------------------|--|
| Inhalation: | May cause allergic respiratory reaction. Mists, vapors or liquid may cause severe irritation or burns. |
| Skin contact: | Causes skin burns. May cause allergic skin reaction. Harmful in contact with skin. |
| Eye contact: | Causes eye burns. Causes serious eye damage. |
| Ingestion: | If ingested, severe burns of the mouth and throat may occur, as well as perforation of the esophagus and the stomach. Harmful if swallowed. May cause an aspiration hazard if swallowed. |

| Hazardous Component(s) | LD50s and LC50s | Immediate and Delayed Health Effects |
|---|---|---|
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer | None | No Records |
| 3,6-diazaoctanethylenediamin | None | Allergen, Corrosive, Developmental, Irritant, Mutagen |
| N-Aminoethylpiperazine | None | Irritant, Corrosive, Allergen |
| 4-nonylphenol, branched | None | Irritant, Corrosive |
| Fatty acids, tall-oil, reaction products with tetraethylenepentamine | None | No Records |
| Glycerypoly(oxypropylene)triamine | None | No Data |
| Diethylenetriamine | Oral LD50 (Rat) Approximate 1,140 mg/kg Oral LD50 (Rat) = 1,080 mg/kg Oral LD50 (Rat) = 2.33 g/kg | Allergen, Irritant, Eyes |
| 4,4'-Isopropylidenediphenol | Oral LD50 (Rat) = 4,100 mg/kg Oral LD50 (Rat) = 3,300 mg/kg | Allergen, Blood, Irritant, Kidney, Reproductive, Spleen |
| Tetraethylene pentamine | Oral LD50 (Rat) = 3.99 g/kg Oral LD50 (Rat) = 2.1 g/kg Dermal LD50 (Rabbit) = 0.66 g/kg | Irritant, Mutagen, Allergen |

| Hazardous Component(s) | NTP Carcinogen | IARC Carcinogen | OSHA Carcinogen (Specifically Regulated) |
|---|----------------|-----------------|--|
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer | No | No | No |
| 3,6-diazaoctanethylenediamin | No | No | No |
| N-Aminoethylpiperazine | No | No | No |
| 4-nonylphenol, branched | No | No | No |
| Fatty acids, tall-oil, reaction products with tetraethylenepentamine | No | No | No |
| Glycerypoly(oxypropylene)triamine | No | No | No |
| Diethylenetriamine | No | No | No |
| 4,4'-Isopropylidenediphenol | No | No | No |
| Tetraethylene pentamine | 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. |
| Hazardous waste number: | It is the responsibility of the user to determine if an item is hazardous as defined in the Resource Conservation and Recovery Act (RCRA) at the time of disposal. Product uses, transformations, mixtures, processes, etc., may render the resulting material hazardous, under the criteria of ignitability, corrosivity, reactivity and toxicity characteristics of the Toxicity Characteristics Leaching Procedure (TCLP) 40 CFR 261.20-24. |

14. TRANSPORT INFORMATION

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

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

| | |
|----------------------------------|---|
| Proper shipping name: | Amines, liquid, corrosive, n.o.s. (Aminoethylpiperazine, Triethylenetetramine, Nonylphenol) |
| Hazard class or division: | 8 |
| Identification number: | UN 2735 |
| Packing group: | II |

International Air Transportation (ICAO/IATA)

| | |
|----------------------------------|---|
| Proper shipping name: | Amines, liquid, corrosive, n.o.s. (Aminoethylpiperazine, Triethylenetetramine, Nonylphenol) |
| Hazard class or division: | 8 |
| Identification number: | UN 2735 |
| Packing group: | II |

Water Transportation (IMO/IMDG)

| | |
|----------------------------------|---|
| Proper shipping name: | AMINES, LIQUID, CORROSIVE, N.O.S. (Aminoethylpiperazine, Triethylenetetramine, Nonylphenol) |
| Hazard class or division: | 8 |
| Identification number: | UN 2735 |
| Packing group: | II |
| Marine pollutant: | Nonylphenol |

15. REGULATORY INFORMATION

United States Regulatory Information

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|---|---|
| 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: | Alkyl phenol (CAS# 84852-15-3). |
| CERCLA/SARA Section 302 EHS: | None above reporting de minimis. |
| CERCLA/SARA Section 311/312: | Immediate Health, Delayed Health |
| 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). 4-nonylphenol, branched (CAS# 84852-15-3). |
| 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: | Contains one or more components listed on the Non-Domestic Substances List. All other components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Record as required by Environment Canada. They may be imported into Canada in limited quantities. Please contact Regulatory Affairs for additional details. |
|------------------------------|---|

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: 2,3,8,11,15

Prepared by: Product Safety and Regulatory Affairs

Issue date: 03/27/2020

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