1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product code 15596026
Product name TRIZOL REAGENT

Company/Undertaking Identification

INVITROGEN CORPORATON
5791 VAN ALLEN WAY
PO BOX 6482
CARLSBAD, CA 92008
760-603-7200

INVITROGEN CORPORATION
5250 MAINWAY DRIVE
BURLINGTON, ONT
CANADA L7L 6A4
800-263-6236

GIBCO PRODUCTS
INVITROGEN CORPORATION
3175 STALEY ROAD P.O. BOX 68
GRAND ISLAND, NY 14072
716-774-6700

24 hour Emergency Response (Transport): 866-536-0631
301-431-8585
Outside of the U.S. ++1-301-431-8585

For research use only

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous/Non-hazardous Components

Chemical Name	CAS-No	Weight %
Phenol	108-95-2	30-60
Guanidine isothiocyanate	593-84-0	15-40

3. HAZARDS IDENTIFICATION

3. HAZARDS IDENTIFICATION

Emergency Overview
Toxic in contact with skin
Toxic by inhalation
Toxic if swallowed
Corrosive
Causes burns.
Possible risk of irreversible effects.
Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
Avoid contact with skin, eyes and clothing
Wear suitable protective clothing, gloves and eye/face protection
Contact with acids liberates very toxic gas.
Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Form
Liquid

Principle Routes of Exposure/ Potential Health effects

Eyes	Causes burns. Risk of serious damage to eyes.
Skin	Toxic in contact with skin. Components of the product may be absorbed into the body through the skin. Causes burns. Possible risks of irreversible effects.
Inhalation	Toxic by inhalation.
Ingestion	Toxic if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts.

Specific effects

Carcinogenic effects	No information available
Mutagenic effects	No information available
Reproductive toxicity	No information available
Sensitization	No information available

Target Organ Effects Liver. Kidney. Eyes. Skin. Respiratory system.

HMIS

Health	4
Flammability	1
Reactivity	1

4. FIRST AID MEASURES

Skin contact	Rinse immediately with plenty of water and seek medical advice. Wash off immediately with soap and plenty of water. Call a physician immediately. Immediate medical attention is required.
Eye contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Call a physician immediately. Immediate medical attention is required.
Ingestion	Call a physician or Poison Control Centre immediately. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

4. FIRST AID MEASURES

Inhalation Toxic by inhalation. Move to fresh air. Call a physician or Poison Control Centre immediately. Medical attention is required.

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Dry chemical

Special protective equipment for firefighters Wear self-contained breathing apparatus and protective suit

Australia HazChem Code 2X

6. ACCIDENTAL RELEASE MEASURES

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

Methods for cleaning up Prevent product from entering drains. Soak up with inert absorbent material..

7. HANDLING AND STORAGE

Handling Always wear reccommended Personal Protective Equipment. Avoid contact with skin and eyes.

Storage Keep containers tightly closed in a cool, well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Protect from light.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls

Exposure limits

Chemical Name	OSHA PEL (TWA)	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
Phenol	19 mg/m³ 5 ppm	-	5 ppm	-
Guanidine isothiocyanate	-	-	-	-

Engineering measures Use in a chemical fume hood

Personal protective equipment

Respiratory Protection In case of insufficient ventilation wear suitable respiratory equipment

Respirator Recommendations, National Institue of Occupational Safety and Health, U.S.	Up to 50 ppm: (APF = 10) Any air-purifying half-mask respirator with organic vapor cartridge(s) in combination with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100, P100. (APF = 10) Any supplied-air respirator Up to 125 ppm: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode (APF = 25) Any powered air-purifying respirator with an organic vapor cartridge in combination with a high-efficiency particulate filter. Up to 250 ppm: (APF = 50) Any air-purifying full-facepiece respirator equipped with organic vapor cartridge(s) in combination with an N100, R100, or P100 filter. (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. (APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and organic vapor cartridge(s) in combination with a high-efficiency particulate filter (APF = 50) Any self-contained breathing apparatus with a full facepiece (APF = 50) Any supplied-air respirator with a full facepiece Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. /Any appropriate escape-type, self-contained breathing apparatus
Hand protection	Impervious gloves.. S24 - Avoid contact with skin. S36 - Wear suitable protective clothing.
Eye protection	Tightly fitting safety goggles.
Skin and body protection	Impervious clothing.
Hygiene measures	Contaminated work clothing should not be allowed out of the workplace. Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Prevent product from entering drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Form	Liquid

Important Health Safety and Environmental Information

Boiling point/range	**°C** No data available	**°F** No data available
Melting point/range	**°C** No data available	**°F** No data available
Flash point	**°C** No data available	**°F** No data available
Autoignition temperature	**°C** No data available	**°F** No data available
Oxidizing properties	No information available	
Water solubility	soluble	

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions.
Materials to avoid Strong oxidizing agents. Strong acids. Isocyanates. Heat. Nitriles, Nitrides. alkaline earth metals. Strong oxidizers, alkali metals and alkaline earth metals may cause fires or explosions.
Hazardous decomposition products Toxic gases. Sulphur oxides. hydrogen cyanide (hydrocyanic acid). Carbon oxides, Nitrogen Oxides.
Polymerization Hazardous polymerisation does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	LD50 (oral,rat/mouse)	LD50 (dermal,rat/rabbit)	LC50 (inhalation,rat/mouse)
Phenol	317 mg/kg (Rat)	630 mg/kg (Rabbit)	No data available
Guanidine isothiocyanate	571 mg/kg	2000 mg/kg	5.319 mg/L (4H)

Principle Routes of Exposure/ Potential Health effects

Eyes Causes burns. Risk of serious damage to eyes.
Skin Toxic in contact with skin. Components of the product may be absorbed into the body through the skin. Causes burns. Possible risks of irreversible effects.
Inhalation Toxic by inhalation.
Ingestion Toxic if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts.

Specific effects (Long Term Effects)

Carcinogenic effects No information available
Mutagenic effects No information available
Reproductive toxicity No information available
Sensitization No information available

Target Organ Effects Liver. Kidney. Eyes. Skin. Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Mobility No information available.
Biodegradation No information available.
Bioaccumulation No information available

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations S29 - Do not empty into drains S57 - Use appropriate container to avoid environmental contamination

14. TRANSPORT INFORMATION

IATA

Proper shipping name Corrosive liquid, n.o.s. (phenol 50%-guanidine thiocyante solution)
Hazard Class 8

14. TRANSPORT INFORMATION

Subsidiary Class None
Packing group II
UN-No UN1760

Australia HazChem Code 2X

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	PICCS	ENCS	DSL	NDSL	AICS
Phenol	Listed	Listed	Listed	Listed	-	Listed
Guanidine isothiocyanate	Listed	Listed	-	Listed	-	Listed

U.S. Federal Regulations

SARA 313
This product contains the following toxic chemical(s) subject to the notification requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. This law requires certain manufacturers to report on annual emissions of specified chemicals and chemical categories. Please note that if you repackage, or otherwise redistribute, this product to industrial customers, a notice similar to this one should be sent to those customers:

Chemical Name	CAS-No	Weight %
Phenol	108-95-2	30-60

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following HAPs:

Chemical Name	CAS-No	Weight %
Phenol	108-95-2	30-60

U.S. State Regulations

Chemical Name	Massachusetts - RTK	New Jersey - RTK	Pennsylvania - RTK	Illinois - RTK	Rhode Island - RTK
Phenol	Listed	Listed	Listed	Listed	Listed
Guanidine isothiocyanate	-	-	-	-	-

California Proposition 65
This product does not contain chemicals listed under Proposition 65

WHMIS hazard class:
Non-controlled

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

16. OTHER INFORMATION

For research use only

16. OTHER INFORMATION

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS MSDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

End of Safety Data Sheet