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COMPANY IDENTITY: Univar
PRODUCT IDENTITY: SULFAMIC ACIDSDS DATE: 02/14/2013
ORIGINAL: 02/14/2013**SAFETY DATA SHEET**

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: SULFAMIC ACID
SDS NUMBER: CDS-2062
COMPANY IDENTITY: Univar
COMPANY ADDRESS: 17425 NE Union Hill Road
COMPANY CITY: Redmond, WA 98052
COMPANY PHONE: 1-425-889-3400
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)

**SECTION 2. HAZARDS IDENTIFICATION****WARNING!**

EXPOSURE PREVENTION: STRICT HYGIENE!
PREVENT DISPERSION OF MISTS OR DUST!

HAZARD STATEMENTS:

H100s = General, H200s = Physical, H300s = Health, H400s = Environmental

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H320 Causes eye irritation.
H332 Harmful if inhaled.

PRECAUTIONARY STATEMENTS:

P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do - Continue rinsing.
+P313 Get medical advice/attention.
P360 Rinse immediately contaminated clothing & skin with plenty of water before removing clothes.
P503 This material must be handled as a hazardous waste.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Sulfamic Acid	5329-14-6	-	100

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

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First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

EYE CONTACT:

If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

SKIN CONTACT:

If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

INHALATION:

After high vapor exposure, remove to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

SWALLOWING:

If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

NOTES TO PHYSICIAN:

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation).

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to physician or health professional with victim.

SECTION 5. FIRE FIGHTING MEASURES**FIRE & EXPLOSION PREVENTIVE MEASURES**

Isolate from extreme heat and open flame.

EXTINGUISHING MEDIA

Use dry chemical, foam, carbon dioxide, or water fog extinguishing media. Use water to cool fire-exposed containers and to protect personnel.

SPECIAL FIRE FIGHTING PROCEDURES

Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used. Do not enter confined fire-space without full bunker gear. (Helmet with face shield, bunker coats, gloves & rubber boots). Use NIOSH approved positive-pressure self-contained breathing apparatus.

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UNUSUAL EXPLOSION AND FIRE PROCEDURES

Noncombustible.

Reacts with most metals producing hydrogen which is extremely flammable & may explode. Applying to hot surfaces requires special precautions. Closed containers may explode if exposed to extreme heat.

SECTION 6. ACCIDENTAL RELEASE MEASURES**SECTION 6. ACCIDENTAL RELEASE MEASURES**

SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:

Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

PERSONAL PROTECTIVE EQUIPMENT

The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves (triple-gloves (rubber gloves and nitrile gloves, over latex gloves), goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

ENVIRONMENTAL PRECAUTIONS:

Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

CONTAINMENT AND CLEAN-UP MEASURES:

Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, with soda ash. Cautiously neutralize spilled liquid with sodium carbonate solution only under the responsibility of an expert. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. Dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

HANDLING

Use only with adequate ventilation. Do not get in eyes, on skin or clothing. Wear OSHA Standard full face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.

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SECTION 7. HANDLING AND STORAGE (CONTINUED)

STORAGE

Keep separated from strong bases, food & feedstuffs. Keep dry. Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage. Reacts with most metals producing hydrogen which is extremely flammable & may explode. Wear full face shield, gloves & full protective clothing when opening or handling. When empty, drain completely, replace bungs securely.

NONBULK: CONTAINERS:

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

BULK CONTAINERS:

All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

TANK CAR SHIPMENTS:

Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:

Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Sulphamic Acid	5329-14-6	-	None Known	None Known

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

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ORIGINAL: 02/14/2013**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)****RESPIRATORY EXPOSURE CONTROLS**

Seek professional advice prior to respirator selection and use. Maintain airborne contaminant concentrations below exposure limits given above. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS

Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxiliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Necessary
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

EYE PROTECTION:

Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:

Wear appropriate impervious gloves for routine industrial use. Use impervious gloves for spill response, as stated in Section 6 of this SDS (Accidental Release Measures).
NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

BODY PROTECTION:

Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:

Provide readily accessible eye wash stations & safety showers. Wash at end of each shift & before eating, smoking or using the toilet. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

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APPEARANCE:	Solid, Opaque, White
ODOR:	Odorless
ODOR THRESHOLD:	Not Available
pH (Neutrality):	1.1 (1% solution @ 20 C / 68 F)
MELTING POINT/FREEZING POINT:	205 C / 401 F
BOILING RANGE (IBP, 50%, Dry Point):	Decomposes @ 209 C / 408 F
FLASH POINT (TEST METHOD):	Not Applicable
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	9.3
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	9.3
VAPOR PRESSURE (mm of Hg)@20 C	0.0
VAPOR DENSITY (air=1):	Not Applicable
GRAVITY @ 68/68F / 20/20C:	
SPECIFIC GRAVITY (Water=1):	2.130
POUNDS/GALLON:	17.744
WATER SOLUBILITY:	14.7 @ 0 C / 32 F
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	Not Applicable
DECOMPOSITION TEMPERATURE:	209 C / 408 F

SECTION 10. STABILITY & REACTIVITY**STABILITY**

Stable but slowly hydrolyzes in solution. Sulfamic Acid begins to decompose at 209 C (408 F). At room temperature, dilute solutions are stable for many months. At higher temperatures and especially in stronger solutions, hydrolysis of the acid and its ammonium salt occurs, forming ammonium hydrogen sulfate and ammonium sulfate. This reaction occurs much more rapidly as the pH lowers (concentration of acid increases). Reacts with most metals producing hydrogen which is extremely flammable & may explode.

CONDITIONS TO AVOID

Isolate from alkalis. Avoid dispersion of Sulfamic Acid particulates into air and contact with heat. Avoid the use of non-vented containers if concentrated solutions of the acid are made and heated, as a runaway hydrolysis reaction will occur, generating sufficient steam in the container to cause an explosion.

MATERIALS TO AVOID

The substance is a strong acid, reacts violently with bases and is corrosive. On combustion forms irritating and toxic gases including nitrogen oxides, sulfur oxides, reacts violently with causing fire & explosion hazard. Reacts with amines, chlorine, fuming nitric acid, cyanides, sulfides, nitrites, nitrates, carbonates, metal oxides, strong oxidizing agents, and strong bases. Sulfamic acid reacts slowly with water forming ammonium bisulfate. Chlorination of Sulfamic Acid with acidic ammonium chloride solutions gives the powerfully explosive oil, nitrogen trichloride. Heating mixtures of barium, potassium, or sodium amidosulfates or Sulfamic Acid, with sodium or potassium nitrates or nitrites, leads to reactions which may be explosive. Mixing Sulfamic Acid with fuming nitric acid results in violent release of nitrous oxide.

HAZARDOUS DECOMPOSITION PRODUCTS

Nitrogen oxides, carbon oxides, sulfur oxides, and ammonia gas. Concentrated solutions, when heated, will release sulfur dioxide, and sulfur trioxide. Aqueous solutions of Sulfamic Acid slowly hydrolyze to form ammonium sulfate and ammonium bisulfate.

HAZARDOUS POLYMERIZATION

Will not occur.

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SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE HAZARDS

EYE & SKIN CONTACT:

Severe burns to skin, defatting, dermatitis.
Severe burns to eyes, redness, tearing, blurred vision.
Solid can cause severe skin & eye burns. Wash thoroughly after handling.

INHALATION:

Vapor harmful. Sulfamic Acid is a respiratory tract irritant, and inhalation may cause nose irritation, sore throat, coughing, and chest tightness and possibly, ulceration and perforation of the nasal septum. Inhalation exposure to high levels cause pulmonary edema (buildup of fluid in the lungs) which could result in death.

SWALLOWING:

Harmful or fatal if swallowed. Ingestion can result in severe gastric distress with possible circulatory collapse, kidney failure and liver and heart damage.

SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED

None Known.

CHRONIC HAZARDS

CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:

This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

IRRITANCY OF PRODUCT: This product is irritating to contaminated tissue.

SENSITIZATION TO THE PRODUCT: No component of this product is known to be a sensitizer.

MUTAGENICITY: This product is not reported to produce mutagenic effects in humans.

EMBRYOTOXICITY: This product is not reported to produce embryotoxic effects in humans.

TERATOGENICITY: This product is not reported to produce teratogenic effects in humans.

REPRODUCTIVE TOXICITY: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (such as: within the eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MAMMALIAN TOXICITY INFORMATION

Mild irritation effects (skin-rabbit):	500 mg/24 hours (adult)
Severe irritation effects (eye-rabbit):	20 mg (adult)
LD50 (Oral):	3160 mg/kg (Rat)
LD50 (Oral):	1312 mg/kg (Mouse)
LD50 (Oral):	1050 mg/kg (Guinea Pig)

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ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

EFFECT OF MATERIAL ON PLANTS AND ANIMALS:

This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

EFFECT OF MATERIAL ON AQUATIC LIFE:LC50 (Pimephales promelas (fathead minnow)):
58.8 - 84 mg L (96 hours, fresh water, 22 C)**MOBILITY IN SOIL**

Mobility of this material has not been determined.

DEGRADABILITY

This product is completely biodegradable.

ACCUMULATION

Bioaccumulation of this product has not been determined.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste management options. Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies. Solution of this product may be considered D002, corrosivity waste under RCRA. Wastes should be tested to determine applicability.

SECTION 14. TRANSPORT INFORMATIONDOT/TDG SHIP NAME: UN2967, Sulfamic acid, 8, PG-III
DRUM LABEL: (CORROSIVE)
IATA / ICAO: UN2967, Sulfamic acid, 8, PG-III
IMO / IMDG: UN2967, Sulfamic acid, 8, PG-III
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 154**SECTION 15. REGULATORY INFORMATION****EPA REGULATION:**

SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health

All components of this product are on the TSCA list.
This material contains no known products restricted under SARA Title III, Section 313 in amounts greater or equal to 1%.

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STATE REGULATIONS:

CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains no chemicals known to the State of California
to cause cancer or reproductive toxicity.

INTERNATIONAL REGULATIONS

The components of this product are listed on the chemical inventories of the
following countries:
Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS)G
Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC),
Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
D2B: Irritating to skin / eyes.
E: Corrosive Material.

This product has been classified in accordance with hazard criteria of the Controlled
Products Regulations (CPR) and the SDS contains all the information required by the CPR.

SECTION 16. OTHER INFORMATION

HAZARD RATINGS:

HEALTH (NFPA): 3, HEALTH (HMIS): 3, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals
trained in the NFPA & HMIS hazard rating systems.

EMPLOYEE TRAINING

See Section 2 for Risk & Safety Statements. Employees should be made aware
of all hazards of this material (as stated in this SDS) before handling it.

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

Univar USA Inc. ("Univar") expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

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