SAFETY DATA SHEET



RBS-35 Concentrate

Section 1. Identification

GHS product identifier : RBS-35 Concentrate

Other means of identification : Not available.

: Liquid. **Product type**

Product code : 0027852 0027950 0027952 0027953B 0027954 1801920

SDS# : 0765

Chemical formula : Not applicable. CAS# : Not applicable.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Supplier's details : Thermo Fisher Scientific

Pierce Biotechnology

P.O. Box 117 Rockford, IL 61105 **United States** 815.968.0747 or 800.874.3723

7 AM - 5 PM Central Time (GMT -06:00)

Emergency telephone

number (with hours of

operation)

: CHEMTREC: 800.424.9300 Outside US: 703.527.3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard

(29 CFR 1910.1200).

Classification of the substance or mixture : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2

GHS label elements

Hazard pictograms



Signal word : Warning

Hazard statements : Causes serious eye irritation.

Precautionary statements

Prevention : Wear eye or face protection. Wash hands thoroughly after handling.

: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if Response

present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage Not applicable. **Disposal** Not applicable. Hazards not otherwise

classified

: None known.

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Section 3. Composition/information on ingredients

Substance/mixture
Other means of

: Mixture: Not available.

identification

CAS number/other identifiers

CAS number : Not applicable.

Ingredient name	%	CAS number
tetrapotassium pyrophosphate	3 - 5	7320-34-5
sodium carbonate	3 - 5	497-19-8
Isotridecanol, ethoxylated	3 - 5	69011-36-5
sodium hypochlorite, solution	1 - 3	7681-52-9
4-Nonylphenol, ethoxylated	1 - 3	26027-38-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Causes serious eye irritation.

Inhalation: No known significant effects or critical hazards.Skin contact: No known significant effects or critical hazards.

Ingestion : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:

pain or irritation watering redness

Inhalation : No specific data.

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Section 4. First aid measures

Skin contact : No specific data. Ingestion : No specific data.

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

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large

quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may

be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing

media

: None known.

Specific hazards arising from the chemical

: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:

carbon dioxide carbon monoxide phosphorus oxides halogenated compounds metal oxide/oxides

Special protective actions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable

training.

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing

apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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Section 6. Accidental release measures

Large spill

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store between the following temperatures: 20 to 25°C (68 to 77°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Separate from acids. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
sodium hypochlorite, solution	AIHA WEEL (United States, 10/2011). STEL: 2 mg/m³ 15 minutes.

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

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Section 8. Exposure controls/personal protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Viscous.]
Color : White. Cloudy.

Odor : Odorless.
Odor threshold : Not available.

pH : 13 [Conc. (% w/w): 100%]

Melting point: Not available.Boiling point: 95°C (203°F)

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive : Not available.

(flammable) limits

Vapor pressure : Not available. Vapor density : 1.093 [Air = 1]

Relative density : 1.09

Solubility : Easily soluble in the following materials: cold water and hot water.

Solubility in water : Not available.

Partition coefficient: n- : Not available.

octanol/water

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

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Section 10. Stability and reactivity

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials:

acids

Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
sodium carbonate	LD50 Oral	Rat	4090 mg/kg	-

Conclusion/Summary

: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
sodium hydroxide	Eyes - Severe irritant	Monkey	-	24 hours 1	-
•				Percent	
	Eyes - Mild irritant	Rabbit	-	400	-
				Micrograms	
	Eyes - Severe irritant	Rabbit	-	24 hours 50	-
				Micrograms	
	Eyes - Severe irritant	Rabbit	-	1 Percent	-
	Eyes - Severe irritant	Rabbit	-	0.5 minutes 1	-
				milligrams	
	Skin - Mild irritant	Human	-	24 hours 2	-
				Percent	
	Skin - Severe irritant	Rabbit	-	24 hours 500	-
				milligrams	
sodium carbonate	Eyes - Mild irritant	Rabbit	-	0.5 minutes	-
				100 milligrams	
	Eyes - Moderate irritant	Rabbit	-	24 hours 100	-
				milligrams	
	Eyes - Severe irritant	Rabbit	-	50 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500	-
				milligrams	
sodium hypochlorite, solution	Eyes - Mild irritant	Rabbit	-	1.31	-
•				milligrams	
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
4-Nonylphenol, ethoxylated	Eyes - Moderate irritant	Rabbit	-	500	-
				microliters	
	Eyes - Severe irritant	Rabbit	-	500	_
	1			microliters	
	Skin - Moderate irritant	Rabbit	-	500	_
				microliters	
	Skin - Severe irritant	Rabbit	-	500	_
				microliters	

Sensitization

Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
1	Morphological transformation	Subject: Mammalian-Animal	Equivocal
		Cell: Somatic	

Carcinogenicity

Not available.

Section 11. Toxicological information

Classification

Product/ingredient name	OSHA	IARC	NTP
sodium hypochlorite, solution	-	3	-

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
4-Nonylphenol, ethoxylated	-	Positive	-	Rat - Female	Implant: 2500 µg/ kg	-
	-	Positive	-	Rat - Female	Implant: 5 mg/kg	-
	Positive	-	-	Rat - Female	Implant: 50 mg/kg	-
	Positive	-	-	Rabbit - Female	Implant: 1250 µg/	-
	-	Positive	-	Rabbit - Female	kg Implant: 1 mg/kg	-

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name		Route of exposure	Target organs
4-Nonylphenol, ethoxylated	Category 3		Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely

routes of exposure

: Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation: No known significant effects or critical hazards.Skin contact: No known significant effects or critical hazards.

Ingestion : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:

pain or irritation watering redness

Inhalation: No specific data.Skin contact: No specific data.Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate : Not available.

effects

Potential delayed effects : Not available.

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Section 11. Toxicological information

Long term exposure

Potential immediate

effects

: Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General
 No known significant effects or critical hazards.
 Carcinogenicity
 No known significant effects or critical hazards.
 Mutagenicity
 No known significant effects or critical hazards.
 Teratogenicity
 No known significant effects or critical hazards.
 Developmental effects
 No known significant effects or critical hazards.
 Fertility effects
 No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
sodium carbonate	Acute EC50 242000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute LC50 176000 µg/l Fresh water	Crustaceans - Amphipoda	48 hours
	Acute LC50 265000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 300000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
sodium hypochlorite, solution	Acute EC50 46000 µg/l Marine water	Algae - Gracilaria tenuistipitata	4 days
•	Acute EC50 0.04 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 56400 to 77400 µg/l Marine	Crustaceans - Palaemonetes	48 hours
	water	pugio	
	Acute LC50 54 µg/l Marine water	Fish - Menidia peninsulae -	96 hours
		Juvenile (Fledgling, Hatchling,	
		Weanling)	
	Chronic NOEC 10000 µg/l Marine water	Algae - Gracilaria tenuistipitata	4 days
	Chronic NOEC 0.1 ppm Fresh water	Fish - Cyprinus carpio - Young	30 days
4-Nonylphenol, ethoxylated	Acute LC50 20900 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
- · · · · ·	Acute LC50 18200 to 22550 μg/l Fresh water	Daphnia - Daphnia magna	48 hours

Persistence and degradability

Conclusion/Summary : COD: 36100 mg/L BOD5: <5 mg/L

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
RBS-35 Concentrate	-	-	Inherent

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc})

: Not available.

Other adverse effects : No known significant effects or critical hazards.

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Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and

Section 14. Transport information

	DOT Classification	IATA
UN number	Not regulated.	Not regulated.
UN proper shipping name	-	-
Transport hazard class(es)	-	-
Packing group	-	-
Environmental hazards	No.	No.
Additional information	-	-

Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not available.

Section 15. Regulatory information

U.S. Federal regulations

: TSCA 8(a) PAIR: 4-Nonylphenol, ethoxylated

TSCA 8(a) CDR Exempt/Partial exemption: Not determined TSCA 12(b) one-time export: 4-Nonylphenol, ethoxylated

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 311: sodium hypochlorite, solution; sodium hydroxide; sodium metaphosphate; trisodium orthophosphate

Clean Air Act Section 112 (b) Hazardous Air

: Not listed

Clean Air Act Section 602 Class I Substances

: Not listed

Clean Air Act Section 602

: Not listed

Class II Substances

Pollutants (HAPs)

Not listed

DEA List I Chemicals (Precursor Chemicals)

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Section 15. Regulatory information

DEA List II Chemicals

(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

: Not listed

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
sodium hydroxide	0.5 - 2	No.	No.	No.	Yes.	No.
tetrapotassium pyrophosphate	3 - 5	Yes.	No.	No.	Yes.	No.
sodium carbonate	3 - 5	No.	No.	No.	Yes.	No.
Isotridecanol, ethoxylated	3 - 5	No.	No.	No.	Yes.	No.
Sodium hypochlorite solution CI active	1 - 3	No.	No.	Yes.	Yes.	No.
4-Nonylphenol, ethoxylated	1 - 3	No.	No.	No.	Yes.	No.

State regulations

Massachusetts : The following components are listed: SODIUM HYPOCHLORITE

New York : The following components are listed: Sodium hypochlorite

New Jersey The following components are listed: SODIUM HYPOCHLORITE; HYPOCHLOROUS

ACID, SODIUM SALT

Pennsylvania The following components are listed: HYPOCHLOROUS ACID, SODIUM SALT

Canada inventory : All components are listed or exempted.

International regulations

International lists : Australia inventory (AICS): All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Japan inventory: Not determined.

Korea inventory: All components are listed or exempted. Malaysia Inventory (EHS Register): Not determined.

New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.

Philippines inventory (PICCS): All components are listed or exempted.

Taiwan inventory (CSNN): Not determined.

Chemical Weapons

Convention List Schedule I

Chemicals

: Not listed

Chemical Weapons Convention List Schedule

II Chemicals

: Not listed

Chemical Weapons

: Not listed

Convention List Schedule

III Chemicals

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health **Chronic Health Hazard Flammability Physical hazards**

National Fire Protection Association (U.S.A.)

Health **Flammability** 0

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Section 16. Other information

Instability/Reactivity

Special

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

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Prepared by : SDS Specialist

Key to abbreviations : ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships.

1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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