



SAFETY DATA SHEET

Product: MARC 331 COOLING TOWER SCALE REMOVER

Form R04132

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER AND NAME: MARC 331 COOLING TOWER SCALE REMOVER

SDS DATE: 09/28/16

SUPPLIER: Mid-American Research Chemical Corp. ADDRESS: P. O. Box 927 Columbus, NE 68602-0927
PHONE: 402-564-7104 FAX: 402-563-1290
EMERGENCY PHONE: InfoTrac 1-800-535-5053
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RECOMMENDED USE: Cooling Tower Scale Remover.

PREPARED BY: MARC

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: WARNING: This product is a strong acid and causes severe irritation or burns upon contact with the eyes, skin or mucous membranes of the respiratory tract. Inhalation of high levels can cause pulmonary edema (fluid in the lungs) which may be life threatening. Be sure to wear safety glasses and gloves when handling this material.

POTENTIAL HEALTH EFFECTS:

PRIMARY ENTRY ROUTES: Inhalation, skin and eye contact, ingestion.

TARGET ORGANS: Eyes, skin, respiratory tract, gastrointestinal tract, central nervous system, liver, kidneys, and cardiovascular system, (secondary to burns and circulatory collapse).

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

GHS CLASSIFICATION in accordance with 29 CFR 1910 (OSHA HCS)

SKIN IRRITATION: (Category 2)

EYE IRRITATION: (Category 2A)

ACUTE AQUATIC TOXICITY: (Category 3)

CHRONIC AQUATIC TOXICITY: (Category 3)



SIGNAL WORD: WARNING! Causes skin irritation Causes serious eye irritation. Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS: Wash skin thoroughly after handling. Avoid release to the environment. Wear protective gloves/eye protection/face protection.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: get medical advice/attention. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention. Take off contaminated clothing and wash before reuse. Dispose of contents/container to an approved waste disposal plant.

ACUTE EFFECTS: **INHALATION:** Inhalation of particulates can cause severe irritation and burns of the nose and respiratory tract. Inhalation of high levels can cause pulmonary edema (fluid in the lungs) which may be delayed up to 48 hours. **EYE:** Severe irritation and burns. Scarring may be permanent. **SKIN:** Severe irritation and burns. Scarring may be permanent. **INGESTION:** The mouth and esophagus may appear grayish-white progressing to black with a shrunken and wrinkled texture. Esophageal or stomach perforation may occur. Circulatory collapse occurs in extreme cases with clammy skin, weak and rapid pulse, shallow respiration and scanty urine. Uncorrected circulatory collapse can cause kidney failure and ischemic (localized tissue anemia due to decreased inflow of arterial blood) lesions of the heart and liver. Death is generally due to circulatory collapse or asphyxiation due to glottis edema (fluid and swelling in the epiglottis which causes insufficient oxygen to reach the windpipe). The estimated human lethal dose is 0.5 to 5 g/kg (1oz to 1 pint for a 70 kg/150 lb person).

CARCINOGENICITY: IARC, NTP, and OSHA do not list sulfamic acid as a carcinogen.

MEDICAL CONDITIONS AGGRAVATED BY LONG-TERM EXPOSURE: None reported.

CHRONIC EFFECTS: None reported.

SPECIFIC TREATMENT: (See supplemental first aid instructions on this label).

POTENTIAL HEALTH EFFECTS: See Section 11 for more information.



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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Specific percentages may be claimed as a trade secret.

INGREDIENT NAME	CAS NO.	% WT or % VOL
Sulfamic Acid	5329-14-6	80% - 100%

INGREDIENT	OSHA PEL
	TWA
Sulfamic Acid	None Established

SECTION 4: FIRST AID MEASURES

EYES: DO NOT allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician or ophthalmologist immediately.

SKIN: Quickly remove contaminated clothing (if not stuck to skin). Rinse with flooding amounts of water for at least 15 minutes. For reddened or blistered skin, consult a physician.

INGESTION: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the conscious and alert person drink 1 to 2 glasses of water to dilute. **DO NOT INDUCE VOMITING** because of the corrosive nature of sulfamic acid. Vomiting will worsen esophageal condition.

After First Aid, Get Appropriate In-Plant, Paramedic, Or Community Medical Support.

INHALATION: Remove exposed person to fresh air and support breathing as needed. If you feel unwell or are concerned, get immediate medical attention.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Treatment is symptomatic and supportive. Treat as for thermal burns. Severe inhalation exposures may result in delayed pulmonary edema, in these cases consider close observation for 24 to 48 hours.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use extinguishing agents appropriate for surrounding fire.

**SPECIAL FIRE FIGHTING PROCEDURES/
EQUIPMENT:**

Move container from fire area if it can be done without risk. Cool containers with water. Do not apply water directly on this product. Heat is generated when mixed with water. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Avoid contact with skin.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Emits toxic gases when heated.

HAZARDOUS DECOMPOSITION BY-PRODUCTS: Sulfur oxide(s), and ammonia gas.

FIRE-FIGHTING INSTRUCTIONS: Do not release runoff from fire control methods to sewers or waterways.

FIRE-FIGHTING EQUIPMENT: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



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SECTION 6: ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES:

SPILL/LEAK PROCEDURES: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind.

SMALL SPILLS: Do not sweep or otherwise disperse into air. Carefully scoop up or vacuum (with appropriate filter) and place in suitable container for disposal.

LARGE SPILLS: CONTAINMENT: Flush with plenty of water to containment area for later disposal. Do not release into sewers or waterways.

CLEANUP: Damp mop with dilute alkaline solution (sodium bicarbonate, sodium hydroxide, lime).

PROTECTIVE EQUIPMENT: Avoid contact with skin, eyes and clothing. Wear appropriate personal protective equipment recommended in Section 8, EXPOSURE CONTROLS/PERSONAL PROTECTION, of the SDS.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANUP: Same as emergency procedures. Consult local environmental authorities.

ENVIRONMENTAL PRECAUTIONS: Keep out of water supplies and sewers.

SECTION 7: HANDLING AND STORAGE

GENERAL HANDLING: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing.

OTHER PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN!

STORAGE: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

**INCOMPATIBILITIES/
MATERIALS TO AVOID:** Undergoes a violent or explosive reaction with chlorine, metal nitrates + heat, metal nitrites + heat, and fuming nitric acid.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: To prevent dispersion of dusts into work area, enclose all processes where possible.

VENTILATION: Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source. (103)

ADMINISTRATIVE CONTROLS: Instruct employees on the proper use of PPE to prevent severe irritation and burns from contact.

RESPIRATORY PROTECTION: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29ECFRE1910.134) and, if necessary, wear a MSHA/NIOSH-approved dust respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen.

EYE PROTECTION: Wear protective eyeglasses or chemical safety goggles, per OSHA eye-and face- protection regulations (29ECFRE1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

SKIN PROTECTION/PROTECTIVE GLOVES: Wear chemically protective gloves to prevent prolonged or repeated skin contact.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

CONTAMINATED EQUIPMENT: Separate contaminated work clothes from street clothes. Launder before reuse. Remove product from your shoes and clean personal protective equipment.



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WORK HYGIENIC PRACTICES: Always observe good hygiene practices. Never eat, drink, or smoke in work areas. Practice good personal hygiene after using, especially before eating, drinking, smoking, using the toilet or applying cosmetics.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE-
PHYSICAL STATE/COLOR: Solid, white.
ODOR: Orthorhombic crystals.
ODOR THRESHOLD: N/A
pH: 1% solution = 1.08 at 77°F (25°C)
SOLUBILITY IN WATER: 6.5 parts water at 32°F (0°C); 2 parts water at 176°F (80°C)
FREEZING/MELTING POINT: 401°F (205°C)
BOILING POINT: Decomposes @ 205°C
VAPOR PRESSURE (mmHg): 0.006 mm Hg at 68°F (20°C)
VAPOR DENSITY (AIR = 1): N/A
DENSITY: N/A
SPECIFIC GRAVITY (H₂O=1, at 4 C): 2.15 g/cc

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable when dry but it slowly hydrolyzes in solution to form ammonium bisulfate.

CONDITIONS TO AVOID: Exposure to incompatibles and dispersion of particulates into air.

CHEMICAL INCOMPATIBILITY (MATERIAL TO AVOID): Undergoes a violent or explosive reaction with chlorine, metal nitrates + heat, metal nitrites + heat, and fuming nitric acid.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Thermal oxidative decomposition can produce nitrogen oxide(s), sulfur oxide(s), and ammonia gas.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID (POLYMERIZATION): N/A

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY DATA:

EYE EFFECTS:

Rabbit, eye: 20 mg caused moderate irritation.
Rabbit, eye: 250 mg/24 hr caused severe irritation.

SKIN EFFECTS:

Human, skin: 4% solution applied intermittently for 5 days caused mild irritation.
Rabbit, skin: 500 mg applied for 24 hr caused severe irritation.

ACUTE ORAL EFFECTS:

Rat, oral, LD 50: 3160 mg/kg
Mouse, oral, LD50: 1312 mg/kg caused altered sleep time (including righting reflex), excitement, and rigidity.

Chronic Effects:

Carcinogenicity:

Mutagenicity:

Teratogenicity:



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SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: Data not found.

ENVIRONMENTAL FATE: N/A

ENVIRONMENTAL DEGRADATION: N/A

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL: Dilute with water, neutralize with alkaline material (lime, sodium hydroxide, sodium bicarbonate) and flush to sewer with plenty of water. Contact supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (for ground/non-bulk containers)

CONTAINER SIZES(S): 10#, 50#
PROPER SHIPPING NAME: SULFAMIC ACID
HAZARD CLASS: 8
ID NUMBER: UN2967
PACKING GROUP: PGIII
LABEL STATEMENT: Corrosive

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA: CAS#5329-14-6 is listed on the TSCA inventory.

Health & Safety Reporting List: None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules: None of the chemicals in a product are under a Chemical Test Rule.

Section 12b: None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule: None of the chemicals in this material have a SNUR under TSCA.

SARA: Section 302 (RQ): None of the chemicals in this material have an RQ.

Section 302 (TPQ): None of the chemicals in this material have a TPQ.

SARA Codes: CAS#5329-14-6: acute.

Section 313: No chemicals are reportable under Section 313.



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Clean Air Act:

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depleters.
This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE:

Sulfamic Acid can be found on the following state right to know lists: New Jersey.

California No Significant Risk Level: None of the chemicals in this product are listed.

SECTION 16: OTHER INFORMATION

HMIS/NFPA Ratings: Health = 2
Flammability = 0
Reactivity = 0
Other = -
Protection = -

REVISION DATE: 09/28/16

DISCLAIMER: All information, recommendations and suggestions appearing herein are based upon sources believed to be reliable: However, it is the users responsibility to determine the safety, toxicity and suitability for its own use of this product. MARC DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE USE BY OTHERS OF THIS PRODUCT.