German metal Surface treatment Chemicals Co.
Research and Development Department
Water treatment Division

MATERIAL SAFETY DATA SHEET

CMC 2445

MANUFACTURER:

German metal surface treatment (SUGEST)

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1. Product and Company Identification

NAME CMC 2445
USE used as corrosion inhibitor steam system
LABEL CMC 2445
Company German metal surface treatment chemicals co.

2. Product Description

CMC 2445 is a highly effective corrosion inhibitor organic amines based blend used to protect steam plant equipment and maintain reliable, efficient plant operations systems.

3. Hazards Identification

Emergency Overview

Cause eye and skin irritation/or burn. Avoid contact with skin and eyes. Wear suitable protective clothing, gloves and eye/face protection.
May cause an allergic skin reaction. Harmful or fatal if swallowed. Harmful if inhaled or absorbed through the skin. PRIMARY ROUTES OF ENTRY: Eye contact, skin contact, ingestion, and inhalation of product mists TARGET ORGANS: Eye, skin, respiratory system, liver, kidney, and central nervous system.

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Potential Health Effects

HMIS: Health 3 **Flammability** 3 **Reactivity** 0 **Personal Protection:** H
4 = extreme 3 = high 2= moderate 1 = slight

- **Inhalation:** This product is not expected to present an inhalation hazard unless mists or vapors are generated. Exposure to vapors or mists may cause throat irritation, headache, nausea, vomiting, dizziness, drowsiness, central nervous system depression, pulmonary edema, involuntary eye movement, and/or coma.
- **Skin contact:** Contact with this product may cause skin irritation. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in the absorption of potentially lethal amounts of the product component

- **Eye contact:** Contact with this product may cause eye irritation.
- **Ingestion:** Harmful if swallowed**,** Early to moderate CNS depression may be evidenced by giddiness, headache, dizziness, and nausea. Kidney damage may be evidenced by changes in urine output, urine appearance, or edema (swelling from fluid retention).

4. Chemical Composition

Ingredient	CAS No	Percent
Cyclohexylamine	108-91-8	20 - 60
Morpholine	110-91-8	10 - 30
Water	7732 – 18 - 5	To 100

5. Physical and Chemical Properties

Appearance	Clear Colourless to pale yellowish liquid
Odour	Characteristic
pH at 25 oC	10 – 11
Density at 25 oC	1.2 ±0.05 gm/cm3

6. First Aid Measures

Inhalation:
Remove to fresh air. If breathing is difficult, have a trained medical person administer oxygen. Seek medical aid.

Skin contact:
Remove contaminated clothing and footwear. For skin contact, flush with large amounts of water. irritation persists seek immediate medical attention.

Eye contact:
In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and if irritation persists, seek immediate medical attention.

Ingestion:
Seek medical advice. DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.

7. Fire Fighting Measures

Fire: flammable

Fire Extinguishing Media: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Hazardous combustion products: In event of fire created carbon oxides may be formed.

8. Accidental Release Measures

Use personal protection recommended in Section 10, isolate the hazard area and deny entry to unnecessary and unprotected personnel.
Environmental precautions:
Prevent runoff from entering drains, sewers or waterways.
Clean-up methods:
Should be prevented from entering drains, eliminate all ignition sources. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and reclaim or dispose in sealed containers in licensed waste. Containers with collected spillage must be properly labelled with correct contents and hazard symbol.

9. Handling and Storage

Handling:
Before use carefully read the product label. Use of safe work practices are recommended to avoid eyes or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated area (eg. If container is damaged).
Storage:
Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Removed from oxidizing agents, acids and foodstuffs. Ensure containers are adequately labeled and protected from physical damage when not in use.
Store separated from: Cyanides. Reducing Agents. Avoid contact with strong oxidizers. Strong acids

Storage Conditions: Store in a cool, dry and good ventilated place. Keep container tightly closed after opening. Prevent direct sun light or ignition sources.

Temperature Limit: max 35 ^{o}C.

Maximum Storage Period: 24 Months under standard storage conditions.

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Container Type Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001.

For information on product shelf life, please review labels on container.

10. Exposure Controls/Personal Protection

Exposure Limit Values:
TWA: 10 (ppm) TWA: 40 (mg/m3)Consult local authorities for acceptable exposure limits.

Engineering controls:

Ventilation Requirements Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Respiratory protection:
If airborne concentrations exceed published exposure limits, use a NIOSH approved respirator in accordance with OSHA respiratory protection requirements (29 CFR 1910.134).
Eye/face protection: Chemical splash goggles.
Skin protection: For prolonged or repeated handling, use protective gloves made of: Neoprene, nitrile, polyethylene or PVC. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.
General Hygiene Considerations: Avoid direct contact with eyes and skin.

11. Stability and Reactivity

Stability: Stable under normal temperature conditions and recommended use.
Thermal decomposition generates : Corrosive vapours.
Polymerization: Hazardous polymerization does not occur
Materials to avoid: Strong acids. Strong oxidizing substances.
Conditions to avoid: (e.g., static discharge, shock, or vibration) -. Prolonged storage above 140 °F (60 °C)

12. Toxicological and Ecotoxicity information

Routes of Entry:
Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals:
Acute oral toxicity (LD50): 156 mg/kg [Rat]. Acute dermal toxicity (LD50): 276 mg/kg [Rabbit].
Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. The substance is toxic to the nervous system, upper respiratory tract.
Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator).

Ecotoxicity: Not available.

13. Disposal Considerations

Disposal method:

Industrial setting: Disposal is according to all federal, state and local authorities for restrictions on disposal of chemical waste, manage chemical, waste through an approved waste treatment facility, do not reuse empty container in accordance with current local community codes please recycle empty container whenever possible.

14. Transport information

DOT/TDG: Class 3: Flammable liquid and Corrosive liquid.

UN Number: NONE

Shipping Name CMC 2445

Packing Group: III

15. Other Information

Federal and State Regulations:
Pennsylvania RTK: Cyclohexylamine Florida: Cyclohexylamine Minnesota: Cyclohexylamine Massachusetts RTK: Cyclohexylamine New Jersey: Cyclohexylamine TSCA 8(b) inventory: Cyclohexylamine SARA 302/304/311/312 extremelyhazardous substances: Cyclohexylamine CERCLA: Hazardous substances.: Cyclohexylamine
Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
Other Classifications:
WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate andserious toxic effects (TOXIC). CLASS E: Corrosive liquid.
DSCL (EEC):
R10- Flammable. R38- Irritating to skin. R41- Risk of serious damage to eyes.

16. Packing

HDPE container and sealed cap

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