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

MATERIAL SAFETY DATA SHEET

CMC 2170 P

MANUFACTURER:

German metal surface treatment (SUGEST)

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1. Product and Company Identification

NAME CMC 2170 P
USE used as catalyzed oxygen scavenger
LABEL CMC 2170 P
Company German metal surface treatment chemicals co.

2. Product Description

CMC 2170 P is a high performance powder catalyzed oxygen scavenger designed to scavenge oxygen and hence inhibit oxidative pitting corrosion within steam boilers.

3. Hazards Identification

Emergency Overview

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of ingestion. Slightly hazardous in case of skin contact (irritant, sensitizer), of inhalation.
Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. sulfur dioxide), which may increase fire hazard due to the flammability of sulfur dioxide.

Potential Health Effects

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

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. 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. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

4. Chemical Composition

Ingredient	CAS No	Percent
Sodium bisulfate catalyzed	7681 - 57- 4	20 - 60

5. Physical and Chemical Properties

Appearance	White to pale yellowish powder
Odour	Characteristic

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 Extinguishing Media: Use Water, carbon dioxide, foam or dry powder.
Hazardous combustion products: Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. sulfur dioxide)

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.
RECOMMENDED STORAGE TEMPERATURE
Minimum: 0 C (32.0 F) - Maximum: 35 C (100.4 F)
Store separated from: Cyanides. Reducing Agents. Avoid contact with strong oxidizers. Strong acids.
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 Guidelines
A: General Product Information
Sulfur Dioxide, which is released slowly at ambient temperatures from this material, has established exposure limits as follows:
ACGIH: 5.2 mg/m^3 TWA - 13 mg/m^3 STEL
OSHA: 13 mg/m^3 TWA; 5 mg/m^3 (Vacated 1989 PEL) 13 mg/m^3 (Vacated 1989 PEL)
NIOSH: 5 mg/m^3 TWA; 13 mg/m3 STEL; 100 ppm (IDLH)
DFG MAKs 5.3 mg/m^3 TWA (Inhalable fraction of the aerosol)
1□MAK 15 min., average value, 1-hr interval
B: Component Exposure Limits
The exposure limits given are for Sodium Metabisulfite (7681-57-4).
ACGIH: 5 mg/m^3 TWA
NIOSH: 5 mg/m^3 TWA
Engineering Controls
Use mechanical ventilation such as dilution and local exhaust, necessary for use in enclosed or confined spaces due to the slow release of sulfur dioxide. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Treatment of exhaust gases may be required to prevent environmental contamination. Supply ample air replacement.
PERSONAL PROTECTIVE EQUIPMENT
The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.
Personal Protective Equipment: Eyes/Face
Wear safety glasses (or goggles). If necessary, refer to U.S. OSHA 29 CFR 1910.133.
Personal Protective Equipment: Skin
Wear impervious gloves, boots and coveralls to avoid skin contact. Gloves should be tested to determine their suitability for prolonged contact with this material. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

11. Stability and Reactivity

Chemical Stability
Product is normally stable. Sodium Metabisulfite is air and moisture sensitive and releases sulfur dioxide slowly at ambient temperatures. Sodium Metabisulfite will decompose on heating to form sodium sulfate.
Chemical Stability: Conditions to Avoid
Avoid moisture, high temperatures, exposure to air and incompatible materials.
Incompatibility

This material is incompatible with strong oxidizers, sodium nitrite and alkalis. Sodium Metabisulfite may produce sulfur dioxide gas when in contact with acids and/or water and ice. Large-scale addition of solid sodium disulfite to an unstirred and too concentrated solution of sodium nitrite may cause a vigorous exothermic reaction.

Hazardous Decomposition

Products of thermal decomposition include sodium sulfate, sulfur oxides, and sodium oxide. Products of hydrolysis include sodium dioxide.

Polymerization: Hazardous polymerization does not occur

12. Toxicological information

Acute and Chronic Toxicity

A: General Product Information

May cause eye, skin, nose, throat and respiratory tract irritation. May be harmful if swallowed.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin). Prolonged or repeated contact may cause allergic respiratory and skin reactions in sensitive individuals. Respiratory sensitization can be life-threatening in some cases.

B: Component Analysis - LD50/LC50

Sodium Metabisulfite (7681-57-4):

LD50-Intravenous-rat: 115 mg/kg; LD50-Parenteral-mouse: 910 mg/kg; LD50-Oral-mouse: 5989 mg/kg; LDLo-Intravenous-mouse: 1220 mg/kg; LD50-Intravenous-rabbit: 1220 mg/kg.

Acute and Chronic Toxicity (continued):

B: Component Analysis - TDLo/LDLo

Sodium Metabisulfite (7681-57-4):

LDLo-Intravenous-rabbit: 192 mg/kg; TDLo-Oral-rat: 75 mg/kg/15 days-continuous: Kidney, Urethra, Bladder: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases, Enzyme inhibition, induction, or change in blood or tissue levels:- dehydrogenases; TDLo - Oral - pig: 562 gm/kg/48 weeks-continuous: Liver: changes in liver weight Kidney, Urethra, Bladder: changes in bladder weight Nutritional and Gross Metabolic - weight loss or decreased weight gain; TDLo-Oral-rat: 20 gm/kg: multigenerations: Reproductive: Effects on Newborn: stillbirth; TDLo-Oral-rat: 40 gm/kg: multigenerations: Reproductive: Effects on Newborn: weaning or lactation index (e.g., # alive at weaning per # alive at day 4); Cytogenetic analysis-hamster Ovary: 180 □g/L; Sister chromatid exchange: Rodent-hamster Ovary: 200 □g/L; TDLo-Subcutaneousmouse: 806 mg/kg/26 weeks-intermittent: Tumorigenic: equivocal tumorigenic agent by RTECS criteria Skin and Appendages:
tumors; TDLo-Oral-mouse: 14 gm/kg: female 8-12 day(s) after conception: Reproductive: Effects on Newborn: other neonatal measures or effects; TDLo-Parenteral-mouse: 60 mg/kg: female 8 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus), Specific Developmental Abnormalities: musculoskeletal system

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

Sodium Metabisulfite (7681-57-4)
ACGIH: TLV-A4 - Not classifiable as a Human Carcinogen
Sulfur Dioxide (decomposition product)
ACGIH: TLV-A4 - Not classifiable as a Human Carcinogen
IARC: Group 3 - Not classifiable as to carcinogenicity in humans.

Epidemiology

Sodium metabisulfite has caused severe allergic reactions in asthmatics and sulfite sensitive individuals.

Neurotoxicity
Has not been identified.

Mutagenicity
Human mutation data are available for Sodium Metabisulfite, these data were obtained during clinical studies on specific human tissues exposed to high doses of this compound.
Teratogenicity
Clinical studies on test animals exposed to relatively high doses of Sodium Metabisulfite provided teratogenic data.

ECOLOGICAL INFORMATION

Ecotoxicity

A: General Product Information
This product is expected to be harmful to aquatic life in low concentration.

B: Ecotoxicity
No information available.

Environmental Fate

Sodium Metabisulfite:
Water Solubility = 470 g/L (20 ^{o}C).
Chemical Oxygen Demand (COD) = 165 mg oxygen/g compound

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: Please refer to the Bill of Lading/receiving documents for up to date shipping information
Land and Sea Transport
International Transportation Regulations
Proper Shipping Name: Environmentally Hazardous Substance, solid, n.o.s. (Sodium Metabisulfite)
Hazard Class: 9 (Miscellaneous Dangerous Goods)
Packing Group: III
Passenger & Cargo Aircraft Packing Instruction: 911

15. Other Information

US Federal Regulations

A: General Product Information

No additional information.

B: Component Analysis

This material does not contain any chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4). SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Sodium Metabisulfite. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Fire Hazard: No
Reactivity Hazard: yes
Pressure Hazard: no
Immediate Health Hazard: yes
Chronic Health Hazard: yes

16. Packing

PP woven sealed Bag.