Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Identification of the substance or mixture

Product code 10296028
Product name TRIZOL LS REAGENT

Company/undertaking identification

Life Technologies
5791 Van Allen Way
PO Box 6482
Carlsbad, CA 92008
+1 760 603 7200

Life Technologies
5250 Mainway Drive
Burlington, ONT
CANADA L7L 6A4
800/263-6236

24 hour Emergency Response:

866-536-0631
301-431-8585
Outside of the U.S. +1-301-431-8585

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

SECTION 2: Hazards identification

GHS - Classification

Signal Word
DANGER

Health hazards

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Skin corrosion/irritation	Category 1 B
Serious eye damage/eye irritation	Category 1
Specific target organ systemic toxicity (single exposure)	Category 3
Specific target organ systemic toxicity (repeated exposure)	Category 2

Mutagenicity	Mutagenic category 2

Physical hazards
Not Hazardous

Hazard Statements
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H341 - Suspected of causing genetic defects
H373 - May cause damage to organs through prolonged or repeated exposure
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Principle Routes of Exposure
Potential Health Effects

eyes	Causes burns. Risk of serious damage to eyes. Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes burns. Possible risk of irreversible effects. Harmful in contact with skin. Irritating to skin and mucous membranes.
inhalation	Harmful by inhalation.
Ingestion	Harmful if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Specific effects

Carcinogenic effects	Phenol has been classified by the International Agency for Research on Cancer (IARC) as not classifiable as to carcinogenicity to humans (Group 3).
Mutagenic effects	Not Applicable
Reproductive toxicity	Not Applicable
Sensitization	Not Applicable
Target Organ Effects	Skin Lungs Liver spleen Kidney

HMIS

Health	4 * Chronic Hazard

Flammability	0
Reactivity	0

SECTION 3: Composition/information on ingredients

Chemical Name	CAS-No	EINECS-No	Weight %
Phenol	108-95-2	203-632-7	30-60
Guanidine isothiocyanate	593-84-0	209-812-1	15-40
Ammonium thiocyanate	1762-95-4	217-175-6	7-13

Contact with acids or bleach liberates toxic gases. DO NOT ADD acids or bleach to any liquid wastes containing this product. We recommend handling all chemicals with caution.

SECTION 4: First aid measures

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

inhalation Remove to fresh air. Call a physician or poison control center immediately.

Notes to Physician Treat symptomatically.

SECTION 5: Firefighting measures

Suitable extinguishing media Dry chemical. Carbon dioxide (CO2). Water spray. Foam.

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

SECTION 6: Accidental release measures

Personal precautions ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use personal protection equipment. Avoid contact with skin, eyes or 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. Neutralize with . Pick up and transfer to properly labeled containers.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not allow material to contaminate ground water system.

See Section 12 for more information.

SECTION 7: Handling and storage

Handling Always wear reccommended Personal Protective Equipment. Avoid contact with skin, eyes or clothing. Remove all sources of ignition.

Storage Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Protect from sunlight.

SECTION 8: Exposure controls/personal protection

Exposure Limits

Chemical Name	OSHA PEL	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
Phenol	5 ppm 19 mg/m³	None	5 ppm	None
Guanidine isothiocyanate	None	None	None	None
Ammonium thiocyanate	5 mg/m³	None	None	None

Engineering measures Use in a chemical fume hood.

Personal Protective Equipment

Personal Protective Equipment requirements are dependent on the user institution's risk assessment and are specific to the risk assessment for each laboratory where this material may be used.

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 Tight sealing 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 or clothing. Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains.

SECTION 9: Physical and chemical properties

General information

Form	Liquid	
Appearance	red, Maroon	
Odor	medicinal, sweet, Tar like	
Boiling point / boiling range	**°C** No data available	**°F** No data available
Melting point / melting 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	

SECTION 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 gas. Sulphur oxides. Hydrogen cyanide (hydrocyanic acid). Carbon oxides, Nitrogen Oxides.
polymerization	Hazardous polymerization does not occur.

SECTION 11: Toxicological information

Acute Toxicity

Chemical Name	LD50 (oral,rat/mouse)	LD50 (dermal,rat/rabbit)	LC50 (inhalation,rat/mouse)
Phenol	= 317 mg/kg (Rat)	No data available	=316mg/m^3(Rat)
Guanidine isothiocyanate	571 mg/kg	2000 mg/kg	5.319 mg/L (4H)
Ammonium thiocyanate	= 500 mg/kg (Rat)	No data available	No data available

Principle Routes of Exposure

Potential Health Effects

eyes	Causes burns Risk of serious damage to eyes Corrosive to the eyes and may cause severe damage including blindness
Skin	Causes burns Possible risk of irreversible effects Harmful in contact with skin Irritating to skin and mucous membranes.
inhalation	Harmful by inhalation
Ingestion	Harmful if swallowed Ingestion causes burns of the upper digestive and respiratory tracts Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Carcinogenic effects	Phenol has been classified by the International Agency for Research on Cancer (IARC) as not classifiable as to carcinogenicity to humans (Group 3).
Mutagenic effects	Not Applicable
Reproductive toxicity	Not Applicable
Sensitization	Not Applicable
Target Organ Effects	Skin Lungs Liver spleen Kidney

SECTION 12: Ecological information

Ecotoxicity	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Chronic aquatic toxicity	Category 3
Mobility	see log Pow
Biodegradation	Inherently biodegradable
Bioaccumulation	No information available

Chemical Name	Freshwater Algae Data	Water Flea Data	Freshwater Fish Species Data	Microtox Data	log Pow
Phenol	Desmodesmus subspicatus EC50 187 - 279 mg/L (72 h) Pseudokirchneriella subcapitata EC50 46.42 mg/L (96 h)	Daphnia magna EC50 4.24 - 10.7 mg/L (48 h) Daphnia magna EC50 10.2 - 15.5 mg/L (48 h)			logPow1.47

SECTION 13: Disposal considerations

Dispose of contents/containers in accordance with local regulations.

SECTION 14: Transport information

IATA

Proper shipping name	Corrosive liquid, n.o.s. (phenol - guanidine thiocyanate solution).
Hazard Class	8
Subsidiary class	None
Packing group	II
UN-No	1760

SECTION 15: Regulatory information

Component	TSCA
Phenol 108-95-2 (30-60)	Listed
Guanidine isothiocyanate 593-84-0 (15-40)	Listed
Ammonium thiocyanate 1762-95-4 (7-13)	Listed

US 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 %	SARA 313 - Threshold Values
Phenol	108-95-2	30-60	1.0
Ammonium thiocyanate	1762-95-4	7-13	1.0

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following HAPs:.

Component	CAS-No	Weight %	HAPS data
Phenol 108-95-2 (30-60)	108-95-2	30-60	Present
Ammonium thiocyanate 1762-95-4 (7-13)	1762-95-4	7-13	Present (XCN where X=H or any other group where a formal dissociation may occur. For example KCN or Ca[CN]2)

US State Regulations

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

California Proposition 65

This product does not contain any Proposition 65 chemicals.

WHMIS Hazard Class

D1A - Very toxic materials
E - Corrosive material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

SECTION 16: Other information

Reason for revision Not Applicable. SDS sections updated.

For research use only.

"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 SDS DOES NOT CONSTITUTE A WARRENTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PUPOSE"

End of Safety Data Sheet