CMF-1™ Hardener

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Date of issue: 03/24/2016 Revision date: 04/19/2017 Supersedes: 03/24/2016 Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : CMF-1™ Hardener

Product ID : CMF-1™ Hardener

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Epoxy coating and reinforcement for pipe repair

Use advised against : None identified

1.3. Details of the supplier of the safety data sheet

Manufacturer:
CITADEL TECHNOLOGIES
6430 S. 39th West Ave.
Tulsa, Ok 74132

Tel: 1-918-584-2220

1.4. Emergency telephone number

Emergency number : 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Acute Toxicity- Oral, Category 4
Acute Toxicity- Inhalation, Category 4
Toxic to reproduction, Category 1B
Skin corrosion/irritation, Category 1B
Eye damage/irritation, Category 1
Sensitization - Skin, Category1B
Specific target organ toxicity (Repeated Exposure), Category 2

2.2. Label elements

Labelling

Hazard pictograms :

Signal word : Danger

Hazard statements : Harmful if swallowed
Harmful if inhaled
Causes severe skin burns and damage
Causes serious eye damage
May cause an allergic skin reaction
May cause damage to organs through prolonged or repeated exposure if swallowed
May damage fertility or the unborn child

Precautionary statements : Do not breathe mist/vapors/spray.
Wash face, hands thoroughly after handling
Rinse mouth
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product.
Contaminated work clothing must not be allowed out of the workplace
Wear protective gloves/ clothing and eye protection
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
If swallowed: Call a poison center/doctor if you feel unwell.

If swallowed: Rinse mouth. Do NOT induce vomiting
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If on skin: Wash with plenty of water
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If skin irritation or rash occurs: Get medical advice/attention
Immediately call a poison center/doctor
Take off contaminated clothing and wash it before reuse
Wash contaminated clothing before reuse
Get medical advice/attention if you feel unwell
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

Other hazards which do not result in classification : None known

2.4. Unknown acute toxicity

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product identifier	%
Benzyl alcohol	(CAS No) 100-51-6	20 - 50
Proprietary Hardener	(CAS No) Confidential	20 - 45
Diethylenetriamine	(CAS No) 111-40-0	15 - 30
4,4'-Isopropylidenediphenol	(CAS No) 80-05-7	5 - 10
Cyclohexanamine, 4,4'-methylenebis-	(CAS No) 1761-71-3	0.5 - 4

Some constituent(s) and/or exact percentage(s) are being withheld as trade secrets.
There are no additional ingredients, which in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Any occupational exposure limits, if available, are provided in section 8 of this SDS.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor.

First-aid measures after skin contact : Rinse skin with plenty of water. Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash with plenty of lukewarm, gently flowing water for 15-20 minutes. Contimue washing with soap and water. If skin irritation occurs: Get immediate medical advice/attention. Wash contaminated clothing before re-use.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for several minutes, while holding the eyelids open. Immediately call a POISON CENTER or doctor.

First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs naturally, lie on your side, in the recovery position. Call a POISON CENTER or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact poison center immediately if ingested. If it is suspected that fumes are still presented, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing breathing mouth to mouth resuscitation.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use fire-extinguishing media appropriate for surrounding materials. Foam. Dry powder. Carbon dioxide. Water spray. Sand. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No additional Information available.

Explosion hazard : No additional Information available.

Hazardous thermal decomposition products : Thermal decomposition products may contain carbon monoxide, carbon dioxide, Nitroge oxides. Noxiious and toxic fumes.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection.

Other information : Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Isolate immediate hazard area and keep unauthorized personnel out. Stop leak if safe to do so. Special danger of slipping by leaking/spilling product. Avoid contact with eyes and skin. Avoid breathing mist and vapors.

6.1.1. For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Avoid breathing mist, dust or vapors.

6.1.2. For emergency responders

Put on appropriate personal protective equipment. If specialized clothing is required to deal with the spillage, take note of any information in section 8 of suitable and unsuitable materials.

6.2. Environmental precautions

Avoid disposal of spilled material and runoff and contact with soil, waterways, drains and sewers.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Small spill: Stop leak if possible without risk. Move containers from spill area. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect all waste in suitable and labelled containers and dispose according to local legislation. Store away from other materials. Ensure all national/local regulations are observed.

Large spill: Stop leak if possible without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, watercourses, basements or confined areas.

6.4. Reference to other sections

refer to section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Read label before use. Obtain special instructions before use. Ensure good ventilation of the work station. Avoid contact with skin and eyes. Avoid breathing mist, vapors and spray. Wear personal protective equipment. Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well-ventilated place. Keep container tightly closed when not in use. Keep away from incompatible materials. Keep away from sources of heat and protect from physical damage. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty container retain residue and may be dangerous.

Incompatible materials : Oxidizing agents. Bases. Amines.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Diethylenetriamine (111-40-0)		
ACGIH	ACGIH TWA (ppm)	1 ppm
OSHA	OSHA PEL (TWA) (ppm)	1 ppm

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station. Use only with adequate ventilation. Local exhaust or ventilation or other engineering controls must be provided to keep worker exposure to airborne containment below recommended levels. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

Personal protective equipment : Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.

Hand protection : Wear gloves. Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves.

Suitability and durability of gloves are dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, and dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.

Eye protection : Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids If additional protection is needed for the entire face, use in combination with a face shield.

Skin and body protection : Use of an apron and boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization.

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect the worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

Other information : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Color : Dark amber to brown

Odor : Ammonia like

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : Not applicable

Flash point : > 200 °F

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : Not applicable

Vapor pressure : < 0.7 mm Hg at 70 °F

Relative vapor density at 20 °C	:	No data available
Reletive density	:	1.02 – 1.06 (water=1)
Solubility	:	Negligible
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage condition

10.3. Possibility of hazardous reactions

Under normal condition of use hazardous polymerization will not occur. Extreme heat can produce hazarous materials.

10.4. Conditions to avoid

No specific information available.

10.5. Incompatible materials

Oxidizing agents. Bases. Amines.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

React with significant heat release with some curing agents. Some cure reaction may drive char and decompose the resin system, generating unidentified fumes, and vapors, which may be toxic. Heating this substance above 300 °F in the presence of air may cause slow oxidative decomposition. Above 500 °F polymerization may occur.

Some combination of resin and curing agent can produce the exothermic reaction, which in large masses can cause runaway polymerization and charring of the reactants.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Potential Routes of entry : Inhalation, skin, ingestion

Acute toxicity : Harmful if swallowed
Harmful if inhaled
No testing on this product is obtained. Toxicity endpoints and acute toxicity estimate (ATE) are evaluated according to the criteria of the third revision of the GHS.

Diethylenetriamine (111-40-0)	
LD50 oral rat	819 mg/kg
LD50 dermal rabbit	672 mg/kg

Benzyl alcohol (100-51-6)	
LD50 oral rat	1230 mg/kg
LC50 inhalation rabbit (vapors)	8.8 mg/kg (4h)

Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)	
LD50 oral rat	1000 mg/kg
LC50 inhalation rabbit (vapors)	0.5 mg/kg (4h)

ATE (oral)	ca 700 mg/kg (estimated)
ATE (dermal)	ca 2,240 mg/kg (estimated)
ATE (inhalation)	ca < 20 mg/kg/ 4h (estimated)

Skin corrosion/irritation	:	Causes severe skin burns and damage. No test data available. Irritation properties are evaluated according to the criteria of the third revision of the GHS.
Serious eye damage/irritation	:	Causes serious eye damage. No test data available. Corrosive properties are evaluated according to the criteria of the third revision of the GHS.
Respiratory or skin sensitization	:	May cause an allergic skin reaction. No test data available. Irritation properties are evaluated according to the criteria of the third revision of the GHS.
Germ cell mutagenicity	:	Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	:	Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	:	May damage fertility or the unborn child No test data available. Fetility toxicity is evaluated according to the criteria of the third revision of the GHS.
Specific target organ toxicity (single exposure)	:	Not classified (Based on available data, the classification criteria are not met)
Specific target organ toxicity (repeated exposure)	:	May cause damage to organs through prolonged or repeated exposure if swallowed
Aspiration hazard	:	Not classified (Based on available data, the classification criteria are not met)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product may cause long lasting harmful effects to aquatic life

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer : No additional information available

Effect on the global warming : No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state and local laws. DO NOT FLUSH TO SEWER, WATERSHED, OR WATERWAY.

Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

Ecology - waste materials : Avoid release to the environment. DO NOT FLUSH TO SEWER, WATERSHED, OR WATERWAY.

SECTION 14: Transport information

In accordance with DOT

Not regulated for transport

Additional information
Other information : No suplemanraty Information.

Transport by sea (IMDG)
Transport document description : UN 3082 Environmentally hazardous substance, liquid, n.o.s. (diethylmethylbenzenediamine), 9, III
UN-No. : UN3082

Proper Shipping Name : Environmentally hazardous substance, liquid, n.o.s.
Class : UN 3082 Environmentally hazardous substance, liquid, n.o.s. (diethylmethylbenzenediamine), 9, III
Packaging group
Technical name : diethylmethylbenzenediamine

Air transport (IATA/ ICAO)
Transport document description : UN 3082 Environmentally hazardous substance, liquid, n.o.s. (diethylmethylbenzenediamine), 9, III
UN-No. : UN3082
Proper Shipping Name : Environmentally hazardous substance, liquid, n.o.s.
Class : 9- Class 9 – Environmentally hazardous substance
Packaging group : III
Technical name : diethylmethylbenzenediamine

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

4,4'-Isopropylidenediphenol (80-05-7)	
CERCLA SARA	1.0 % de minimis

15.2. US State regulations

California Proposition 65 - This product does not contain substances known to the state of California to cause cancer, developmental and/or reproductive harm at low concentration.

Diethylenetriamine (111-40-0)
Massachusetts RTK
New Jersey Worker and Community RTK
Pennsylvania Worker and Community RTK

4,4'-Isopropylidenediphenol (80-05-7)
Massachusetts RTK
New Jersey Worker and Community RTK
Pennsylvania Worker and Community RTK

Benzyl alcohol (100-51-6)
Massachusetts RTK
Pennsylvania Worker and Community RTK

SECTION 16: Other information

Indication of changes	:	Section 2, Hazards identification Section 3, Composition/information on ingredients
Revision date	:	04/19/2017
Abbreviation		
ACGIH	:	American Conference of Governmental Industrial Hygienists
ANSI	:	American Nation Standards Institute
CAS	:	Chemical Abstracts Service
CFR	:	Code of Federal Regulation
CRCLA	:	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	:	Department Of Transportation
GHS	:	Globally Harmonized System
IARC	:	International Agency for Research on Cancer
IATA	:	International Air Transport Association
ICAO	:	International Civil Aviation Organization
IMDG	:	International Maritime Dangerous Goods
OSHA	:	Occupational Safety and Health Administration
PEL	:	Permissible Exposure Limit
PVC	:	Polyvinyl Chloride
RCRA	:	Resource Conservation and Recovery Act
RTK	:	Right to Know
SARA	:	The Superfund Amendments and Reauthorization Act
TSCA	:	Toxic Substances Control Act
TWA	:	Time Weighted Average

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.