



Be Right™

SAFETY DATA SHEET

Issue Date 19-Sep-2016

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1. IDENTIFICATION

Product identifier

Product Name BOD Nutrient Buffer Pillows

Other means of identification

Product Code(s) 1416066

Safety data sheet number M00546

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory Use. Determination of biochemical oxygen demand.

Uses advised against None.

Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address

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

Emergency telephone number

(303) 623-5716 - 24 Hour Service (515)232-2533 - 8am - 4pm CST

Product Information

Chemical Name Not applicable

Formula Not applicable

CAS No Not applicable

Alternate CAS Number Not applicable

NIOSH (RTECS) Number None reported

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not Hazardous

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Hazard statements

EUH210 - Safety data sheet available on request

The product contains no substances which at their given concentration, are considered to be hazardous to health

Other Information

Causes mild skin irritation

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Chemical Family Mixture.

Percent ranges are used where confidential product information is applicable.

Chemical Name	CAS No	Percent Range	HMRIC #
Calcium chloride	10043-52-4	1 - 5%	-
Sodium phosphate dibasic	7558-79-4	0.1 - 1%	-
Ammonium chloride	12125-02-9	<0.1%	-
Iron trichloride	7705-08-0	<0.1%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice	In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, call a physician.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician.
Ingestion	IF SWALLOWED: Rinse Mouth. If symptoms persist, call a physician.
Self-protection of the first aider	Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

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.

Flammable properties

Substance does not burn.

Specific hazards arising from the chemical

This product will not burn or explode.

Hazardous combustion products

This material will not burn.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective 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.

EC Notice

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

WHMIS Notice

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions

Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders

Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions

Avoid release to the environment. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number

Not applicable

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Flammability class Not applicable

Incompatible materials Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ammonium chloride <0.1%	STEL: 20 mg/m ³ TWA: 10 mg/m ³	(vacated) TWA: 10 mg/m ³ (vacated) STEL: 20 mg/m ³	TWA: 10 mg/m ³ fume STEL: 20 mg/m ³ fume
Iron trichloride <0.1%	TWA: 1 mg/m ³	(vacated) TWA: 1 mg/m ³	TWA: 1 mg/m ³ Fe

Chemical Name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick OEL	New Foundland & Labrador OEL
Ammonium chloride <0.1%	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³
Iron trichloride <0.1%	TWA: 1 mg/m ³	TWA: 1 mg/m ³ STEL: 2 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³

Chemical Name	Northwest Territories OEL	Nova Scotia OEL	Nunavut OEL	Ontario TWA	Prince Edward Island OEL
Calcium chloride 1 - 5%	NDF	NDF	NDF	TWA: 5 mg/m ³	NDF
Ammonium chloride <0.1%	TWA: 10 mg/m ³ STEL: 20 mg/m ³	STEL: 20 mg/m ³ TWA: 10 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³	STEL: 20 mg/m ³ TWA: 10 mg/m ³
Iron trichloride <0.1%	TWA: 1 mg/m ³ STEL: 3 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³

Chemical Name	Quebec OEL	Saskatchewan OEL	Yukon OEL
Ammonium chloride <0.1%	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³	STEL: 20 mg/m ³ TWA: 10 mg/m ³
Iron trichloride <0.1%	TWA: 1.0 mg/m ³	TWA: 1 mg/m ³ STEL: 3 mg/m ³	STEL: 2 mg/m ³ TWA: 1 mg/m ³

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Showers
 Eyewash stations
 Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Wear tight sealing safety goggles and/or face protection shield.

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off all contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Regular cleaning of equipment, work area and clothing is recommended.

Environmental exposure controls

Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Gas Under Pressure	Not classified according to GHS criteria		
Appearance	Turbid solution aqueous solution	Color	white
Odor	Odorless	Odor threshold	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	7.6	
Melting point/freezing point	~ -14 °C / 7 °F	Estimation based on theoretical calculation
Boiling point / boiling range	~ 104 °C / 219 °F	Estimation based on theoretical calculation
Evaporation rate	1.79 (water = 1)	
Vapor pressure	17.402 mm Hg / 2.32 kPa at 20 °C / 68 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.62	
Specific gravity (water = 1 / air = 1)	1.045	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	~ 1 cP (mPa s) at 20 °C / 68 °F	
Kinematic viscosity	~ 0.957 cSt (mm ² /s) at 20 °C / 68 °F	

Solubility(ies)

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Water solubility

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

Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity	Not classified as corrosive to metal according to GHS criteria
Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available
Bulk density	Not applicable
Explosive properties	Not classified according to GHS criteria.
Explosion data	No data available
Upper explosion limit	No data available
Lower explosion limit	No data available
Flammable properties	Not classified as flammable according to GHS criteria.
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Flash point	No data available
Method	No information available
Oxidizing properties	Not classified according to GHS criteria.
Reactivity properties	Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

10. STABILITY AND REACTIVITY

Reactivity properties

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria

Chemical stability

Stable under recommended storage conditions.

Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

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Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid

Extreme temperatures. Contact with acid or acid fumes. Contact with oxidizers. Incompatibles.

Incompatible materials

Strong acids. Strong bases.

Hazardous Decomposition Products

None known based on information supplied.

Explosive properties

Not classified according to GHS criteria.

Upper explosion limit No data available

Lower explosion limit No data available

Autoignition temperature

No data available

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information	Causes mild skin irritation.
Inhalation	No known effect based on information supplied.
Eye contact	No known effect based on information supplied.
Skin contact	Causes mild skin irritation.
Ingestion	No known effect based on information supplied.
Aggravated Medical Conditions	Skin disorders.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	See ingredients information below.

Chemical Name	Toxicokinetics, metabolism and distribution
Sodium phosphate dibasic (0.1 - 1%) CAS#: 7558-79-4	Phosphates are widely utilized by cells for metabolism of proteins, fats and carbohydrates.
Iron trichloride (<0.1%) CAS#: 7705-08-0	Iron is extremely corrosive to the GI tract. It acts on the mucosal tissues causing nausea, vomiting, abdominal pain, and diarrhea. At the cellular level it affects oxidative phosphorylation and mitochondrial function leading to cellular death.

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

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

ATEmix (oral)	44,444.00 mg/kg
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Ingredient Acute Toxicity Data

Oral Exposure Route

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Rat LD ₅₀	1000 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Rat LD ₅₀	1650 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Iron trichloride (<0.1%) CAS#: 7705-08-0	Rat LD ₅₀	316 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium phosphate dibasic (0.1 - 1%) CAS#: 7558-79-4	Rat LD ₅₀	17000 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Mouse LD ₅₀	1300 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Domestic mammal - Not specified LD _{Lo}	1500 mg/kg	None reported	Lungs, Thorax, or Respiration Respiratory stimulation	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron trichloride (<0.1%) CAS#: 7705-08-0	Woman LD _{Lo}	4 mg/kg	None reported	Lungs, Thorax, or Respiration Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Rat LD ₅₀	2630 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route

Inhalation (Gas) Exposure Route No data available

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Existing human experience	Human	None reported	None reported	Skin irritant	ChemADVISOR
Sodium phosphate dibasic (0.1 - 1%) CAS#: 7558-79-4	Standard Draize Test	Rabbit	500 mg	24 hours	Skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Existing human experience	Human	None reported	None reported	Mild skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Organization for Economic Co-operation and Development (OECD) - Test 404: Acute Dermal Corrosion/Irritation	Rabbit	970 mg	4 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Existing human experience	Human	None reported	None reported	Eye irritant	ChemADVISOR
Sodium phosphate dibasic (0.1 - 1%) CAS#: 7558-79-4	Standard Draize Test	Rabbit	500 mg	24 hours	Eye irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Standard Draize Test	Rabbit	100 mg	None reported	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Organization for Economic Co-operation and Development (OECD) - Test 405: Acute Eye Corrosion/Irritation	Rabbit	33 mg	None reported	Eye irritant	ECHA (The European Chemicals Agency)

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route

No data available.

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Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Ammonium chloride (<0.1%) CAS#: 12125-02-9	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	OECD (Organization for Economic Co-operation and Development)

Respiratory Sensitization Exposure Route

No data available.

Chronic Toxicity Information

Product Repeat Dose 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 Repeat Dose Toxicity Data

Oral Exposure Route

Toxicological data for ingredients is not indicative of likely harm.

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Rat TD _{Lo}	2016 mg/kg	30 days	Blood Brain and Coverings Recordings from specific areas of CNS Cardiac Pulse rate decrease with fall in BP	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Rat TD _{Lo}	3500 mg/kg	7 days	Nutritional and Gross Metabolic Metabolic acidosis	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron trichloride (<0.1%) CAS#: 7705-08-0	Rat TD _{Lo}	7728 mg/kg	210 days	Behavioral Fluid intake Biochemical Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase) Blood	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Rat TD _{Lo}	556000 mg/kg	78 weeks	Kidney, Ureter, or Bladder Changes in tubules (including acute renal failure, acute tubular necrosis)	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

Toxicological data for ingredients is not indicative of likely harm.

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Mammal - not specified TC _{Lo}	0.043 mg/L	119 days	Biochemical Enzyme inhibition, induction, or change in blood or tissue levels (catalases) Blood Changes in serum composition (e.g. TP, bilirubin, cholesterol)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Chemical Name	CAS No	ACGIH	IARC	NTP	OSHA
Calcium chloride	10043-52-4	-	-	-	-
Sodium phosphate dibasic	7558-79-4	-	-	-	-
Ammonium chloride	12125-02-9	-	-	-	-
Iron trichloride	7705-08-0	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Product Carcinogenicity Data No data available

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

Oral Exposure Route Toxicological data for ingredients is not indicative of likely harm.

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Rat	112000 mg/kg	20 weeks	Endocrine Thyroid tumors	RTECS (Registry of Toxic Effects of Chemical Substances)

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

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

Ingredient Germ Cell Mutagenicity *in vitro* Data

Toxicological data for ingredients is not indicative of likely harm.

Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Cytogenetic analysis	Rat ascites tumor	3500 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	Cytogenetic analysis	Hamster fibroblast	400 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron trichloride (<0.1%) CAS#: 7705-08-0	DNA inhibition	Human lymphocyte	4800 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	Sex chromosome loss and nondisjunction	Saccharomyces cerevisiae	200 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron trichloride (<0.1%) CAS#: 7705-08-0	DNA damage	Human cells - not specified	0.001 mmol/L	1 hours	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Iron trichloride (<0.1%) CAS#: 7705-08-0	DNA damage	Human cells - not specified	0.4 mmol/L	30 minutes	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

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 *in vivo* 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

Oral Exposure Route No data available

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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 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

12. ECOLOGICAL INFORMATION

Ecotoxicity Based on the classification principles, not classified as hazardous to the environment.

Product Ecological Data

Aquatic toxicity

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

Terrestrial toxicity

Soil No data available
 Vertebrates No data available
 Invertebrates No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	96 hours	<i>Pimephales promelas</i>	LC ₅₀	4630 mg/L	PEEN (Pan European Ecological Network)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	3.98 mg/L	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Ammonium chloride (<0.1%) CAS#: 12125-02-9	96 hours	<i>Poecilia reticulata</i>	LC ₅₀	7.2 mg/L	IUCLID (The International Uniform Chemical Information Database)

Crustacea

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	48 Hours	<i>Daphnia magna</i>	EC ₅₀	1062 mg/L	PEEN (Pan European Ecological Network)
Ammonium chloride (<0.1%) CAS#: 12125-02-9	48 Hours	<i>Daphnia magna</i>	LC ₅₀	161 mg/L	IUCLID (The International Uniform Chemical Information Database)

Algae

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Calcium chloride (1 - 5%) CAS#: 10043-52-4	72 Hours	<i>Selenastrum capricornutum</i>	EC ₅₀	2900 mg/L	PEEN (Pan European Ecological Network)
Iron trichloride (<0.1%) CAS#: 7705-08-0	96 hours	<i>Chlorella vulgaris</i>	EC ₅₀	1421.3 mg/L	IUCLID (The International Uniform Chemical Information Database)

Terrestrial toxicity

Soil No data available

Vertebrates No data available

Invertebrates No data available

Other Information

Chemical Name	CAS No	Category	Persistent	Bioaccumulation	Inherently Toxic to Aquatic Organisms
Calcium chloride	10043-52-4	-	-	-	-
Sodium phosphate dibasic	7558-79-4	-	-	-	-
Ammonium chloride	12125-02-9	-	-	-	-
Iron trichloride	7705-08-0	-	-	-	-

Persistence and degradability

None known.

Product Biodegradability Data

If available, see ingredient data below.

Ingredient Biodegradability Data

Test data reported below

Bioaccumulation

Does not have the potential to bioaccumulate according to GHS criteria.

Product Bioaccumulation Data

Test data reported below.

Ingredient Bioaccumulation Data

No data available

Additional information

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Partition Coefficient (n-octanol/water)

Not applicable

Ingredient Information

Chemical Name	Partition Coefficient (n-octanol/water)	Method
Iron trichloride (<0.1%) CAS#: 7705-08-0	log K _{ow} = -4	No information available

Mobility

Mobility in soil: High mobility. If available, see ingredient data below.

Product Information

Soil Organic Carbon-Water Partition Coefficient

Not applicable

Ingredient Information

No data available

Additional information

Water solubility

Product Information

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

Ingredient Information

Chemical Name	Water solubility classification	Water solubility	Water solubility temperature °C	Water solubility temperature °F
Calcium chloride CAS#: 10043-52-4	Soluble	> 1000 mg/L	25 °C	77 °F
Sodium phosphate dibasic CAS#: 7558-79-4	Completely soluble	118000 mg/L	20 °C	68 °F
Ammonium chloride CAS#: 12125-02-9	Completely soluble	297000 mg/L	0 °C	32 °F
Iron trichloride CAS#: 7705-08-0	Completely soluble	960000 mg/L	20 °C	68 °F

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging

Working in a well-ventilated area. Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state, or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as

hazardous waste and should be disposed of at an E.P.A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste in countries other than the US. Improper disposal or reuse of this container may be dangerous and illegal. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Special instructions for disposal If permitted by regulation. Open cold water tap completely, slowly pour the material to the drain. Allow cold water to run for 5 minutes to completely flush the system. Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

14. TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG	Not regulated
Note:	No special precautions necessary.

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

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SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any 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 %
Ammonium chloride (CAS #: 12125-02-9)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
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
Sodium phosphate dibasic 7558-79-4	5000 lb	-	-	X
Ammonium chloride 12125-02-9	5000 lb	-	-	X
Iron trichloride 7705-08-0	1000 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)
Sodium phosphate dibasic 7558-79-4	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Ammonium chloride 12125-02-9	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Iron trichloride 7705-08-0	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Sodium phosphate dibasic 7558-79-4	X	X	X
Ammonium chloride 12125-02-9	X	X	X
Iron trichloride 7705-08-0	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

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

NFPA and HMIS Classifications

NFPA	Health hazards - 1	Flammability - 0	Instability - 0	Physical and Chemical Properties -
HMIS	Health hazards - 1	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

Issue Date 19-Sep-2016

Revision Date 19-Sep-2016

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.

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End of Safety Data Sheet