

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

PRODUCT NAME: TCC-102 Hardener

CHEMICAL NAME: Aliphatic Amine/Amidoamine Blend

MANUFACTURER: CASS POLYMERS OF MICHIGAN, INC.
815 WEST SHEPHERD STREET
CHARLOTTE MI 48813 USA

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Materials Information System (United States)

Health	2
Flammability	1
Physical Hazard	0

Hazard Codes: *=Chronic Hazard 0=Minimal Hazard, 1=Slight Hazard, 2=Moderate Hazard, 3=Serious Hazard, 4=Severe Hazard

Material Composition

Component	CAS.NO	EINECS/ELINCS No.	Percent
Diethylenetriamine	111-40-0	203-865-4	< 37%
Triethylenetetramine	112-24-3	203-950-6	45% - 55%
Nonylphenol	84852-15-3	203-199-4	20% - 30%

Hazardous Materials are required to be listed if present in concentrations of 1.0% or higher. Materials posing a possible Chronic Health Risk are required to be listed at concentrations of 0.1% or higher. Materials listed in section 2 are not necessarily hazardous. See section 8-EXPOSURE CONTROLS/PERSONAL PROTECTION, and section 11-TOXICOLOGICAL INFORMATION for complete hazard/exposure limit information.

3. HAZARDS IDENTIFICATION

****Emergency Overview****

Toxic in contact with skin. Corrosive. Moderate respiratory irritant. Severe skin irritant. Severe eye irritant.
May cause sensitization by skin contact.

EC Classification(s): C-Corrosive

Risk Phrase(s): R34 Causes Burns

R21/22 Harmful in contact with skin and if swallowed.

R43 May cause sensitization by skin contact.

(See Section 15-REGULATORY INFORMATION for complete risk phrases.)

Potential Acute Health Effects

Eyes

Causes eye burns. May cause blindness. Severe eye irritation.

Respiratory

Can cause severe eye, skin and respiratory tract burns. May cause nose, throat, and lung irritation. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system.

Skin

Toxic in contact with skin. Causes skin burns.

Potential Chronic Health Effects

Respiratory

Repeated inhalation of vapors may cause lung damage. Provide appropriate ventilation to maintain exposures below occupational limits. Use of a filtering respirator rated for use with amines/ammonia is recommended where local ventilation is not adequate. See section 8-EXPOSURE CONTROLS/PERSONAL PROTECTION for exposure limits and recommended protective equipment. See section 11-TOXICOLOGICAL INFORMATION for further information.

Skin

Repeated skin contact may cause a persistent irritation or dermatitis. Repeated or prolonged exposure may aggravate existing dermatitis (skin contact). Overexposure to vapor, dust, or mist may aggravate existing respiratory conditions such as asthma, bronchitis, and inflammatory or fibrotic respiratory disease.

4. FIRST AID MEASURES

Never give fluids or induce vomiting if patient is unconscious or is having convulsions.

Inhalation

Move effected persons to fresh air; if effects occur, consult a physician.

Skin Contact

Immediate, continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Destroy contaminated leather items.

Eye Contact

Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.

Ingestion

Do not induce vomiting. Give one glass of water or milk if available and transport to medical facility. Do not give anything by mouth to an unconscious person.

Note to Physician

Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING PRECAUTIONS

Extinguishing Media

Water fog or fine spray. Carbon dioxide. Alcohol resistant foam. Dry chemical fire extinguishers.

Hazardous Combustion Products

Combustion products may include and are not limited to: Nitrogen oxides. Carbon dioxide. Carbon monoxide.

Protection of Firefighters

Wear positive-pressure self-contained breathing apparatus and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves.)

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Wear adequate personal protective equipment, see Section 8, EXPOSURE CONTROLS/PERSONAL PROTECTION.

Methods of Cleaning Up

Large spills: Contain with dike. Pump into suitable and properly labeled containers.

Small spills: Dilute with water and recover or use non-combustible absorbent material/sand and shovel into appropriate containers.

Neutralize residues with a dilute solution of acetic acid.

7. HANDLING AND STORAGE

Handling

Keep container dry. Do not ingest. Do not breathe gas/fumes/dust/spray/dust. If ingested, seek medical advice immediately and show the container, label or this document. Avoid contact with skin and eyes.

Storage

Store under nitrogen blanket for maximum shelf life. Product should not come in contact with copper or copper-bearing alloys.

Storage Temperature and Shelf Life

Store between 10°C and 27°C for maximum shelf life.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Hazardous Component Control Parameters –

Component	CAS. No.	EINECS	Percent	Exposure Limits	Source
Triethylenetetramine	112-24-3	203-950-6	45% - 55%	1ppm TWA (6mg/m ³)	OSHA
-No Further Data Available-					

Engineering Controls

Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for operations involving machining of dry or cured material.

Personal Protective Equipment**Respiratory Protection**

For use of this material in its uncured state, no respiratory protection should be needed with use of adequate local exhaust, however, if handling at elevated temperatures or without sufficient ventilation, use of an approved air-purifying or supplied air respirator is recommended. Use a CE approved air-purifying respirator with cartridge/filter for Amines or Ammonia

Skin Protection

Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, gloves, boots, apron, or full body suit will depend on operation. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection

Use chemical resistant gloves classified under standard EN 374: Protective gloves against chemicals and microorganisms.

Examples of preferred glove barrier materials include:

- Chlorinated polyethylene.
- Polyethylene.
- Ethyl vinyl alcohol laminate ("EVAL").

Examples of acceptable glove barrier materials include:

- Butyl rubber.
- Natural rubber ("latex").
- Neoprene.
- Nitrile/butadiene rubber ("Nitrile" or "NBR").
- Polyvinyl alcohol ("PVA").
- Polyvinyl chloride ("PVC" or "vinyl").
- Viton.

When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as the instructions/specifications provided by the glove supplier.

Eye/Face Protection

Eye wash fountain should be located in immediate work area. Use chemical goggles. A full-face shield and vapor respirator is recommended for operations involving spraying or other operations placing this material under pressurized conditions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance :	Mobile Liquid
Color:	Amber to Brown
Odor :	Amine Odor
Specific gravity :	1.01 – 1.01
Vapor pressure :	Not Determined
Boiling point/range :	Not Determined
Freezing point/range :	Not Determined
Water solubility :	Slightly Soluble in Water
pH :	Basic
Flash point :	Not Determined
Auto-ignition temp. :	>300 deg.C
Flammability-LFL :	Not Determined
Flammability-UFL :	Not Determined
% volatile:	0g/L (0%)

10. STABILITY AND REACTIVITY**Chemical Stability**

Stable under normal handling and storage conditions, see Section 7, Handling and Storage.

Materials to Avoid

Acrylates. Aldehydes. Ketones. Halogenated organic compounds. Oxidising agents. Acids. Copper and its alloys (Brass, Bronze, etc.) Mixture with these materials will result in a temperature and/or pressure increase.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

This finished product has not been tested to determine individual toxicological/ecological limits. Individual components of this mixture have been independently tested by the raw material manufacturers and any known results have been presented below. The results for the individual components may not be representative of the toxicity of this finished product.

Ingredient Name	CAS No.	%	Test	Result	Route	Species
Triethylenetetramine	112-24-3	45% - 55%	LD50	2500 mg/kg	Oral	Rat
Nonylphenol	84852-15-3	20% - 30%	LD50	850 1300 mg/kg	Dermal Oral	Rabbit Rat

-No Data Available-
Ingestion

Ingestion may cause gastrointestinal irritation or ulceration. Ingestion may cause burns of mouth and throat. Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Skin Contact

Prolonged or widespread skin contact may result in absorption of harmful amounts.

Irritation

Skin

Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage. Skin contact has caused allergic skin reactions in certain sensitized individuals.

Eyes

May cause pain disproportionate to the level of irritation to eye tissues. May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Inhalation

May cause allergic respiratory response. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

Chronic Exposure

Carcinogen

This product contains no materials that are reported as known or suspect carcinogens in levels above 0.1%

Mutagen

This product contains no materials that are reported as known or suspect mutagens in levels above 0.1%

Reproductive Hazard

This product contains no materials that are known or suspected of causing a reproductive hazard in levels above 0.1%.

12. ECOLOGICAL INFORMATION

Persistence/degradability:

The material contains components that show little or no evidence of biodegradability. Caution should be taken to prevent release to the environment. See Section 13 for further information.

-No Further Information Available-

Individual components of this mixture have been independently tested by the raw material suppliers and any known results have been presented above. The results for the individual components may not be representative of the ecological toxicity of this finished product. This finished product has not been tested to determine individual toxicological/ecological limits. Great Caution should be taken to prevent release to the environment. See Section 13 for further information.

13. DISPOSAL CONSIDERATIONS

Disposal

Preferred method of disposal includes incineration under controlled conditions in accordance with all local and national laws and regulations. The generation of waste should be avoided or minimized wherever possible. Untreated material is not suitable for disposal. Waste, even small quantities, should never be poured down drains, sewers or watercourses. Waste must be disposed of in accordance with federal, state and local environmental control regulations. This material, when properly mixed and fully cured with its resin component at the proper mix ratio, may be safely landfilled.

Contaminated packaging

Empty containers can only be disposed of when the remaining product adhering to the container walls has been removed. Hazard warning labels should be removed from the container only after it has been properly emptied.

14. TRANSPORT INFORMATION**Land/Air/Sea/Rail**

Proper Shipping Name: Amines, Liquid, corrosive, NOS (Triethylenetetramine)
 UN Number: UN-2735
 Hazard Class: 8
 Packing Group: III

15. REGULATORY INFORMATION**U.S Regulations****US TSCA:**

This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C. 2601 et. seq. This product contains a chemical substance that is subject to export notification under Section 12(b) of the Toxic Substances Control Act, 15 U.S.C. 2601 et. seq.

Toxic Substances Control Act (TSCA) 12(b) Components:

None Known

OSHA Hazard Communication Standard (29CFR1910.1200) hazard class(es):

Corrosive, Toxic by Skin Absorption, Dangerous for the Environment.

EPA SARA Title III section 302 (40CFR370) Hazard Class:

Immediate Health Hazard, Delayed Health Hazard

EPA SARA Title III section 313 (40 CFR 372) Toxic Chemicals above "de minimus" levels:

None

U.S. State Regulations

CAIFORNIA PROP 65: This product contains the following substance known to the State of California to cause cancer:
 None Known

EEC MARKING AND LABELLING

Hazard symbol(s):

C



EU Labeling Classification: C-Corrosive

Risk Phrases: R34 Causes Burns
 R21/22 Harmful in contact with skin and if swallowed.
 R43 May cause sensitization by skin contact.

EINECS Status: All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) in compliance with Council Directive 67/548/EEC and its amendments. CHIP3 Regulations have been applied and meets all requirements.

CANADIAN REGULATIONS

WHMIS Classification: D1B - Toxic Material Causing Immediate and Serious Toxic Effects (toxic by skin absorption)
 D2B - Toxic Material Causing Other Toxic Effects (skin sensitizer)
 E- Corrosive Material

WHMIS Symbol(s):



Safety Phrases:

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
 S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

DSL:

Components of this product have been reported to Environment Canada in accordance with subsection 25 of the Canadian Environmental Protection Act and are included on the Domestic Substances List.

HAZARDOUS PRODUCTS ACT INFORMATION

This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14)

16. OTHER INFORMATION

Definitions:

ACGIH: American Conference of Government Industrial Hygienists

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

TLV: Threshold Limit Value

TWA: Time-Weighted Average

LD50: Lethal Dose (50%)-The minimum dose required for lethal effects in 50% of a given population of test specimens.

LC50: Lethal Concentration (50%)- The minimum concentration required for lethal effects in 50% of a given population of test specimens

NIOSH: National Institute for Occupational Safety and Health

WHMIS: Workplace Hazardous Material Information System

DSL: Domestic Substances List

To the best of our knowledge, the information contained herein is accurate. Final determination of the suitability of any material is the sole responsibility of the users. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.