SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier
Product Name Phosphorus LR TNT Reagent B

Other means of identification
Product Code(s) TNT843B

Safety data sheet number M02456

UN/ID no UN3316

Recommended use of the chemical and restrictions on use
Recommended Use Laboratory reagent. Orthophosphate Determination.
Uses advised against Consumer use.
Restrictions on use For Laboratory Use Only.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number
0800-111-767 - 24 Hour Service (11) 9161-3174 - 24 Hour Service

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Signal word - Danger

Hazard statements

H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage

Precautionary statements
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant
P234 - Keep only in original container
P390 - Absorb spillage to prevent material damage

Other Hazards Known
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Chemical Family Mixture.
Chemical nature Aqueous solution of inorganic acids and salts.

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
Sulfuric acid	7664-93-9	10 - 20%	-
Molybdate (Mo7O246-), hexaammonium	12027-67-7	1 - 5%	-
Sulfamic acid	5329-14-6	<1%	-
(+)-Tartaric acid	87-69-4	<0.1%	-
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer	11071-15-1	<0.1%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Symptoms	Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	Caution: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.
Hazardous combustion products	This material will not burn.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice	Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfuric acid CAS#: 7664-93-9	TWA: 0.2 mg/m³	TWA: 1 mg/m³ (vacated) TWA: 1 mg/m³	IDLH: 15 mg/m³ TWA: 1 mg/m³
Molybdate (Mo7O246-), hexaammonium CAS#: 12027-67-7	TWA: 0.5 mg/m³	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³	IDLH: 1000 mg/m³ Mo
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer	TWA: 0.5 mg/m³	TWA: 0.5 mg/m³ (vacated) TWA: 0.5 mg/m³	IDLH: 50 mg/m³ Sb TWA: 0.5 mg/m³ Sb

CAS#: 11071-15-1			

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves. Impervious gloves.

Eye/face protection Face protection shield.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

General Hygiene Considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid
Appearance aqueous solution
Color colorless
Odor Odorless
Odor threshold Not applicable

Property	Values	Remarks • Method
Molecular weight	Not applicable	
pH	~ 1	
Melting point/freezing point	~ 0 °C / 32 °F	
Boiling point / boiling range	~ 100 °C / 212 °F	
Evaporation rate	1.25 (water = 1)	
Vapor pressure	< 26.628 mm Hg / < 3.55 kPa at 20 °C / 68 °F	
Vapor density (air = 1)	0.62 (air = 1)	
Specific gravity (water = 1 / air = 1)	1.11	
Partition Coefficient (n-octanol/water)	No data available	
Soil Organic Carbon-Water Partition Coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature	No data available	

Dynamic viscosity No data available

Kinematic viscosity No data available

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
None reported	No information available	No data available	No information available

Other Information

Metal Corrosivity
Classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate > 6.25 mm/yr / > 0.25 in/yr
Aluminum Corrosion Rate > 6.25 mm/yr / > 0.25 in/yr

Volatile Organic Compounds (VOC) Content

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Sulfuric acid	7664-93-9	No data available	-
Molybdate (Mo7O246-), hexaammonium	12027-67-7	No data available	-
Sulfamic acid	5329-14-6	Not applicable	-
(+)-Tartaric acid	87-69-4	No data available	-
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer	11071-15-1	No data available	-

Explosive properties

Upper explosion limit No data available
Lower explosion limit No data available

Flammable properties

Flash point No data available
Method Not determined

Flammability Limit in Air
Upper flammability limit No data available
Lower flammability limit No data available

Oxidizing properties No data available.

Bulk density Not applicable

Particle Size No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Conditions to avoid Exposure to air or moisture over prolonged periods.

Incompatible materials
Incompatible materials Oxidizing agent. Acids. Bases.

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Product Information

Inhalation Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

Eye contact Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact May cause irritation.

Ingestion Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Aggravated Medical Conditions Eye disorders. Skin disorders. Respiratory disorders. Preexisting eye disorders. Blood disorders. Kidney disorders. Teeth.

Toxicologically synergistic products None known.

Toxicokinetics, metabolism and distribution See ingredients information below.

Chemical name	Toxicokinetics, metabolism and distribution
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	The corrosivity of sulfuric acid makes it difficult to assess its effects on metabolism. Its corrosivity is also the main contributor to acute deaths, therefore it is not classified for acute toxicity.
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer (<0.1%) CAS#: 11071-15-1	Antimony compounds can cause dermatitis, conjunctivitis, nasal-septum ulceration through direct contact or by inhalation of dust or fumes. Antimony is also connected with kidney and liver degeneration and adverse reproductive effects.

Product Acute Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	29,469.00 mg/kg
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Ingredient Acute Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	Rat LD_{50}	333 mg/kg	None reported	None reported	Vendor SDS
Sulfamic acid (<1%) CAS#: 5329-14-6	Rat LD_{50}	1450 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer (<0.1%) CAS#: 11071-15-1	Rat LD_{50}	115 mg/kg	None reported	None reported	Vendor SDS

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Human TD_{Lo}	0.144 mg/L	5 minutes	**Lungs, Thorax, or Respiration** Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
If available, see data below
Kinematic viscosity No data available

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB (Hazardous Substances Data Bank)
Sulfamic acid (<1%) CAS#: 5329-14-6	Standard Draize Test	Human	40 mg	5 days	Mild skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
(+)-Tartaric acid (<0.1%) CAS#: 87-69-4	Existing human experience	Human	None reported	None reported	Skin irritant	Vendor SDS

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB (Hazardous Substances Data Bank)
Sulfamic acid (<1%) CAS#: 5329-14-6	Standard Draize Test	Rabbit	20 mg	None reported	Eye irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
(+)-Tartaric acid (<0.1%) CAS#: 87-69-4	Existing human experience	Human	None reported	None reported	Corrosive to eyes	Vendor SDS

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route No data available.
Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
(+)-Tartaric acid (<0.1%) CAS#: 87-69-4	None reported	Guinea pig	Not confirmed to be a skin sensitizer	Vendor SDS

Respiratory Sensitization Exposure Route If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route No data available.
Dermal Exposure Route No data available.
Inhalation (Dust/Mist) Exposure Route No data available.
Inhalation (Vapor) Exposure Route No data available.
Inhalation (Gas) Exposure Route No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfamic acid (<1%) CAS#: 5329-14-6	Rat NOAEL	1000 mg/kg	90 days	No toxicological effects observed	ECHA (The European Chemicals Agency)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Human TC_{Lo}	.003 mg/L	168 days	**Musculoskeletal** Changes in teeth and supporting structures	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Sulfuric acid	7664-93-9	A2	Group 1	Known	X
Molybdate (Mo7O246-), hexaammonium	12027-67-7	A3	-	-	-
Sulfamic acid	5329-14-6	-	-	-	-
(+)-Tartaric acid	87-69-4	-	-	-	-
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer	11071-15-1	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	A2 - Suspected Human Carcinogen A3 - Animal Carcinogen
IARC (International Agency for Research on Cancer)	Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)	Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Germ Cell Mutagenicity *invitro* **Data**
No data available.

Ingredient Germ Cell Mutagenicity *invitro* **Data**
If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available
(+)-Tartaric acid (<0.1%) CAS#: 87-69-4	Mutation in microorganisms	*Salmonella typhimurium*	None reported	None reported	Negative test result for mutagenicity	Vendor SDS

Product Germ Cell Mutagenicity *invivo* **Data**
Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* **Data**
Oral Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfamic acid (<1%) CAS#: 5329-14-6	Micronucleus test	Mouse	None reported	None reported	Negative test result for mutagenicity	Japan National Institute of Technology and Evaluation (NITE)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data
Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfamic acid (<1%) CAS#: 5329-14-6	Rat NOAEL	200 mg/kg	None reported	No reproductive or developmental toxic effects observed	ECHA (The European Chemicals Agency)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Rabbit TC_{Lo}	.02 mg/L	7 hours	**Specific Developmental Abnormalities** Musculoskeletal system	No information available

Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	96 hours	*Oncorhynchus mykiss*	LC_{50}	320 mg/L	Vendor SDS
Sulfamic acid (<1%) CAS#: 5329-14-6	96 hours	*Pimephales promelas*	LC_{50}	42.2 mg/L	ERMA (New Zealands Environmental Risk Management Authority)
(+)-Tartaric acid (<0.1%) CAS#: 87-69-4	96 hours	None reported	LC_{50}	150 mg/L	Vendor SDS
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer (<0.1%) CAS#: 11071-15-1	96 hours	None reported	LC_{50}	12.5 mg/L	Vendor SDS

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium	48 Hours	*Daphnia magna*	EC_{50}	140 mg/L	Vendor SDS

(1 - 5%) CAS#: 12027-67-7					
Sulfamic acid (<1%) CAS#: 5329-14-6	48 Hours	*Daphina magna*	EC_{50}	71.6 mg/L	ECHA (The European Chemicals Agency)
(+)-Tartaric acid (<0.1%) CAS#: 87-69-4	48 Hours	*Ceriodaphnia dubia*	EC_{50}	87.26, 46.04 - 165.37 mg/L	ERMA (New Zealands Environmental Risk Management Authority)

Algae If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	72 Hours	*Desmodesmus subspicatus*	EC_{50}	41 mg/L	Vendor SDS
Sulfamic acid (<1%) CAS#: 5329-14-6	72 Hours	*Selenastrum capricornutum*	EC_{50}	48 mg/L	ECHA (The European Chemicals Agency)

Other Information

Persistence and degradability

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data

Chemical name	Test method	Biodegradation	Exposure time	Results
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	None reported	None reported	None reported	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data
No data available.

Partition Coefficient (n-octanol/water) No data available

Ingredient Bioaccumulation Data

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Sulfamic acid (<1%) CAS#: 5329-14-6	Estimation through BCFBAF v3.01 part of the Estimation Programs Interface (EPI) Suite™	None reported	None reported	BCF = 3.162	Does not have the potential to bioaccumulate

Mobility

Soil Organic Carbon-Water Partition Coefficient No data available

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Other adverse effects
Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number D002

Special instructions for disposal Working in a large container, cautiously add small portions of the material to cold water with agitation. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain. Flush system with plenty of water.

14. TRANSPORT INFORMATION

U.S. DOT

UN/ID no	UN3316
Proper shipping name	Chemical kits
Hazard Class	9
Packing Group	II
Reportable Quantity (RQ)	Sulfuric acid: RQ kg= 499.99
Description	UN3316, Chemical kits, 9, RQ
Emergency Response Guide Number	171

TDG

UN/ID no	UN3316
Proper shipping name	Chemical kit
Hazard Class	9
Packing Group	II
Description	UN3316, Chemical kit, 9

IATA

UN/ID no	UN3316
Proper shipping name	Chemical kit
Hazard Class	9
Packing Group	II
ERG Code	9L
Special precautions for user	A163, A44
Description	UN3316, Chemical kit, 9

IMDG

UN/ID no	UN3316
Proper shipping name	Chemical kit
Hazard Class	9

Packing Group	II
EmS-No	F-A, S-P
Special precautions for user	251, 340
Description	UN3316, Chemical kit, 9

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
Sulfuric acid (CAS #: 7664-93-9)	1.0
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer (CAS #: 11071-15-1)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sulfuric acid 7664-93-9	1000 lb	-	-	X
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedioato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer 11071-15-1	100 lb	X	-	-

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sulfuric acid 7664-93-9	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. - DEA (Drug Enforcement Administration) List I & List II

Chemical name	U.S. - DEA (Drug Enforcement Administration) - List I or Precursor Chemicals	U.S. - DEA (Drug Enforcement Administration) - List II or Essential Chemicals
Sulfuric acid (10 - 20%) CAS#: 7664-93-9	Not Listed	50 gallon Export Volume (exports, transshipments and international transactions to designated countries)

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Sulfuric acid (CAS #: 7664-93-9)	Carcinogen

WARNING: This product can expose you to chemicals including Sulfuric acid, which is known to the State of California to cause cancer.
For more information, go to http://www.P65Warnings.ca.gov

IMERC: Not applicable

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Sulfuric acid 7664-93-9	X	X	X
Sulfamic acid 5329-14-6	X	-	-
Antimonate(2-), bis[.mu.-[2,3-dihydroxybutanedi	X	-	X

oato(4-)-O1,O2:O3,O4]]di-, dipotassium, stereoisomer 11071-15-1			

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Sulfuric acid	180.0910	21 CFR 184.1095
Sulfamic acid	-	21 CFR 186.1093
(+)-Tartaric acid	-	21 CFR 184.1099

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)
Not applicable

NFPA and HMIS Classifications

NFPA	**Health hazards** - 3	**Flammability** - 0	**Instability** - 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** - 3	**Flammability** - 0	**Physical Hazards** - 0	**Personal protection** - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH	*Immediately Dangerous to Life or Health*
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	*no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

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Revision Note	None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

End of Safety Data Sheet