



**VOLUNTARY PURCHASING GROUPS, INC.**

## **Safety Data Sheet Hi-Yield Root Killer**

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### **SECTION 1: Identification**

#### **GHS Product identifier**

Product name	Hi-Yield Root Killer
Product number	33481
Substance name	Copper Sulfate Pentahydrate
CAS no.	7758-99-8

#### **Other means of identification**

EPA Reg. No. 7401-326

#### **Recommended use of the chemical and restrictions on use**

##### **\*USES:**

Agriculture (soil additive; pesticides and fungicides; Bordeaux mixture); feed additive; germicide; textile mordant; leather industry; pigments; electric batteries; electroplating coatings; copper salts; reagent in analytical chemistry; medicine; wood preservative; process engraving and lithography; ore flotation; petroleum industry; synthetic rubber; steel manufacture; herbicide; and treatment of natural asphalts.

#### **Supplier's details**

Name	Voluntary Purchasing Groups, Inc.
Address	230 FM 87 Bonham TX 75418 USA
Telephone	855-270-4776

#### **Emergency phone number**

In the event of a medical or chemical emergency contact ChemTel, Inc.  
North American 1-800-255-3924 or worldwide Intl. + 01-813-248-0585

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### **SECTION 2: Hazard identification**

#### **Classification of the substance or mixture**

#### **GHS classification in accordance with: (US) OSHA (29 CFR 1910.1200)**

- Acute toxicity, oral, Cat. 4
- Acute toxicity, dermal, Cat. 5
- Skin corrosion/irritation, Cat. 2
- Serious eye damage/eye irritation, Cat. 2A

#### **GHS label elements, including precautionary statements**

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### Pictograms



### Hazard statement(s)

H302	Harmful if swallowed
H313	May be harmful in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

### Precautionary statement(s)

P264	Wash ... thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P301+P312	IF SWALLOWED: Call a POISON CENTER /doctor/...if you feel unwell,
P330	Rinse mouth.
P501	Dispose of contents/container to ...
P312	Call a POISON CENTER/doctor/.../ if you feel unwell.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P321	Specific treatment (see ... on this label).
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P102	Keep out of reach of children.
P103	Read label before use.

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## SECTION 3: Composition/information on ingredients

### Mixtures

Substance name: Copper Sulfate Pentahydrate; CAS no.: 7758-99-8; Formula:  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ; Molecular weight: 249.68

### Hazardous components

Component	Concentration
Copper sulfate pentahydrate (CAS no.: 7758-99-8)	90 - 100 %
CLASSIFICATIONS: No data available. HAZARDS: No data available.	

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## SECTION 4: First-aid measures

### Description of necessary first-aid measures

General advice	Call a poison control center or doctor for treatment advice. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur, seek medical attention
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	immediately.
If inhaled	Move person to fresh air. If person is not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a poison control center or doctor for treatment advice.
In case of skin contact	Wash skin with soap and plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
In case of eye contact	Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.
If swallowed	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a poison control center or doctor for treatment advice.

#### **Most important symptoms/effects, acute and delayed**

Symptoms of exposure to this compound may include irritation of the skin, eyes, respiratory tract and gastrointestinal tract [269]. Ingestion can cause severe gastroenteric distress (vomiting, pain, localized corrosion, and hemorrhages), prostration, anuria, hematuria, anemia, increased number of white blood cells, icterus, coma, respiratory difficulty and circulatory failure [355,371]. It can also cause nausea, metallic taste, sweating, headache, burning sensation in the esophagus and stomach, abdominal pain, hemorrhagic gastritis, weak pulse, melena, conjunctivitis, corneal ulceration, hypotension and turbidity [053]. Other symptoms may include watery and bloody stools, burning in the mouth and throat, liver damage with jaundice, hemolysis, tenesmus, retching, collapse and convulsions [301]. Uremia, shock and renal failure have been reported [173]. Skin contact can cause smarting and first degree burns on short exposure. Prolonged exposure can result in second degree burns [371]. Persons with pre-existing Wilson's disease may be more susceptible to these effects [102].

#### **Indication of immediate medical attention and special treatment needed, if necessary**

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically. Basic Treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by non-rebreather mask at 10 to 15 L/minutes. Monitor for shock and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal. Advanced Treatment: Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious. Start an IV with lactated Ringer's SRP: "To keep open", minimal flow rate. Watch for signs of fluid overload. For hypotension with signs of hypovolemia, administer fluid cautiously. Consider vasopressors if hypotensive with a normal fluid volume. Watch for signs of fluid overload. Use proparacaine, hydrochloride to assist eye irrigation.

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## **SECTION 5: Fire-fighting measures**

#### **Suitable extinguishing media**

Dry chemical, CO<sub>2</sub>, Halon, water spray or standard form

#### **Specific hazards arising from the chemical**

Copper Sulfate Pentahydrate is not combustible, but may decompose in the heat of a fire to produce corrosive and/or toxic fumes.

Hazardous Combustion Products - Sulfur oxides and copper fumes.

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Avoid breathing vapors or dusts.

### Special protective actions for fire-fighters

Firefighters should wear full protective clothing including self-contained breathing apparatus. Move containers from fire area if possible. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. Do not scatter spilled material with high-pressure water streams. Dike fire control water for later disposal.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials which can burn away from spilled material. In case of large spills, follow all facility emergency response procedures. Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

### Methods and materials for containment and cleaning up

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information). Wear appropriate protective equipment and clothing during clean-up. Shovel the material into waste container. Thoroughly wash the area after a spill or leak clean-up. Prevent spill residue from contamination of storm drains, sewers, soil or groundwater.

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## SECTION 7: Handling and storage

### Precautions for safe handling

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling, when used as a pesticide. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

### Conditions for safe storage, including any incompatibilities

Keep in original container in locked storage area. Keep container tightly closed when not in use. 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). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

Do not store this material in open or unlabeled containers. Limit quantity of material stored. Store in suitable containers that are corrosion-resistant.

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## SECTION 8: Exposure controls/personal protection

### Appropriate engineering controls

Ventilation: General or local exhaust to maintain employee exposure below the TLV/PEL.

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eye-wash fountain available. Use good hygiene practices when handling this material including changing and laundering work clothing after use. Discard contaminated shoes and leather goods.

### Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Causes serious eye irritation. Splash-proof or dust-resistant safety goggles to prevent eye contact with this

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substance. Contact lenses should not be worn.

### Skin protection

PVC or Neoprene gloves

### Body protection

Apron, boots, long sleeved shirt and full-length pants may be worn when necessary to prevent skin contact. Eye wash and shower facilities should be available.

### Respiratory protection

NIOSH/MSHA approved respiratory devices to protect against dusts

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## SECTION 9: Physical and chemical properties

Appearance (physical state, color, etc.)	Blue crystalline powder
Odor	No information available.
Odor threshold	No information available.
pH	No information available.
Melting point/freezing point	147
Initial boiling point and boiling range	1202 degrees F (650 degrees C)
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Vapor pressure	No information available.
Vapor density	No information available.
Relative density	2.284 [053,062,430]
Solubility(ies)	Appreciable (>10%)
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity	No information available.

### Additional properties

Physical state	Solid
Color	Blue

### Further safety characteristics (supplemental)

#### \*VOLATILITY:

Vapor pressure: Not available

Vapor density : Not available

#### \*FLAMMABILITY(FLASH POINT):

Literature sources indicate that this compound is nonflammable [053,371].

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher.

\*UEL: Not available LEL: Not available

#### \*REACTIVITY:

This compound is incompatible with hydroxylamine and magnesium [042].

It is also incompatible with finely powdered metals and can corrode steel [269]. It can also corrode iron [173]. It can react with alkalis, phosphates, acetylene gas, hydrazine, or nitromethane. A reaction may occur if mixed with beta-naphthol, propylene glycol, sulphathiazole and triethanolamine; however, the pH usually needs to be

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>7 before a reaction will proceed [053].

#### \*STABILITY:

This material is sensitive to heat and moisture [052,053,269]. It is stable indefinitely when kept dry [052,053]. It will slowly effloresce in air [053,062]. Aqueous solutions are stable for 96 hours when stored in the dark [052].

#### \*OTHER PHYSICAL DATA:

Nauseous metallic taste

Melting point: >200 C (loses all water of crystallization) [168]

Odorless

White when dehydrated

Loses 4 waters at 110 C, 5th water at 250 C

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## SECTION 10: Stability and reactivity

### Reactivity

No information available.

### Chemical stability

Copper Sulfate Pentahydrate is hygroscopic, but stable when kept dry, under normal temperature and pressures.

### Possibility of hazardous reactions

Polymerization will not occur.

### Conditions to avoid

Avoid high temperatures, exposure to air and incompatible materials.

### Incompatible materials

Oxidizers, magnesium, strong bases, alkalines, phosphates, acetylene, hydrazine, and zirconium

### Hazardous decomposition products

Carbon monoxide, Carbon dioxide, Sulfur oxides and Copper oxides

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

Harmful or fatal if swallowed. May cause gastrointestinal irritation with symptoms such as nausea, vomiting, and diarrhea. Ingestion may cause degeneration of liver, kidney, or renal failure. Persons who survive ingestion may develop granulomatous lesions of the kidney. Ingestion of large amounts may lead to convulsions, coma or death.

#### Skin corrosion/irritation

This product can cause irritation of the skin with pain, itching and redness.

Severe overexposure can cause skin burns.

Prolonged exposure may cause dermatitis and eczema.

#### Serious eye damage/irritation

Exposure to particulates or solution of this product may cause redness and pain.

Prolonged contact may cause conjunctivitis, ulceration and corneal abnormalities.

#### Respiratory or skin sensitization

May irritate the nose, throat and respiratory tract. Symptoms can include sore throat, coughing and shortness of breath. In severe cases, ulceration and perforation of the nasal septum can occur. If this material is heated, inhalation of fumes may lead to development of metal fume fever. This is a flu-like illness with symptoms of metallic

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taste, fever and chills, aches, chest tightness and cough. Repeated inhalation exposure can cause shrinking of the lining of the inner nose.

#### Germ cell mutagenicity

Human and animal mutation data are available for Copper Sulfate Pentahydrate; these data were obtained during clinical studies on specific human and animal tissues exposed to high doses of this compound.

#### Carcinogenicity

A: General Product Information

Copper Sulfate Pentahydrate (7758-99-8)

Cytogenetic Analysis-Rat/ast 300 mg/kg

B: Component Carcinogenicity

Copper dusts and mists, as Cu (7440-50-8)

EPA: EPA-D (Not Classifiable as to Human Carcinogenicity - inadequate human and animal evidence of carcinogenicity or no data available)

#### Reproductive toxicity

There are no reports of teratogenicity in humans. Animal studies indicate that a deficiency or excess of copper in the body can cause significant harm to developing embryos. The net absorption of copper is limited and toxic levels are unlikely from industrial exposure.

#### Specific target organ toxicity (STOT) - single exposure

Individuals with Wilson's disease are unable to metabolize copper. Thus, persons with pre-existing Wilson's disease may be more susceptible to the effects of overexposure to this product.

#### Specific target organ toxicity (STOT) - repeated exposure

Individuals with Wilson's disease are unable to metabolize copper. Thus, persons with pre-existing Wilson's disease may be more susceptible to the effects of overexposure to this product.

#### Additional information

\*TOXICITY:

typ. dose mode specie amount units other

TDLo orl hmn 272 mg/kg

LDLo orl hmn 1088 mg/kg

LDLo unr man 221 mg/kg

LD50 orl rat 300 mg/kg

LD50 ipr mus 33 mg/kg

LDLo orl dog 60 mg/kg

LDLo scu gpg 62 mg/kg

LDLo orl pgn 1000 mg/kg

LDLo orl dom 5 mg/kg

LD50 orl mam 470 mg/kg

LD50 ipr mam 7500 ug/kg

LDLo orl bwd 300 mg/kg

\*AQTX/TLM96: Not available

\*SAX TOXICITY EVALUATION:

THR: An experimental equivocal tumorigenic agent. It has systemic and gastrointestinal effects in humans. HIGH via intraperitoneal route. MODERATE via oral and inhalation routes. MUTATION data. It reacts violently with hydroxylamine and magnesium. It is a substance which migrates to and from food packaging. It is also used as an herbicide.

\*CARCINOGENICITY:

Status: NTP Carcinogenesis Studies; selected, September 1986

\*MUTATION DATA:

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test lowest dose	test lowest dose
cyt-rat/ast 300 mg/kg | dni-hmn:lym 76 umol/L

\*TERATOGENICITY: Not available

### \*STANDARDS, REGULATIONS & RECOMMENDATIONS:

OSHA: Federal Register (1/19/89) and 29 CFR 1910.1000 Subpart Z

Transitional Limit: PEL-TWA 1 mg(Cu)/m<sup>3</sup> (dusts and mists) [610]

Final Limit: PEL-TWA 1 mg(Cu)/m<sup>3</sup> (dusts and mists) [610]

Transitional Limit: PEL-TWA 0.1 mg(Cu)/m<sup>3</sup> (fume) [610]

Final Limit: PEL-TWA 0.1 mg(Cu)/m<sup>3</sup> (fume) [610]

ACGIH: TLV-TWA 1 mg(Cu)/m<sup>3</sup> (dusts or mists) [610]

TLV-TWA 0.2 mg(Cu)/m<sup>3</sup> (fume) [610]

NIOSH Criteria Document: None

NFPA Hazard Rating: Health (H): None

Flammability (F): None

Reactivity (R): None

### \*OTHER TOXICITY DATA:

Status: Meets criteria for proposed OSHA Medical Records Rule

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## SECTION 12: Ecological information

### Toxicity

Harmful to aquatic life in very low concentrations. Copper Sulfate Pentahydrate is toxic to fish and marine organisms when applied to streams, rivers, ponds or lakes.

### Persistence and degradability

If released to soil, copper sulfate may leach to groundwater, be partly oxidized or bind to humic materials, clay or hydrous oxides of iron and manganese. In water, it will bind to carbonates as well as humic materials, clay and hydrous oxides of iron and manganese.

Copper is accumulated by plants and animals, but it does not appear to biomagnify from plants to animals. In air, copper aerosols have a residence time of 2 to 10 days in an unpolluted atmosphere and 0.1 to greater than 4 days in polluted, urban areas.

LC50 (Lepomis machochirus bluegill) wt 1.5 g = 884 mg/L at 18°C, static bioassay (95% confidence limit 707-1,100 mg/L) (technical material, 100% (about 25% elemental copper); LC50 (Leopmis cyanellus, Green Sunfish)= 1.1 g, 3,510 µg/L at °C;

LC50 (Pimephales promelas, Fat-head minnow)= 1.2 g, 838 µg/L at 18°C; LC50 (Crassius auratus, Goldfish)= 0.9 g, 1380 µg/L at 18°C;

LC50 (Crassius auratus, Goldfish)= 0.1-2.5 mg/L; LC50 (EEL)= 0.1-2.5 mg/L; LC50 (Salmo gairdneri, Rainbow trout)= 1.6 g, 135 µg/L at 18°C;

LC50 (Salmo gairdneri, Rainbow trout) 48 hours =0.14 ppm; LC50 (Daphnia magna) no time specified= 0.182 mg/L;

LC50 (Salmo gairdneri, Rainbow trout) no time specified = 0.17 mg/L; LC50 (Lepomis machochirus, Blue gill) no time specified= 1.5 g, 884 µg/L at 18°C; LC50 (Stripped Bass) 96 hours= 1 ppm or lower; LC50 (Prawn) 48 hours= 0.14; LC50 (Shrimp) 96 hours= 17.0 ppm copper; LC50 (Blue Crab) 96 hours= 28 ppm copper; LC50 (Oyster) 96 hours= 5.8 ppm copper; LC50 (Viviparus bengalensis snail) 96 hours= 0.060 ppm copper (at 32.5°C; 0.066 ppm copper static bioassay); LC50 (Viviparus bengalensis snail) 96 hours= 0.09 ppm copper (at 27.3°C; 0.066 ppm copper static bioassay); LC50 (Viviparus bengalensis snail) 96 hours= 0.39 ppm copper (at 20.3°C; 0.066 ppm copper static bioassay)

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## SECTION 13: Disposal considerations

### Disposal methods

### Product disposal

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All wastes must be handled in accordance with local, state and federal regulations or with regulations of Canada and its Provinces. This material can be converted to a less hazardous material by weak reducing agents followed by neutralization. Do not reuse empty containers. Do not rinse unless required for recycling. If partly filled, call local solid waste agency for disposal instructions. Never pour unused product down drains or on the ground.

#### Waste treatment

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticides, spray mixtures, or rinsate is a violation of U.S. Federal and Canadian Law. If these wastes cannot be disposed of by use, according to product label instruction, contact your U.S. State, or Canadian Province Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest U.S. EPA Regional Office, or the offices of Environment Canada for guidance.

#### Other disposal recommendations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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## SECTION 14: Transport information

#### DOT (US)

Not regulated

#### IMDG

Not regulated

#### IATA

Not regulated

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## SECTION 15: Regulatory information

#### Safety, health and environmental regulations specific for the product in question

##### Massachusetts Right To Know Components

Product name: Hi-Yield Root Killer

CAS no.: 7758-99-8

##### New Jersey Right To Know Components

Product name: Hi-Yield Root Killer

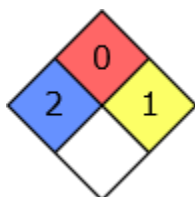
CAS no.: 7758-99-8

##### Pennsylvania Right To Know Components

Product name: Hi-Yield Root Killer

CAS no.: 7758-99-8

#### NFPA Rating



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### **SECTION 16: Other information**

#### **Further information/disclaimer**

Voluntary Purchasing Groups, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Voluntary Purchasing Groups, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.