



RXSOL

CHEMO PHARMA INTERNATIONAL

Technical Data Sheet (TDS)

RXSOL-43-1304-125

Sulfamic Acid Inhibited

Sulfamic Descaler with colour indicator Inhibitor Sulfamic Descalant

Sulphamic acid is very useful products for removing scales obtained from water in heating and cooling systems e.g. boilers, condensers, heat exchangers, jackets and coils

Sulfamic Acid is a Zwitterion, a molecule with two charges that counteract each other, the Nitrogen and Oxygen have a greater pull on the bond pair of electrons due to the high electro-negativity, this causes the bond to be polar, the Nitrogen and Oxygen draw the electrons closer and become slightly negative, the Hydrogens become positive because the negative electrons are further away.

RXSOL Sulfamic Acid Inhibited is a high-performance, highly active sulphamic acid based cleaning agent and Scale Remover incorporating a special film forming inhibitor. It is scientifically formulated to protect mild steel, stainless steel, copper and brass against acid attack. The inhibitor properties also serve as an efficient penetrant and dispersant to enhance the effectiveness of the acid.

Application and Dosage

It Is A Non-Inflammable And Biodegradable Chemical Compound And Does Not Give off Obnoxious Fumes. The Method of Using Samrat Industries Inhibited Sulfamic Acid Is Very Simple And Basic.

Prepare A Solution of 5-10% W/W of RXSOL Inhibited Sulfamic Acid In Preheated Water (preferably) At 70-80oc. The Descalant Solution Should Be Prepared About 20% In Excess of The System Hold Up Volume. Re-Circulate The Solution Using An Acid Compatible Pump. After Descaling Is Completed, Flush Out The Solution And Rinse Once With Plain Water. **Neutralize The System With 2% W/W RXSOL RXSOL-20-2004-025 In Water And Recirculate For An Hour. Flush Out The Solution And Return System To Normal Service.**

Grades of Sulphamic acid as a descalant:

The GP grade of Sulphamic acid:

The GP grade may be used for removing scales obtained from water in heating and cooling systems e.g. boilers, heat exchangers, condensers, jackets and coils.

The SR grade of Sulphamic acid:

This formulation is recommended for scales containing high silica. Typical examples are scales found in caustic evaporators in the Aluminum industry and black liquor evaporator in the pulp industry.

The RXSOL™ grade of Sulphamic acid: SUPERIOR BLEND of Corrosion inhibitor

This formulation is recommended for removal of scales from heat exchangers made of *Titanium metal*. We provide Sulfamic Acid descalant that has scale solubilizing capacity and added *corrosion resistance* blends which offer maximum protection to metal of equipment being cleaned. Our range of Sulfamic Acid descalant is ideal for removing scales from cooling towers, boilers, heat exchangers, coils, condensers, and various other heating and cooling systems. We also provide Sulfamic Acid descalant in self-indicating grade that changes colors to indicate that the efficiency of material has been finished.

CHEMICAL STAGE :

A strong crystalline acid, Sulfamic Acid is also known as an intermediate compound between Sulfuric Acid (H_2SO_4), and Sulfamide ($H_4N_2SO_2$) and a dry, non-volatile, non-hygroscopic, odorless, white crystalline, stable acid, moderately soluble in water that forms strongly acidic aqueous solution, comparable in acidity to the common strong mineral acids.

White crystalline solid, non volatile, non volatile, non hygroscopic. Soluble in water and odorless. Toxic by ingestion.

Uses: Metal and ceramic cleaning, amine sulfamates, pH control, hard water scale removal, electroplating.

At room temperatures, dilute aqueous Sulfamic Acid solution is stable for a long time but rapid hydrolysis occurs at elevated temperatures. Its solution is less corrosive toward metals than other mineral acid. When compared to most of the common strong mineral acids, Sulfamic Acid has desirable water descaling properties, low volatility, low toxicity and is a water soluble solid forming soluble calcium and iron-III salts. Because of its many positive attributes like handling ease, solubility and low corrosiveness, Sulfamic Acid is used for many diversified applications.

APPLICATIONS OF SULFAMIC ACID ---

- Used as an immersion liquid
- Used as filling with a Sulfamic acid descalant solution
- Used through circulation for consistent concentration through the closed circuit
- Used in cold as well as with temperature ranging from **40° to 60°C**
- Sulfamic Acid is a very safe and highly effective descalant
- Sulfamic Acid provides good cleaning and reduces manual cleaning.
- Sulfamic acid is recommended for the cooling water for descaling the condenser on running plant basis.

Applications Of Inhibited Sulphamic Acid:

Inhibited Sulphamic acid in descaling

Sulphamic Acid is super efficient descaling agent and is used for cleaning a variety of industrial equipment and domestic appliances.

Inhibited Sulphamic acid in paper & pulp Industry

Sulphamic Acid prevents pulp degradation due to temperature at the chlorination and hydrochloride stage. It permits bleaching at higher temperature and lower PH without loss of strength.

Inhibited Sulphamic acid is used in manufacturing of Dyes, Pigments and in the dyeing of leather

Sulphamic Acid removes excess of nitrides used in the diazotization reactions in the manufacturing of dye stuffs

and pigments. Nitrides if present in process water or effluents can also be removed by using Sulphamic Acid

Inhibited Sulphamic acid in Chlorine Stabilization

Chlorine gas in water forms HOCL which reacts with Sulphamic Acid to form N-Chloro-Sulphamic Acid to N-Chlorosulfamic Acid, more stable and yet has active chlorine. Because of this, Sulphamic Acid is used for stabilizing chlorine in swimming pools and cooling towers.

Inhibited Sulphamic acid in Electroplating and Electro-refining

Metal sulphamate electrolytes are valued for their high solubility. Cadmium, cobalt, nickel, lead, silver and radium sulphamate deposits are bright and dense. Lead sulphamate is used in refining lead when a high quality is desired.

Inhibited Sulphamic acid in Sulphation and Sulphamation

Sulphamic acid is used for sulphation and sulphamation of many organic compounds. Sulphation of alkyl phenol-ethylene oxide condensation products for detergents and sulphation of ethoxylated phenol-formaldehyde resins is preferable with Sulphamic Acid. Stronger agents cause unwanted ring sulphomation.

Inhibited Sulphamic acid in the Plastic industry

Sulphamic acid finds application in the plastic wherever a curing agent is required which does not have the disadvantage of inorganic acids and which acts faster than organic acids.

DOSE :::

DIRECTION OF USAGE

- Machines should be rinsed with water to remove loose flakes & sludge before use
- Powder should be added to warm water for an ideal solution
- Sample should be properly tested before using
- Proper ventilation is essential for effective usage of Sulfamic Acid Descalant
- After cleansing, the solution should be drained out and the system should be rinsed with water until pH value is neutral
- Rinsing with ROTO PASS - 212 for better metal prevention and passivation is recommended

The specific dose of Rxsol Sulfamic Acid Inhibited is 2 to 3% in water based on the system water capacity. 2 kg RXSOL Sulfamic Acid Inhibited will dissolve up to one kg of most calcium or magnesium salts. When the scale is heavy or very adherent, higher solution strength or several cleanings may be necessary for complete scale removal.

Packing of Inhibited Sulphamic acid

Inhibited Sulphamic Acid is available in 25 and 50 Kgs Plastic Bucket. Material. Sample packets of 100-200 gms. are supplied on request.

Advantages of using Sulphamic Acid

- Sulphamic Acid has very high shelf life.
- Sulphamic acid does not require storage/handling arrangement hence no adulteration possible.

- Sulphamic acid has very high effectivity of the descaling.
- Complete cleaning can be chemically achieved by Sulphamic acid and does not require post descaling manual cleaning.
- Sulphamic acid is safe acid, packed in 50 kgs HDPE bags and has no handling hazards.
- No storage tanks / system required for dosing.
- The solid can be directly charged to system eliminating the cost of system reduces the leave of scaling solids and acts as anti - descalant.
- Accidental excess dosing does not affect the metal of the circulating system but it acts to remove the deposited scale from the system.
- Do it yourself acid scale remover
- Specially formulated blend of dry acid designed to remove water hardness deposits from industrial equipment.
- Inhibited to help protect metal commonly encountered during cleaning.
- Safer and more convenient to handle the strong liquid acids.
- It is recommended to does into the cooling water for descaling the condenser on running plant.

Inhibited Sulfamic Acid is used for descaling.

- Sulfamic Acid is very efficient descaling agent and is widely used for cleaning a variety of industrial equipments, especially boilers, condensers, cooling tower and pipelines.
- In paper & pulp Industry, Sulfamic Acid is used to prevent pulp degradation due to temperature conditions existing at the chlorination and hydrochloride stage. Sulfamic Acid also permits bleaching at higher temperature and lowers pH without loss of strength of fiber.
- Sulfamic acid is used in manufacturing of Dyes, Pigments and in the dyeing of leather.
- Sulfamic Acid removes excess of nitrides used in the diazotization reactions in the manufacturing of dye stuffs and pigments. Nitrides, if present, in process water of effluents can also be removed by using Sulfamic Acid.
- In Chlorine Stabilization, Chlorine gas in water form HOCL which reacts with Sulfamic Acid form N-Chloro-Sulphamic Acid to N-ChloroSufamic Acid more stable and yet has active chlorine, Because of this, Sulfamic Acid is used for stabilizing chlorine in swimming pools and cooling towers.
- In Electroplating and Electro-refining, Metal sulphamate electrolytes values for their high solubility cadmium, cobalt nickle, lead silver and radium sulphamte deposits are bright and dense. Lead sulphamate is used in refining lead when a high quality is desired.
- In Solutation and Sulphamation, Sulfamic Acid is used for sulphation and sulphamation of many organic compounds. Sulphation of alkyl pheno-ethylen oxide condensation products for detergents and sulphation of ethoxylated phenol-formaldehyde resins is preferable with Sulfamic Acid. Stronger agents cause unwanted ring sulphomation.

- In the Plastic industry, Sulfamic Acid finds application in the plastic wherever a curing agent is required which does not have the disadvantage of inorganic acids and which acts faster than organic acids.

Other Applications

- Sulfamic Acid is preferred greatly to Hydrochloric Acid in household usage for its intrinsic safety value.
- Sulfamic Acid is used in the design of many types of therapeutic agents such as Antibiotics, Nucleoside/nucleotide Human immunodeficiency virus (HIV) reverse transcriptase inhibitors, HIV protease inhibitors (PIs), anti-cancer drugs (steroid sulfatase and carbonic anhydrase inhibitors), anti-epileptic drugs, and weight loss drugs.
- Sulfamic Acid is used as an acidic cleaning agent for metals and ceramics.
- It is used frequently for removing rust and limescale.
- Sulfamic Acid is used in the industrial cleaning of dairy and brew-house equipment.
- It is used as a catalyst for esterification process.
- Sulfamic Acid is used in Dye and pigment manufacturing.
- Sulfamic Acid is used as an Ingredient in Denture Tablets, Fire Extinguishing Media.
- Sulfamic Acid is used in Pulp and paper industry as a chloride stabilizer.

RXSOL Sulfamic Acid Inhibited should be dissolve in water. Pour or pump in to equipment to be cleaned and circulate. The Product may be added directly to a water system where good solution and mixing of the chemical are assured.

Sulphamic Acid Specifications :

Sulphamic Acid Based Descalants

Our high quality range of Sulfamic Acid Descalant is non hazardous & non flammable, and does not give off unbearable fumes. It's perfect for removing scales from cooling towers, coils, heat exchangers, condensers and heating & cooling systems. Sulfamic Acid Descalant increases the efficiency of working of a plant and equipment on cooling and cleaning surfaces by removing industrial scale.

RXSOL Sulfamic Acid Inhibited is compatible with most metal and plastics during normal cleaning procedures, which should last only a few hours. Long or continuous use on galvanized or aluminum surface should be avoided.

Sulfamic ACID various grade :::

A) Export Quality

CAS Number: 5329-14-6 IUPAC: sulfamic acid	Common Chemical Name	Sulfamic Acid
	Molecular Formula	NH₂SO₃H
	Molecular Weight	97.09
	Purity of Sulfamic	99.1%(min.)
	Moisture	0.1% max
	Physical Appearance	White crystalline powder
	Matter Insoluble in water	0.05
	Sulphate as So₄	0.1
	Lead as Pb	0.0001
	Iron as Fe	0.001
	Ammonical Nitrogen as NH₄ HSO₄	0.15
	Synonyms of Sulphamic Acid:	SULFAMIC ACID, Sulfamidic acid, Amidosulfonic acid, Jumbo, Sulphamic acid, Amidosulfuric acid, Aminosulfonic acid, Imidosulfonic acid, Sulfaminic acid, Aminosulfuric acid, Sulphamidic acid, Sulfamidsaeure, sulfuramidic acid, Amidoschwefelsaeure, Kyselina sulfaminova

Precaution :

As a standard precaution with all chemicals we recommend the use of protective equipment such as goggles and rubber gloves when handling. Consult the Material Safety Data Sheet as the only official source of environmental and safety information.

The Product can be stored up to 2 year from date of shipping if kept in original, unopened container and normal warehouse condition. Protect from freezing and from exposure to high temperature.

RXSOL Sulfamic Acid Inhibited is available in non-returnable containers of different sizes.

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