



Safety Data Sheet

Product Name: Recombinant Human TGF-beta 1

Reviewed on: 27 February 2012

1. Product Information:

- **Other means of identification: Catalog Number: 240-B , LYOPHILIZED**
- **GHS product identifier:** Recombinant Human TGF-beta 1
- **Application of the substance / the preparation:** For Research Use Only
- **Manufacturer/Supplier:**
R&D Systems Inc.
614 McKinley Place N.E.
Minneapolis, MN 55413
USA
1-800-343-7475
- **Emergency information:** In case of a chemical emergency, spill, fire, or exposure, call R&D Systems at (612) 379-2956 or (800)-343-7475. In Europe call +44(0)1235-529449.

2. Hazards Identification:

- **Classification:** This substance does not meet the classification criteria of the EC Directives 67/548/EEC, 1999/45/EC or 1272/2008.
- **Label Elements:** The product does not need to be labeled in accordance with EC directives or respective national laws.
- **Special Hazards:** None

3. Information on Ingredients:

- **Substances:** This product does not contain hazardous chemicals at concentrations of 1% or greater. Additionally, this product is not known to contain carcinogens at concentrations of 0.1% or greater. As a result, a Material Safety Data Sheet is not required for this product.

4. First Aid Measures:

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly. Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Rinse mouth with water. Seek medical attention and appropriate follow-up.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** The product is non-flammable. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Protective equipment:** Wear suitable protective clothing to prevent contact with skin and eyes and self-contained breathing apparatus.

6. Accidental Release Measures:

- **Person-related safety precautions:** Use standard laboratory practices including proper personal protective equipment.
- **Measures for environmental protection:** Do not let product enter drains.
- **Measures for containment and cleaning:**
 - Absorb liquid components with liquid-binding material.
 - Pick up mechanically.
 - Dispose contaminated material as waste according to item 13.
- **Additional information:** None.



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7. Handling and Storage:

- **Precautions for safe handling:** No special measures required. No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage:** Store according to product specifications.

8. Exposure Controls and Personal Protection:

- **Control parameters:** None known. Contains no substances with occupational exposure limits.
 - **Appropriate engineering controls:** Follow usual standard laboratory practices. Use appropriate chemical resistant gloves, appropriate safety glasses and wear protective work clothing.

9. Physical and Chemical Properties:

- **Appearance:** Lyophilized white powder or clear liquid.
- **Odor:** Little to none
- **Odor threshold:** Not available
- **pH:** Not available
- **Melting point/freezing point:** Not available.
- **Boiling point/Boiling range:** Not available.
- **Flash point:** Not available.
- **Evaporation rate:** Undetermined.
- **Flammability:** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor pressure/density:** Not available.
- **Relative Density:** Not available.
- **Solubility in/Miscibility with Water:** Not available.
- **Partition coefficient: octanol/water:** Not available
- **Auto igniting:** Product is not self igniting.
- **Decomposition temperature:** Not available.
- **Viscosity:** Not available.

10. Stability and Reactivity:

- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical Stability:** Stable under recommended storage and handling temperatures.
- **Possible hazardous reactions:** Hazardous reactions will not occur under normal transport or storage conditions.
- **Incompatible materials to be avoided:** Heat and moisture.
- **Incompatible materials:** Strong acids/alkalis, strong oxidizing/reducing agents.
- **Hazardous decomposition products:** In combustion may emit toxic fumes. No known decomposition information.

11. Toxicological Information:

- **Acute toxicity:** Classification criteria are not met based on available data.
- **Skin irritant effect:** Classification criteria are not met based on available data.
- **Eye irritant effect:** Classification criteria are not met based on available data.
- **Sensitization:** Classification criteria are not met based on available data.
- **Mutagenicity:** Classification criteria are not met based on available data.
- **Carcinogenicity:** Classification criteria are not met based on available data.
- **Reproductive toxicity:** Classification criteria are not met based on available data.
- **Additional toxicological information:** When used and handled according to specifications, the product does not have any harmful effects according to available information.

12. Ecological Information:

- **Ecotoxicity:** Undetermined.
- **Biodegradability:** Undetermined.
- **Mobility:** Undetermined.



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13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Contaminated packaging:** Dispose in the same manner as unused product.
- **Special precautions:** Dispose of small amounts of spilled material as described in section 6. Large spills must be dealt with separately by qualified disposal personnel. Avoid dispersal of spilt material to soil, waterways, drains and sewers.

14. Transport Information:

- **UN Number:** Does not meet the criteria for classification as hazardous for transport.
- **DOT regulations:** ·**Hazard class:** None
- **Land transport ADR/RID (cross-border):** Not regulated.
- **Maritime transport IMDG:** Not regulated.
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:** Not regulated.
- **Transport/Additional information:** Not dangerous according to the above specifications.

15. Regulations:

- **US Federal and State Regulations**
 - TSCA (Toxic Substances Control Act):** This product is not listed.
 - SARA 313:** This product is not listed.
 - SARA 311/312 Hazards:** None known.
 - CERCLA Reportable Quantity:** Unknown
 - California Proposition 65:** This product is not listed on California's listing of known or potential carcinogens.

16. Other Information:

- **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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1. Product Information

- **GHS Product identifier:** Recombinant Human TGF-beta 1
- **Other means of identification:** **Catalog Number: 240-B Acetonitrile Solution - Liquid**
- **Application of the substance / the preparation:** For Research Use Only
- **Manufacturer/Supplier:**
R&D Systems Inc.
614 McKinley Place N.E.
Minneapolis, MN 55413
USA
- **For product related questions call:** 1-800-343-7475 or 1-612-379-2956, In Europe call: +44(0)1235-529449.
- **Emergency information:** In case of a chemical emergency, spill, leak, fire, or accident, call **CHEMTREC** at 1-800-424-9300 (USA or Canada). Outside USA or Canada: +1 703-527-3887 (collect calls accepted).

2. Hazards Identification:

- **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]: Acetonitrile Solution - Liquid**

Flam. Liq. 2,
Acute Tox. 4, Oral
Acute Tox. 4, Dermal
Acute Tox. 4, Inhalation
Eye Irrit. 2A



- **Signal Word: DANGER**

- **Hazard statements:** H225: Highly flammable liquid and vapor. H302: Harmful if swallowed. H312: Harmful in contact with skin. H332: Harmful if inhaled. H319: Causes serious eye irritation.

- **Precautionary statements:**

Prevention: P280: Wear protective gloves/eye protection/face protection. P210: Keep away from heat, sparks, open flames and hot surfaces. No smoking. P241: Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P233: Keep container tightly closed. P271: Use only outdoors or in a well-ventilated area. P261: Avoid breathing dust/fume/gas/mist/vapors and spray. P270: Do not eat, drink or smoke when using this product. P264: Wash hands thoroughly after handling.

Response:

IF INHALED: Remove victim to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. See specific treatment in this SDS.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention/advice.

IN CASE OF FIRE: Use dry chemical, CO₂, or alcohol-resistant foam to extinguish.

- **Classification according to Directive 1999/45/EC [DPD]:** The product is classified as dangerous according to Directive 1999/45/EC and its amendments.
- **Classification:** F: Highly flammable. Xn: Harmful. Xi: Irritant. C: Corrosive
- **R Phrases:** R11: R20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R36/38: Irritating to eyes and skin. R35: Causes severe burns. R52: harmful to aquatic organisms. R53: May cause long-term adverse effects in the aquatic environment.
- **S Phrases:** S1/2: Keep locked up and out of reach of children. S9: Keep container in a well ventilated place. S16: keep away from sources of ignition – No smoking. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S27: Take off immediately all contaminated clothing. S28: After contact with skin, wash immediately with plenty of water. S36/37: Wear suitable protective clothing and gloves. S45: In case of accident or if



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you feel unwell seek medical advice immediately. S61: Avoid release to the environment. Refer to special instructions/safety data sheet.

3. Information on Ingredients:

Description: Mixture of the substances listed below with nonhazardous additions.

Contains	CAS No.	EC-No.	Content
Water	7732-18-5	231-791-2	55 – 80%
Acetonitrile	75-05-8	200-835-2	20 – 45%
Trifluoroacetic Acid	76-05-1	200-929-3	0.1%

4. First Aid Measures:

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
- IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

- **Skin contact:** Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. 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 necessary, call a poison center or physician. 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.
- **Protection of first-aiders:** No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- **Potential acute health effects:**
 - Eye contact:** Causes serious eye irritation.
 - Inhalation:** Harmful if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
 - Skin contact:** Toxic in contact with skin. Causes skin irritation.
 - Ingestion:** Harmful if swallowed. 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.
 - Skin contact:** Adverse symptoms may include the following: irritation, redness.
 - Ingestion:** No specific data.
- **Notes to physician:** In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- **Specific treatments:** No specific treatment.



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5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.
- **Special hazards arising from the substance or mixture:** Emits toxic fumes under fire conditions. Carbon oxides.
- **Protective equipment:** Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- **Further information:** Use water spray to cool unopened containers.

6. Accidental Release Measures:

- **Personal precautions, protective equipment and emergency procedures:** Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate all personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- **Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- **Methods and materials for containment and cleaning up:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

7. Handling and Storage:

- **Precautions for safe handling:**
 - Protective measures:** Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. 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:** Store in a well-ventilated place. Keep cool. Store in accordance with local regulations. Store in a segregated and approved area. 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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure Controls and Personal Protection:

- **Control parameters:**
 - Occupational exposure limits Product/ingredient name Exposure limit values**
 - Acetonitrile (EH40/2005 WELs (United Kingdom (UK), 8/2007).
 - STEL: 102 mg/m³ 15 minute(s).
 - STEL: 60 ppm 15 minute(s).
 - TWA: 40 ppm 8 hour(s).
 - TWA: 68 mg/m³ 8 hour(s).
- **Recommended monitoring procedures:** If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.
- **Derived effect levels:** No DELs available.
- **Predicted effect concentrations:** No PECs available.



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- **Exposure controls Appropriate engineering controls:** Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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.

Skin 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.

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.

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.

9. Physical and Chemical Properties:

- **Appearance:** Colorless Liquid
- **Odor:** Not available.
- **Odor threshold:**
- **pH:** 2.0 ± 0.3
- **Melting point/freezing point:** Undetermined.
- **Boiling point/Boiling range:** 82.0° C (180° F)
- **Flash point:** 5° C
- **Evaporation rate:** Not available
- **Flammability (solid, gas):** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor pressure:** 73 mmHg at 20° C.
- **Vapor density :** Not available
- **Relative density:** 0.786 g/mL at 20° C.
- **Solubility in/Miscibility with Water:** Soluble.
- **Partition coefficient: noctanol/water:** Not available.
- **Auto igniting:** Product is not self igniting.
- **Decomposition temperature:** Not available
- **Viscosity:** Undetermined.

10. Stability and Reactivity:

- **Reactivity:** No specific test data related to reactivity available for this product or its ingredients.
- **Chemical Stability:** Stable under normal ambient storage and handling temperatures.
- **Possibility of hazardous reactions:** Under normal conditions of storage and use, hazardous reactions will not occur.
- **Conditions to be avoided:** Avoid all possible sources of ignition (heat, spark, flame and direct sunlight).
- **Incompatible materials to be avoided:** Oxidizing or reducing materials, acids and bases, sulfites, perchlorates, alcohols and aluminum. May attack many plastics, rubbers and coatings.
- **Hazardous decomposition products:** In case of fire hazardous decomposition products may be produced such as: Hydrogen cyanide (hydrocyanic acid), carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke.

11. Toxicological Information:

- **Acute toxicity:**

Oral:	Acetonitrile	LD50 rat oral – Dose: 2460 mg/kg
	Trifluoroacetic Acid	LD50 rat oral – Dose: 500 mg/kg
Dermal:	Acetonitrile	LD50 rabbit – Dose: >2000 mg/kg
Inhalation:	Acetonitrile	LD50 rat – Dose: 12.68 mg/L with 8 hours of exposure
	Trifluoroacetic Acid	LD50 rat – Dose: 10 mg/L
- **Skin irritant effect:** Acetonitrile – Mild irritant rabbit



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- **Eye irritant effect:** Acetonitrile – Moderate irritant rabbit
- **Sensitization:** Not available.
- **Mutagenicity:** Not available.
- **Carcinogenicity:** Not available.
- **Reproductive toxicity:** Not available.
- **Specific target organ toxicity (single exposure):** Not available.
- **Specific target organ toxicity (repeated exposure):** Not available.
- **Aspiration hazard:** Not available.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
 - Inhalation:** No specific data.
 - Ingestion:** No specific data.
 - Skin contact:** Adverse symptoms may include the following: irritation, redness
 - Eye contact:** Adverse symptoms may include the following: pain or irritation, watering, redness
- **Delayed and immediate effects and also chronic effects from short and long term exposure:**
 - Short term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Not available.
 - Long term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Not available.
- **Potential chronic health effects:** Not available.

12. Ecological Information:

- **Ecotoxicity:**
 - Acetonitrile Acute LC50 3600000 µg/L Fresh water Daphnia - Daphnia magna - <24 hours
 - Acute LC50 >1500 mg/L Fresh water Fish - Pimephales promelas - Juvenile) - 0.2 to 0.5 g at 96 hours
- **Biodegradability:** Not available.
- **Bioaccumulative potential:** Acetonitrile – potential low.
- **Mobility in soil:** Not available.

13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Hazardous waste:** The classification of the product may meet the criteria for a hazardous waste.
- **Special precautions:** This material and its container must be disposed of in a safe way. Emptied containers should be cleaned or rinsed out. Empty containers may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Avoid dispersal of spill material to soil, waterways, drains and sewers.

14. Transport Information:

- **ADR/RID ADN/ADNR IMDG IATA/DOT**

DOT:	UN Number:	UN 1648
	Proper Shipping Name:	Acetonitrile Solution
	Hazard class:	3
	Packing group:	II
IATA:	UN Number:	UN 1648
	Proper Shipping Name:	Acetonitrile Solution
	Hazard class:	3
	Packing group:	II
IMDG:	UN Number:	UN 1648
	Proper Shipping Name:	Acetonitrile Solution
	Hazard class:	3
	Packing group:	II
	EmS Number:	F-E, S-D



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Marine Pollutant: No

15. Regulations:

- **US. US Federal and State Regulations**

TSCA (Toxic Substances Control Act): On TSCA Inventory

SARA 313 Components: Acetonitrile is listed. Trifluoroacetic Acid is listed.

SARA 311/312 Hazards: Fire Hazard
Acute Health Hazard
Chronic Health Hazard

CERCLA Reportable Quantity: 5133 lbs

California Proposition 65: The chemicals are not listed on California's listing of known or potential carcinogens..

16. Other Information:

- **R Phrases:** R11: R20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R36/38: Irritating to eyes and skin. R35: Causes severe burns. R52: harmful to aquatic organisms. R53: May cause long-term adverse effects in the aquatic environment.
- **S Phrases:** S1/2: Keep locked up and out of reach of children. S9: Keep container in a well ventilated place. S16: keep away from sources of ignition – No smoking. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S27: Take off immediately all contaminated clothing. S28: After contact with skin, wash immediately with plenty of water. S36/37: Wear suitable protective clothing and gloves. S45: In case of accident or if you feel unwell seek medical advice immediately. S61: Avoid release to the environment. Refer to special instructions/safety data sheet.

- **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.