# SAFETY DATA SHEET



#### 1. Identification

Product identifier Pentaerythritol tetranitrate Solution

Other means of identification

Item S-12837A4

Recommended use For Laboratory Use Only

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company nameChem Service, Inc.Address660 Tower Lane

West Chester, PA 19380

**United States** 

Telephone Toll Free 800-452-9994

Direct 610-692-3026

Website www.chemservice.com
E-mail info@chemservice.com

**Emergency phone number** Chemtrec US 800-424-9300

Chemtrec outside US +1 703-527-3887

# 2. Hazard(s) identification

Physical hazardsFlammable liquidsCategory 2Health hazardsAcute toxicity, oralCategory 3Acute toxicity, dermalCategory 3Acute toxicity, inhalationCategory 4Serious eye damage/eye irritationCategory 2A

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Highly flammable liquid and vapor. Toxic if swallowed. Toxic in contact with skin. Causes serious

eye irritation. Harmful if inhaled.

**Precautionary statement** 

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a

well-ventilated area. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective

gloves/protective clothing. Wear protective gloves/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all

contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Specific treatment (see this label). Rinse mouth. If eye irritation persists: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse.

Static accumulating flammable liquid can become electrostatically charged even in bonded and

In case of fire: Use appropriate media to extinguish.

**Storage** Store in a well-ventilated place. Keep cool. Store locked up.

**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise

classified (HNOC) grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

**Supplemental information** 0.1% of the mixture consists of component(s) of unknown acute oral toxicity. 0.1% of the mixture

consists of component(s) of unknown acute dermal toxicity.

# 3. Composition/information on ingredients

#### **Mixtures**

Ingestion

Chemical name	Common name and synonyms	CAS number	%
Acetonitrile		75-05-8	>99
Pentaerythritol tetranitrate		78-11-5	0.1

<sup>\*</sup>Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

# 4. First-aid measures

**Inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or

artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a POISON

CENTER or doctor/physician if you feel unwell. Get medical attention if irritation develops and

persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if

present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without

advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other

proper respiratory medical device.

Most important symptoms/effects, acute and delayed

Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

**General information** 

Take off immediately all contaminated clothing. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

#### 5. Fire-fighting measures

Suitable extinguishing media

Alcohol resistant foam. Water fog. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

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Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods

General fire hazards

Use standard firefighting procedures and consider the hazards of other involved materials.

Highly flammable liquid and vapor.

#### 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

# Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

#### **Environmental precautions**

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

# 7. Handling and storage

# Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not taste or swallow. Avoid breathing vapor. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Avoid contact with clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

# Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid spark promoters. Eliminate sources of ignition. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Refrigeration recommended. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

# 8. Exposure controls/personal protection

#### Occupational exposure limits

Components	r Contaminants (29 CFR 1910.1000) Type	Value	
Acetonitrile (CAS 75-05-8)	PEL	70 mg/m3	
,		40 ppm	
US. ACGIH Threshold Limit Value	es		
Components	Туре	Value	
Acetonitrile (CAS 75-05-8)	TWA	20 ppm	
US. NIOSH: Pocket Guide to Cher	mical Hazards		
Components	Туре	Value	
Acetonitrile (CAS 75-05-8)	TWA	34 mg/m3	
		20 ppm	

**Biological limit values** 

No biological exposure limits noted for the ingredient(s).

### **Exposure guidelines**

US - California OELs: Skin designation

Acetonitrile (CAS 75-05-8)

Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Acetonitrile (CAS 75-05-8) Skin designation applies.

US ACGIH Threshold Limit Values: Skin designation

Acetonitrile (CAS 75-05-8)

Can be absorbed through the skin.

Material name: Pentaerythritol tetranitrate Solution 2908 Version #: 01 Issue date: 08-11-2014

Appropriate engineering

controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Wear protective gloves. Hand protection

Other Wear appropriate chemical resistant clothing.

If engineering controls do not maintain airborne concentrations below recommended exposure Respiratory protection

limits (where applicable) or to an acceptable level (in countries where exposure limits have not

been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely

wash work clothing and protective equipment to remove contaminants.

# 9. Physical and chemical properties

**Appearance** 

Physical state Liquid. **Form** Liquid

Color Not available. Odor Not available **Odor threshold** Not available. pН Not available.

Melting point/freezing point Initial boiling point and boiling -49 °F (-45 °C) estimated

178.88 °F (81.6 °C) estimated

range

42.0 °F (5.6 °C) estimated Flash point

Not available. **Evaporation rate** Not available. Flammability (solid, gas) Upper/lower flammability or explosive limits

Flammability limit - lower

(%)

3 % estimated

Flammability limit - upper

16 % estimated

Not available. Explosive limit - lower (%) Not available. Explosive limit - upper (%)

Vapor pressure 118.39 hPa estimated

Vapor density Not available. Not available. Relative density

Solubility(ies)

Not available. Solubility (water) **Partition coefficient** Not available.

(n-octanol/water)

**Auto-ignition temperature** 975.2 °F (524 °C) estimated

**Decomposition temperature** Not available. Not available. **Viscosity** 

Other information

0.788286 g/cm3 estimated Density Flammable IB estimated Flammability class

Percent volatile 99.9 % estimated 0.79 estimated Specific gravity VOC (Weight %) 99.9 % estimated

# 10. Stability and reactivity

**Reactivity**The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous Hazardous polymerization does not occur.

reactions

Conditions to avoid Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the

flash point. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition No haz

products

No hazardous decomposition products are known.

# 11. Toxicological information

#### Information on likely routes of exposure

IngestionToxic if swallowed.InhalationHarmful if inhaled.

Skin contactToxic in contact with skin.Eye contactCauses serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

#### Information on toxicological effects

Acute toxicity Toxic if swallowed. Toxic in contact with skin. Harmful if inhaled. Expected to be a low hazard for

usual industrial or commercial handling by trained personnel.

Components **Test Results Species** Acetonitrile (CAS 75-05-8) Acute Dermal LD50 Rabbit 390 mg/kg 0.5 ml/kg Inhalation LC100 Dog 16000 ppm, 4 Hours LC50 Guinea pig 5655 ppm, 4 Hours Mouse 3587 ppm, 4 Hours 2693 ppm, 1 Hours Rabbit 2825 ppm, 4 Hours Rat 17100 ppm, 4 Hours 7500 ppm, 8 Hours 330 ppm, 90 Days 75 mg/l Oral LD50 Guinea pig 140 mg/kg 0.177 ml/kg Mouse 269 mg/kg Rat 158 mg/kg 1.68 - 4.49 ml/kg Other LD50 Mouse 0.25 g/kg Rat 1100 mg/kg 0.85 ml/kg

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye Causes serious eye irritation.

irritation

Material name: Pentaerythritol tetranitrate Solution 2908 Version #: 01 | Issue date: 08-11-2014

<sup>\*</sup> Estimates for product may be based on additional component data not shown.

Respiratory or skin sensitization

Respiratory sensitization Not available.

**Skin sensitization** This product is not expected to cause skin sensitization.

Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are

mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

**Reproductive toxicity**This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity -

single exposure

Not classified.

Specific target organ toxicity -

repeated exposure

Not classified.

Aspiration hazard Not available.

**Chronic effects** Prolonged inhalation may be harmful.

# 12. Ecological information

**Ecotoxicity**The product is not classified as environmentally hazardous. However, this does not exclude the

possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components Species Test Results

Acetonitrile (CAS 75-05-8)

Aquatic

Fish LC50 Fathead minnow (Pimephales promelas) > 100 mg/l, 96 hours

Pentaerythritol tetranitrate (CAS 78-11-5)

Aquatic

Fish LC50 Fathead minnow (Pimephales promelas) 320 - 1000 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Acetonitrile -0.34
Pentaerythritol tetranitrate 1.61

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation

potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

**Disposal instructions**Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material

and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international

regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

**US RCRA Hazardous Waste U List: Reference** 

Acetonitrile (CAS 75-05-8) U003

Waste from residues / unused

products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see:

Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Since emptied containers may retain product residue, follow label warnings even after container is

emptied.

14. Transport information

DOT

UN number UN1648

UN proper shipping name Acetonitrile, solution

Transport hazard class(es)

Class 3

Subsidiary risk 3 Label(s) Packing group Ш

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

**Special provisions** IB2, T7, TP2

150 Packaging exceptions 202 Packaging non bulk 242 Packaging bulk

**IATA** 

UN1648 **UN number** 

Acetonitrile solution **UN proper shipping name** 

Transport hazard class(es) Class 3 Subsidiary risk

Packing group Ш **Environmental hazards** No. **ERG Code** 3L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo

aircraft

Allowed.

Cargo aircraft only

Allowed.

Not available.

**IMDG** 

UN1648 **UN** number

**UN** proper shipping name Transport hazard class(es)

**ACETONITRILE SOLUTION** 

Class 3 Subsidiary risk Packing group Ш

**Environmental hazards** 

Marine pollutant No. F-E. S-D **EmS** 

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

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

the IBC Code

DOT



IATA; IMDG



# 15. Regulatory information

**US federal regulations** 

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910,1200.

All components are on the U.S. EPA TSCA Inventory List.

# TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Pentaerythritol tetranitrate (CAS 78-11-5) 1.0 % One-Time Export Notification only.

**CERCLA Hazardous Substance List (40 CFR 302.4)** 

Acetonitrile (CAS 75-05-8) Listed.

#### SARA 304 Emergency release notification

Not regulated.

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)

Nο

Hazard categories Immediate Hazard - Yes

Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

#### SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous

chemical

#### SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Acetonitrile	75-05-8	>99

# Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Acetonitrile (CAS 75-05-8)

# Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act

Not regulated.

(SDWA)

## **US state regulations**

#### **US. Massachusetts RTK - Substance List**

Acetonitrile (CAS 75-05-8)

# US. New Jersey Worker and Community Right-to-Know Act

Acetonitrile (CAS 75-05-8) 500 LBS

#### US. Pennsylvania RTK - Hazardous Substances

Acetonitrile (CAS 75-05-8)

# **US. Rhode Island RTK**

Acetonitrile (CAS 75-05-8)

## **US. California Proposition 65**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

## International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

<sup>\*</sup>A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s) A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Material name: Pentaerythritol tetranitrate Solution

# 16. Other information, including date of preparation or last revision

Issue date 08-11-2014

Version # 01

NFPA ratings Health: 2

Flammability: 3 Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

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