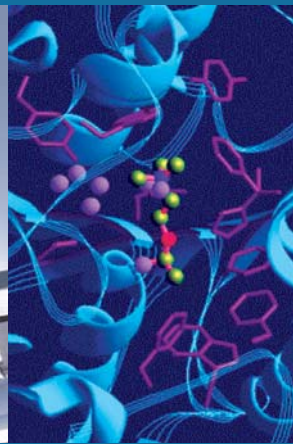
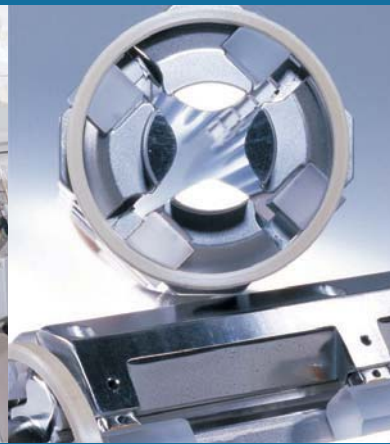


Thermo Fisher Scientific

# **LTO Orbitrap 3+4 Preinstallation Kit**

**Material Safety Data Sheets (MSDS)**

Revision A - 1355050



This document provides Material Safety Data Sheets (MSDS) of the following chemicals in alphabetical order.

- Pierce® ESI Negative Ion Calibration Solution
- Pierce® LTQ Velos ESI Positive Ion Calibration Solution
- Poly(propylene glycol)(CAS-No. 25322-69-4)
- Reserpine (CAS-No. 50-55-5)
- Sodium acetate (CAS-No. 127-09-3)
- Sodium hypochlorite, 13 % active chlorine

# SAFETY DATA SHEET

Pierce® ESI Negative Ion Calibration Solution

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

### 1.1 Product identifier

**Product name** : Pierce® ESI Negative Ion Calibration Solution  
**Product code** : 0088324 1901923 NCI8324  
**MSDS #** : 8572  
**Product description** : Not available.  
**Product type** : Liquid.  
**Other means of identification** : Not available.

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

For research use only.  
Refer to the instruction booklet for proper and intended use.  
Otherwise, contact supplier for specific applications.

### 1.3 Details of the supplier of the safety data sheet

#### National Contact

Thermo Fisher Scientific Europe  
Perbio Science  
Industriezone III  
Industrielaan 27  
9320 Erembodegem Belgium

#### Manufacturer

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)

**e-mail address of person responsible for this SDS** : QA.Rockford@thermofisher.com

### 1.4 Emergency telephone number

#### Emergency Contact

**Telephone number** : CHEMTREC: 703-527-3887  
CHEMTREC UK: +(44) 870 8200418  
National Poisons Information Service (UK Only): 0870 600 6266

Contact Chemtrec or seek medical advice in emergencies.

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to Directive 1999/45/EC [DPD]

##### Europe

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

**Classification** : F; R11  
T; R23/24/25, R39/23/24/25  
Xi; R36

**Physical/chemical hazards** : Highly flammable.

**Human health hazards** : Toxic by inhalation, in contact with skin and if swallowed. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Irritating to eyes.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard symbol or symbols** :



**Indication of danger** : Highly flammable, Toxic

**Risk phrases** : R11- Highly flammable.  
R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.  
R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.  
R36- Irritating to eyes.

**Safety phrases** : S36/37- Wear suitable protective clothing and gloves.  
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**Hazardous ingredients** : methanol

**Supplemental label elements** : Not applicable.

#### Special packaging requirements

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Other hazards which do not result in classification** : None known.

**SECTION 3: Composition/information on ingredients**

Substance/mixture : Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
Europe acetonitrile	EC: 200-835-2 CAS: 75-05-8 Index: 608-001-00-3	50 - <75	F; R11 Xn; R20/21/22 Xi; R36	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1] [2]
methanol	EC: 200-659-6 CAS: 67-56-1 Index: 603-001-00-X	20 - <25	F; R11 T; R23/24/25, R39/23/24/25	Flam. Liq. 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370	[1] [2]
acetic acid	EC: 200-580-7 CAS: 64-19-7 Index: 607-002-00-6	<10	R10 C; R35  <b>See Section 16 for the full text of the R- phrases declared above.</b>	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Chronic 3, H412  <b>See Section 16 for the full text of the H statements declared above.</b>	[1] [2]

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.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

**Eye contact** : Get medical attention immediately. 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.

**Inhalation** : Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person

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**SECTION 4: First aid measures**

- Skin contact** : may need to be kept under medical surveillance for 48 hours. : Get medical attention immediately. Flush contaminated skin with plenty of 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. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. 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. 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.

**4.2 Most important symptoms and effects, both acute and delayed**

Potential acute health effects

- Eye contact** : Irritating to eyes.
- Inhalation** : Toxic by inhalation. Danger of very serious irreversible effects. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Toxic in contact with skin. Danger of very serious irreversible effects. May cause skin irritation.
- Ingestion** : Toxic if swallowed. Danger of very serious irreversible effects.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

**4.3 Indication of any immediate medical attention and special treatment needed**

- 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.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

## SECTION 5: Firefighting measures

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Highly flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

### 5.3 Advice for firefighters

- Special precautions 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe 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 Section 8 for additional information on hygiene measures.

### 6.2 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).

### 6.3 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

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**SECTION 6: Accidental release measures**

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

**SECTION 7: Handling and storage**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**7.1 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 non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. 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.

**7.2 Conditions for safe storage, including any incompatibilities**

- : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). 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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

**7.3 Specific end use(s)**

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

**SECTION 8: Exposure controls/personal protection**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**8.1 Control parameters**

**Occupational exposure limits**

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**SECTION 8: Exposure controls/personal protection**

Product/ingredient name	Exposure limit values
<b>Europe</b> acetonitrile  methanol  acetic acid	<b>EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b> TWA: 70 mg/m <sup>3</sup> 8 hours. TWA: 40 ppm 8 hours. <b>EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b> TWA: 260 mg/m <sup>3</sup> 8 hours. TWA: 200 ppm 8 hours. <b>EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values</b> TWA: 25 mg/m <sup>3</sup> 8 hours. TWA: 10 ppm 8 hours.

**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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Derived effect levels**

No DELs available.

**Predicted effect concentrations**

No PECs available.

**8.2 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 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- 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.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Color** : Colorless. Clear.
- Odor** : Alcohol-like.
- Odor threshold** : Not available.
- pH** : <3
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flash point** : Closed cup: 22.222°C
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Upper/lower flammability or explosive limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : Not available.
- Solubility(ies)** : Not available.

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## SECTION 9: Physical and chemical properties

- Partition coefficient: n-octanol/ water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.
- Explosive properties** : Highly explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
- Oxidizing properties** : Not available.

### 9.2 Other information

No additional information.

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- 10.5 Incompatible materials** : Highly reactive or incompatible with the following materials: oxidizing materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
acetonitrile	LC50 Inhalation Vapor	Rat	17100 ppm	4 hours
	LD50 Dermal	Rabbit	980 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
methanol	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	83.2 mg/l	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
acetic acid	LC50 Inhalation Vapor	Rat	11000 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	1060 mg/kg	-
	LD50 Dermal	Rat	1060 mg/kg	-
	LD50 Oral	Rat	3310 mg/kg	-

**Conclusion/Summary** : Not available.

Route	ATE value

#### Irritation/Corrosion

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**SECTION 11: Toxicological information**

Product/ingredient name	Result	Species	Score	Exposure	Observation
acetonitrile	Eyes - Moderate irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit	- -	40 milligrams 24 hours 20 milligrams	- -
acetic acid	Eyes - Mild irritant	Rabbit	-	0.5 minutes 5 milligrams	-
	Skin - Mild irritant	Human	-	24 hours 50 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Severe irritant	Rabbit	-	525 milligrams	-

**Conclusion/Summary** : Not available.

**Sensitizer**

**Conclusion/Summary** : Not available.

**Mutagenicity**

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

**Teratogenicity**

**Conclusion/Summary** : Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**

**Inhalation** : Toxic by inhalation. Danger of very serious irreversible effects. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

**Ingestion** : Toxic if swallowed. Danger of very serious irreversible effects.

**Skin contact** : Toxic in contact with skin. Danger of very serious irreversible effects. May cause skin irritation.

**Eye contact** : Irritating to eyes.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Inhalation** : No specific data.

**Ingestion** : No specific data.

**Skin contact** : No specific data.

**Eye contact** : Adverse symptoms may include the following:  
irritation  
watering  
redness

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

**Short term exposure**

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**SECTION 11: Toxicological information**

**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.

**Conclusion/Summary** : 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.

**Other information** : Not available.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure
acetonitrile	Acute EC50 3600 mg/l	Daphnia	48 hours
	Acute EC50 5838 mg/l	Daphnia - Daphnia pulex	18 hours
	Acute IC50 7300 mg/l	Algae	72 hours
	Acute IC50 3685000 µg/l Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 100000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 1000 mg/l	Fish	96 hours
	Chronic NOEC 1000000 µg/l Fresh water	Aquatic plants - Lemna minor	96 hours
methanol	Chronic NOEC 160000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 10000000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
acetic acid	Acute LC50 100000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 156 mg/l	Algae	24 hours
	Acute EC50 73400 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 65 mg/l	Daphnia	48 hours
	Acute EC50 32 to 47 mg/l	Daphnia	24 hours
	Acute LC50 50.1 ul/L Marine water	Crustaceans - Artemia sp.	48 hours
	Acute LC50 410 mg/l	Fish	48 hours
	Acute LC50 75000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute LC50 423 mg/l	Fish	24 hours
Acute LC50 88 mg/l	Fish	96 hours	

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**SECTION 12: Ecological information**

**Conclusion/Summary** : Not available.

**12.2 Persistence and degradability**

**Conclusion/Summary** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
acetonitrile	-	-	Readily
methanol	-	-	Readily

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
acetonitrile	-0.34	0.3	low
methanol	-0.77	0.2	low
acetic acid	-0.17	-	low

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

**12.5 Results of PBT and vPvB assessment**

**PBT** : Not applicable.

**vPvB** : Not applicable.

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

**SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**13.1 Waste treatment methods**

Product

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste product residues should not be disposed of via the sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

Packaging


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**SECTION 13: Disposal considerations**

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**SECTION 14: Transport information**

	ADR/RID	ADN	IMDG	IATA
<b>14.1 UN number</b>	Not Available.	Not Available.	Not Available.	UN1992
<b>14.2 UN proper shipping name</b>	Not Available.	Not Available.	Not Available.	Flammable liquids, toxic, n.o.s. (acetonitrile, methanol)
<b>14.3 Transport hazard class(es)</b>	Not Available.	Not Available.	Not Available.	3 (6.1) 
<b>14.4 Packing group</b>	Not available.	Not available.	Not available.	II
<b>14.5 Environmental hazards</b>	No.	Not available.	No.	No.
<b>14.6 Special precautions for user</b>	<b>Transport within user's premises:</b> 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.	<b>Transport within user's premises:</b> 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.	<b>Transport within user's premises:</b> 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.	<b>Transport within user's premises:</b> 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.
<b>Additional information</b>	Not Available.	-	-	-

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU Regulation (EC) No. 1907/2006 (REACH)

##### Annex XIV - List of substances subject to authorization

###### Substances of very high concern

None of the components are listed.

**Annex XVII - Restrictions** : Not applicable.  
**on the manufacture,  
placing on the market  
and use of certain  
dangerous substances,  
mixtures and articles**

##### Other EU regulations

**Europe inventory** : Not determined.

**Black List Chemicals** : Not listed

**Priority List Chemicals** : Listed

**Integrated pollution  
prevention and control  
list (IPPC) - Air** : Listed

**Integrated pollution  
prevention and control  
list (IPPC) - Water** : Listed

##### National regulations

**15.2 Chemical Safety Assessment** : This product contains substances for which Chemical Safety Assessments are still required.

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 2, H225

Acute Tox. 3, H301

Acute Tox. 3, H311

Acute Tox. 3, H331

Skin Irrit. 2, H315

Eye Irrit. 2, H319

STOT SE 1, H370

#### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

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**SECTION 16: Other information**

Classification	Justification
Flam. Liq. 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

**Europe**

- Full text of abbreviated H statements** : H225 Highly flammable liquid and vapor.  
H226 Flammable liquid and vapor.  
H301 Toxic if swallowed.  
H302 Harmful if swallowed.  
H311 Toxic in contact with skin.  
H312 Harmful in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
H332 Harmful if inhaled.  
H370 Causes damage to organs.  
H412 Harmful to aquatic life with long lasting effects.
- Full text of classifications [CLP/GHS]** : Acute Tox. 3, H301 ACUTE TOXICITY: ORAL - Category 3  
Acute Tox. 3, H311 ACUTE TOXICITY: SKIN - Category 3  
Acute Tox. 3, H331 ACUTE TOXICITY: INHALATION - Category 3  
Acute Tox. 4, H302 ACUTE TOXICITY: ORAL - Category 4  
Acute Tox. 4, H312 ACUTE TOXICITY: SKIN - Category 4  
Acute Tox. 4, H332 ACUTE TOXICITY: INHALATION - Category 4  
Aquatic Chronic 3, H412 AQUATIC TOXICITY (CHRONIC) - Category 3  
Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
Flam. Liq. 2, H225 FLAMMABLE LIQUIDS - Category 2  
Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3  
Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A  
Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
STOT SE 1, H370 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1
- Full text of abbreviated R phrases** : R11- Highly flammable.  
R10- Flammable.  
R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.  
R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.  
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
R35- Causes severe burns.  
R36- Irritating to eyes.
- Full text of classifications [DSD/DPD]** : F - Highly flammable  
T - Toxic  
C - Corrosive  
Xn - Harmful  
Xi - Irritant
- Date of printing** : 9/24/2013.  
**Date of issue/ Date of revision** : 3/25/2013.

Pierce® ESI Negative Ion Calibration Solution

## SECTION 16: Other information

**Date of previous issue** : No previous validation.

**Version** : 1

### 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.





# SAFETY DATA SHEET

Pierce® LTQ Velos ESI Positive Ion Calibration Solution

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

### 1.1 Product identifier

**Product name** : Pierce® LTQ Velos ESI Positive Ion Calibration Solution  
**Product code** : 0088323 1901922 NCI8323  
**MSDS #** : 8571  
**Product description** : Not available.  
**Product type** : Liquid.  
**Other means of identification** : Not available.

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

For research use only.  
Refer to the instruction booklet for proper and intended use.  
Otherwise, contact supplier for specific applications.

### 1.3 Details of the supplier of the safety data sheet

#### National Contact

Thermo Fisher Scientific Europe  
Perbio Science  
Industriezone III  
Industrielaan 27  
9320 Erembodegem Belgium

#### Manufacturer

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)

**e-mail address of person responsible for this SDS** : QA.Rockford@thermofisher.com

### 1.4 Emergency telephone number

#### Emergency Contact

**Telephone number** : CHEMTREC: 703-527-3887  
CHEMTREC UK: +(44) 870 8200418  
National Poisons Information Service (UK Only): 0870 600 6266

Contact Chemtrec or seek medical advice in emergencies.

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to Directive 1999/45/EC [DPD]

##### Europe

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

**Classification** : F; R11  
T; R23/24/25, R39/23/24/25  
Xi; R36

**Physical/chemical hazards** : Highly flammable.

**Human health hazards** : Toxic by inhalation, in contact with skin and if swallowed. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Irritating to eyes.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard symbol or symbols** :



**Indication of danger** : Highly flammable, Toxic

**Risk phrases** : R11- Highly flammable.  
R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.  
R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.  
R36- Irritating to eyes.

**Safety phrases** : S36/37- Wear suitable protective clothing and gloves.  
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**Hazardous ingredients** : methanol

**Supplemental label elements** : Not applicable.

#### Special packaging requirements

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Other hazards which do not result in classification** : None known.

**SECTION 3: Composition/information on ingredients**

Substance/mixture : Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
Europe acetonitrile	EC: 200-835-2 CAS: 75-05-8 Index: 608-001-00-3	50 - <75	F; R11 Xn; R20/21/22 Xi; R36	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1] [2]
methanol	EC: 200-659-6 CAS: 67-56-1 Index: 603-001-00-X	20 - <25	F; R11 T; R23/24/25, R39/23/24/25	Flam. Liq. 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370	[1] [2]
acetic acid	EC: 200-580-7 CAS: 64-19-7 Index: 607-002-00-6	<10	R10 C; R35  <b>See Section 16 for the full text of the R- phrases declared above.</b>	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Chronic 3, H412  <b>See Section 16 for the full text of the H statements declared above.</b>	[1] [2]

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.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

- Eye contact** : Get medical attention immediately. 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.
- Inhalation** : Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person

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## SECTION 4: First aid measures

- may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Flush contaminated skin with plenty of 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. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. 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. 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.

### 4.2 Most important symptoms and effects, both acute and delayed

#### Potential acute health effects

- Eye contact** : Irritating to eyes.
- Inhalation** : Toxic by inhalation. Danger of very serious irreversible effects. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Toxic in contact with skin. Danger of very serious irreversible effects. May cause skin irritation.
- Ingestion** : Toxic if swallowed. Danger of very serious irreversible effects.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

### 4.3 Indication of any immediate medical attention and special treatment needed

- 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.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

## SECTION 5: Firefighting measures

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Highly flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

### 5.3 Advice for firefighters

- Special precautions 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe 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 Section 8 for additional information on hygiene measures.

### 6.2 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).

### 6.3 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

## SECTION 6: Accidental release measures

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 7.1 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 non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. 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.

### 7.2 Conditions for safe storage, including any incompatibilities

- : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). 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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

- Recommendations** : Not available.

- Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 8.1 Control parameters

#### Occupational exposure limits

## SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure limit values
<b>Europe</b> acetonitrile  methanol  acetic acid	<p><b>EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b>                      TWA: 70 mg/m<sup>3</sup> 8 hours.                      TWA: 40 ppm 8 hours.</p> <p><b>EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b>                      TWA: 260 mg/m<sup>3</sup> 8 hours.                      TWA: 200 ppm 8 hours.</p> <p><b>EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values</b>                      TWA: 25 mg/m<sup>3</sup> 8 hours.                      TWA: 10 ppm 8 hours.</p>

**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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### Derived effect levels

No DELs available.

### Predicted effect concentrations

No PECs available.

## 8.2 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 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- 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.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Color** : Colorless. Clear.
- Odor** : Alcohol-like.
- Odor threshold** : Not available.
- pH** : <3
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flash point** : Closed cup: 22.222°C
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Upper/lower flammability or explosive limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : Not available.
- Solubility(ies)** : Not available.

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## SECTION 9: Physical and chemical properties

- Partition coefficient: n-octanol/ water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.
- Explosive properties** : Highly explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
- Oxidizing properties** : Not available.

### 9.2 Other information

No additional information.

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- 10.5 Incompatible materials** : Highly reactive or incompatible with the following materials: oxidizing materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
acetonitrile	LC50 Inhalation Vapor	Rat	17100 ppm	4 hours
	LD50 Dermal	Rabbit	980 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
methanol	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	83.2 mg/l	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
acetic acid	LC50 Inhalation Vapor	Rat	11000 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	1060 mg/kg	-
	LD50 Dermal	Rat	1060 mg/kg	-
	LD50 Oral	Rat	3310 mg/kg	-

**Conclusion/Summary** : Not available.

Route	ATE value

#### Irritation/Corrosion

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**SECTION 11: Toxicological information**

Product/ingredient name	Result	Species	Score	Exposure	Observation
acetonitrile	Eyes - Moderate irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit	- -	40 milligrams 24 hours 20 milligrams	- -
acetic acid	Eyes - Mild irritant	Rabbit	-	0.5 minutes 5 milligrams	-
	Skin - Mild irritant	Human	-	24 hours 50 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Severe irritant	Rabbit	-	525 milligrams	-

**Conclusion/Summary** : Not available.

**Sensitizer**

**Conclusion/Summary** : Not available.

**Mutagenicity**

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

**Teratogenicity**

**Conclusion/Summary** : Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**

**Inhalation** : Toxic by inhalation. Danger of very serious irreversible effects. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

**Ingestion** : Toxic if swallowed. Danger of very serious irreversible effects.

**Skin contact** : Toxic in contact with skin. Danger of very serious irreversible effects. May cause skin irritation.

**Eye contact** : Irritating to eyes.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Inhalation** : No specific data.

**Ingestion** : No specific data.

**Skin contact** : No specific data.

**Eye contact** : Adverse symptoms may include the following:  
irritation  
watering  
redness

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

**Short term exposure**

**Date of issue/Date of revision** : 3/22/2013. **10/16**

**Pierce® LTQ Velos ESI Positive Ion Calibration Solution**

**SECTION 11: Toxicological information**

**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.

**Conclusion/Summary** : 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.

**Other information** : Not available.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure
acetonitrile	Acute EC50 3600 mg/l	Daphnia	48 hours
	Acute EC50 5838 mg/l	Daphnia - Daphnia pulex	18 hours
	Acute IC50 7300 mg/l	Algae	72 hours
	Acute IC50 3685000 µg/l Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 100000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 1000 mg/l	Fish	96 hours
	Chronic NOEC 1000000 µg/l Fresh water	Aquatic plants - Lemna minor	96 hours
methanol	Chronic NOEC 160000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 10000000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
acetic acid	Acute LC50 100000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 156 mg/l	Algae	24 hours
	Acute EC50 73400 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 65 mg/l	Daphnia	48 hours
	Acute EC50 32 to 47 mg/l	Daphnia	24 hours
	Acute LC50 50.1 ul/L Marine water	Crustaceans - Artemia sp.	48 hours
	Acute LC50 410 mg/l	Fish	48 hours
	Acute LC50 75000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute LC50 423 mg/l	Fish	24 hours
Acute LC50 88 mg/l	Fish	96 hours	

Pierce® LTQ Velos ESI Positive Ion Calibration Solution

## SECTION 12: Ecological information

**Conclusion/Summary** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
acetonitrile	-	-	Readily
methanol	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
acetonitrile	-0.34	0.3	low
methanol	-0.77	0.2	low
acetic acid	-0.17	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

**PBT** : Not applicable.

**vPvB** : Not applicable.

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

## SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste product residues should not be disposed of via the sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging

**Date of issue/Date of revision** : 3/22/2013.


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Pierce® LTQ Velos ESI Positive Ion Calibration Solution

### SECTION 13: Disposal considerations

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
<b>14.1 UN number</b>	Not Available.	Not Available.	Not Available.	UN1992
<b>14.2 UN proper shipping name</b>	Not Available.	Not Available.	Not Available.	Flammable liquids, toxic, n.o.s. (acetonitrile, methanol)
<b>14.3 Transport hazard class(es)</b>	Not Available.	Not Available.	Not Available.	3 (6.1) 
<b>14.4 Packing group</b>	Not available.	Not available.	Not available.	II
<b>14.5 Environmental hazards</b>	No.	Not available.	No.	No.
<b>14.6 Special precautions for user</b>	<b>Transport within user's premises:</b> 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.	<b>Transport within user's premises:</b> 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.	<b>Transport within user's premises:</b> 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.	<b>Transport within user's premises:</b> 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.
<b>Additional information</b>	Not Available.	-	-	-

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

Date of issue/Date of revision : 3/22/2013.

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU Regulation (EC) No. 1907/2006 (REACH)

#### Annex XIV - List of substances subject to authorization

##### Substances of very high concern

None of the components are listed.

**Annex XVII - Restrictions** : Not applicable.  
on the manufacture,  
placing on the market  
and use of certain  
dangerous substances,  
mixtures and articles

#### Other EU regulations

**Europe inventory** : Not determined.

**Black List Chemicals** : Not listed

**Priority List Chemicals** : Listed

**Integrated pollution  
prevention and control  
list (IPPC) - Air** : Listed

**Integrated pollution  
prevention and control  
list (IPPC) - Water** : Listed

#### National regulations

**15.2 Chemical Safety  
Assessment** : This product contains substances for which Chemical Safety Assessments are still  
required.

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

**Abbreviations and  
acronyms** : ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No.  
1272/2008]  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 2, H225

Acute Tox. 3, H301

Acute Tox. 3, H311

Acute Tox. 3, H331

Skin Irrit. 2, H315

Eye Irrit. 2, H319

STOT SE 1, H370

#### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

**Date of issue/Date of revision** : 3/22/2013.

**14/16**

Pierce® LTQ Velos ESI Positive Ion Calibration Solution

**SECTION 16: Other information**

Classification	Justification
Flam. Liq. 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

**Europe**

**Full text of abbreviated H statements** : H225 Highly flammable liquid and vapor.  
 H226 Flammable liquid and vapor.  
 H301 Toxic if swallowed.  
 H302 Harmful if swallowed.  
 H311 Toxic in contact with skin.  
 H312 Harmful in contact with skin.  
 H314 Causes severe skin burns and eye damage.  
 H315 Causes skin irritation.  
 H318 Causes serious eye damage.  
 H319 Causes serious eye irritation.  
 H331 Toxic if inhaled.  
 H332 Harmful if inhaled.  
 H370 Causes damage to organs.  
 H412 Harmful to aquatic life with long lasting effects.

**Full text of classifications [CLP/GHS]** : Acute Tox. 3, H301 ACUTE TOXICITY: ORAL - Category 3  
 Acute Tox. 3, H311 ACUTE TOXICITY: SKIN - Category 3  
 Acute Tox. 3, H331 ACUTE TOXICITY: INHALATION - Category 3  
 Acute Tox. 4, H302 ACUTE TOXICITY: ORAL - Category 4  
 Acute Tox. 4, H312 ACUTE TOXICITY: SKIN - Category 4  
 Acute Tox. 4, H332 ACUTE TOXICITY: INHALATION - Category 4  
 Aquatic Chronic 3, H412 AQUATIC TOXICITY (CHRONIC) - Category 3  
 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
 Flam. Liq. 2, H225 FLAMMABLE LIQUIDS - Category 2  
 Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3  
 Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A  
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
 STOT SE 1, H370 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1

**Full text of abbreviated R phrases** : R11- Highly flammable.  
 R10- Flammable.  
 R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.  
 R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.  
 R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
 R35- Causes severe burns.  
 R36- Irritating to eyes.

**Full text of classifications [DSD/DPD]** : F - Highly flammable  
 T - Toxic  
 C - Corrosive  
 Xn - Harmful  
 Xi - Irritant

**Date of printing** : 9/24/2013.

**Date of issue/ Date of revision** : 3/22/2013.

**Date of issue/Date of revision** : 3/22/2013. **15/16**

## SECTION 16: Other information

**Date of previous issue** : No previous validation.

**Version** : 1

### 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.





## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 5.0 Revision Date 16.05.2012

Print Date 03.09.2013

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifiers

Product name : Poly(propylene glycol)

Product Number : 202347  
Brand : Aldrich  
CAS-No. : 25322-69-4

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

Identified uses : Laboratory chemicals, Manufacture of substances

#### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Company Ltd.  
The Old Brickyard  
NEW ROAD, GILLINGHAM  
Dorset  
SP8 4XT  
UNITED KINGDOM

Telephone : +44 (0)1747 833000  
Fax : +44 (0)1747 833313  
E-mail address : [eurtechserv@sial.com](mailto:eurtechserv@sial.com)

#### 1.4 Emergency telephone number

Emergency Phone # : +44 (0)1747 833100

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.  
This substance is not classified as dangerous according to Directive 67/548/EEC.

#### 2.2 Label elements

The product does not need to be labelled in accordance with EC directives or respective national laws.

#### 2.3 Other hazards - none

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Synonyms : PPG  
Poly(propylene oxide)

Formula : C<sub>3</sub>H<sub>8</sub>O<sub>2</sub>

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**4.3 Indication of any immediate medical attention and special treatment needed**

no data available

---

**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available

---

**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

---

**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end uses**

no data available

---

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

**8.2 Exposure controls****Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## Personal protective equipment

### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 480 min

Material tested: Dermatril® (Aldrich Z677272, Size M)

#### Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 30 min

Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |  |                       |
|--|-----------------------|
| a) Appearance                              | Form: liquid          |
| b) Odour                                   | no data available     |
| c) Odour Threshold                         | no data available     |
| d) pH                                      | no data available     |
| e) Melting point/freezing point            | no data available     |
| f) Initial boiling point and boiling range | no data available     |
| g) Flash point                             | 112.8 °C - closed cup |
| h) Evaporation rate                        | no data available     |
| i) Flammability (solid, gas)               | no data available     |
| j) Upper/lower                             | no data available     |

flammability or  
explosive limits

- |   |                     |
|---|---------------------|
| k) Vapour pressure                        | < 0.01 hPa at 20 °C |
| l) Vapour density                         | no data available   |
| m) Relative density                       | 1.004 g/mL at 25 °C |
| n) Water solubility                       | no data available   |
| o) Partition coefficient: n-octanol/water | no data available   |
| p) Autoignition temperature               | no data available   |
| q) Decomposition temperature              | no data available   |
| r) Viscosity                              | no data available   |
| s) Explosive properties                   | no data available   |
| t) Oxidizing properties                   | no data available   |

## 9.2 Other safety information

no data available

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - > 2,000 mg/kg

#### Skin corrosion/irritation

#### Serious eye damage/eye irritation

Eyes - rabbit - Mild eye irritation

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

**Specific target organ toxicity - single exposure**

**Specific target organ toxicity - repeated exposure**

**Aspiration hazard**

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	Causes eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**

RTECS: TR5250000

---

**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - > 10,000 mg/l - 96 h

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

**12.4 Mobility in soil**

**12.5 Results of PBT and vPvB assessment**

no data available

**12.6 Other adverse effects**

no data available

---

**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

---

**14. TRANSPORT INFORMATION**

**14.1 UN number**

ADR/RID: - IMDG: - IATA: -

**14.2 UN proper shipping name**

ADR/RID: Not dangerous goods  
IMDG: Not dangerous goods  
IATA: Not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: - IMDG: - IATA: -

**14.4 Packaging group**

ADR/RID: - IMDG: - IATA: -

**14.5 Environmental hazards**

ADR/RID: no IMDG Marine pollutant: no IATA: no

**14.6 Special precautions for user**

no data available

---

**15. REGULATORY INFORMATION**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
no data available**15.2 Chemical Safety Assessment**  
no data available

---

**16. OTHER INFORMATION****Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 5.0 Revision Date 11.10.2012

Print Date 03.09.2013

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifiers

Product name : Reserpine

Product Number : R0875

Brand : Sigma

CAS-No. : 50-55-5

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

Identified uses : Laboratory chemicals, Manufacture of substances

#### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Company Ltd.  
The Old Brickyard  
NEW ROAD, GILLINGHAM  
Dorset  
SP8 4XT  
UNITED KINGDOM

Telephone : +44 (0)1747 833000

Fax : +44 (0)1747 833313

E-mail address : [eurtechserv@sial.com](mailto:eurtechserv@sial.com)

#### 1.4 Emergency telephone number

Emergency Phone # : +44 (0)1747 833100

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**

Acute toxicity, Oral (Category 4)

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

Harmful if swallowed. Harmful if swallowed.

#### 2.2 Label elements

**Labelling according Regulation (EC) No 1272/2008 [CLP]**

Pictogram



Signal word : Warning

Hazard statement(s)

H302 : Harmful if swallowed.

Precautionary statement(s) : none

Supplemental Hazard Statements : none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrases)	
R22	Harmful if swallowed.
S-phrases)	
S22	Do not breathe dust.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.

### 2.3 Other hazards - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Formula	: C <sub>33</sub> H <sub>40</sub> N <sub>2</sub> O <sub>9</sub>
Molecular Weight	: 608.68 g/mol

Component	Concentration
<b>Reserpine</b>	
CAS-No.	50-55-5
EC-No.	200-047-9
	-

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### 4.3 Indication of any immediate medical attention and special treatment needed

no data available

## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, nitrogen oxides (NO<sub>x</sub>)

### 5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 5.4 Further information

no data available

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

## 6.2 Environmental precautions

Do not let product enter drains.

## 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 6.4 Reference to other sections

For disposal see section 13.

---

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

### 7.3 Specific end uses

no data available

---

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |               |                                    |
|---------------|------------------------------------|
| a) Appearance | Form: crystalline<br>Colour: beige |
| b) Odour      | no data available                  |

c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	Melting point/range: 265 °C - dec.
f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	no data available
n) Water solubility	soluble
o) Partition coefficient: n-octanol/water	no data available
p) Autoignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

**9.2 Other safety information**  
no data available

---

**10. STABILITY AND REACTIVITY**

**10.1 Reactivity**  
no data available

**10.2 Chemical stability**  
no data available

**10.3 Possibility of hazardous reactions**  
no data available

**10.4 Conditions to avoid**  
no data available

**10.5 Incompatible materials**  
Oxidizing agents, Reducing agents, Oxidizing agents, Reducing agents

**10.6 Hazardous decomposition products**  
Other decomposition products - no data available

---

**11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

**Acute toxicity**  
LD50 Oral - rat - 420 mg/kg  
LD50 Oral - rat - 420 mg/kg

Remarks: Behavioral:Antipsychotic.

**Skin corrosion/irritation**

no data available

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

Laboratory experiments have shown mutagenic effects.

**Carcinogenicity**

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Reserpine)

**Reproductive toxicity**

Laboratory experiments have shown teratogenic effects.

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

**Inhalation**

May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion**

Harmful if swallowed.

**Skin**

May be harmful if absorbed through skin. May cause skin irritation.

**Eyes**

May cause eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**

RTECS: ZG0350000

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**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

no data available

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

no data available

**12.6 Other adverse effects**

no data available

no data available







## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.2 Revision Date 03.08.2012

Print Date 03.09.2013

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### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifiers

Product name : Sodium acetate

Product Number : 241245  
Brand : Sigma-Aldrich  
CAS-No. : 127-09-3

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

Identified uses : Laboratory chemicals, Manufacture of substances

#### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Company Ltd.  
The Old Brickyard  
NEW ROAD, GILLINGHAM  
Dorset  
SP8 4XT  
UNITED KINGDOM

Telephone : +44 (0)1747 833000  
Fax : +44 (0)1747 833313  
E-mail address : [eurtechserv@sial.com](mailto:eurtechserv@sial.com)

#### 1.4 Emergency telephone number

Emergency Phone # : +44 (0)1747 833100

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### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.  
This substance is not classified as dangerous according to Directive 67/548/EEC.

#### 2.2 Label elements

The product does not need to be labelled in accordance with EC directives or respective national laws.

#### 2.3 Other hazards - none

---

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Synonyms : Acetic acidsodium salt

Formula :  $C_2H_3NaO_2$

Molecular Weight : 82.03 g/mol

---

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

Abdominal pain, Nausea, Vomiting

**4.3 Indication of any immediate medical attention and special treatment needed**

no data available

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, Sodium oxides

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available

---

**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

---

**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas.

**7.3 Specific end uses**

no data available

---

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 480 min

Material tested: Dermatril® (Aldrich Z677272, Size M)

#### Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 30 min

Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges.

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |  |                               |
|--|-------------------------------|
| a) Appearance                              | Form: solid<br>Colour: white  |
| b) Odour                                   | no data available             |
| c) Odour Threshold                         | no data available             |
| d) pH                                      | 8.5 - 9.9 at 246 g/l at 25 °C |
| e) Melting point/freezing point            | Melting point/range: > 300 °C |
| f) Initial boiling point and boiling range | no data available             |
| g) Flash point                             | > 250 °C - closed cup         |

h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	1.528 g/cm <sup>3</sup>
n)	Water solubility	246 g/l at 20 °C - completely soluble
o)	Partition coefficient: n-octanol/water	log Pow: -4.22
p)	Autoignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

## 9.2 Other safety information

Bulk density	320 - 470 kg/m <sup>3</sup>
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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

Exposure to moisture.

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - 3,530 mg/kg

LC50 Inhalation - rat - 1 h - > 30,000 mg/m<sup>3</sup>

LD50 Dermal - rabbit - > 10,000 mg/kg

#### Skin corrosion/irritation

Skin - rabbit - Mild skin irritation - 24 h

#### Serious eye damage/eye irritation

Eyes - rabbit - Mild eye irritation

#### Respiratory or skin sensitization

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	Causes eye irritation.

**Signs and Symptoms of Exposure**

Abdominal pain, Nausea, Vomiting

**Additional Information**

RTECS: AJ4300010

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 13,330 mg/l - 120 h LC50 - Lepomis macrochirus (Bluegill) - 5,000 mg/l - 24 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h

**12.2 Persistence and degradability**

Biodegradability Result: 99 % - Readily biodegradable.

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

no data available

**12.6 Other adverse effects**

no data available

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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.









# SAFETY DATA SHEET

Creation Date 25-Aug-2010

Revision Date 01-Oct-2012

Revision Number 4

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product Identifier

**Product Description:** Sodium hypochlorite, 13% active chlorine  
**Cat No.** 219250000; 219250025; 219250100; 219250250; 219255000  
**Synonyms** Antiformin

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

**Recommended Use** Laboratory chemicals  
**Uses advised against** No Information available

### Details of the supplier of the safety data sheet

#### Company

Acros Organics BVBA  
Janssen Pharmaceuticaaan 3a  
2440 Geel, Belgium

**E-mail address** [begele.sdsdesk@thermofisher.com](mailto:begele.sdsdesk@thermofisher.com)

### Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01  
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99  
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300  
CHEMTREC Phone Number, Europe: 001-703-527-3887

## SECTION 2. HAZARDS IDENTIFICATION

### Classification of the substance or mixture

#### REGULATION (EC) No 1272/2008

Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Acute aquatic toxicity	Category 1
Substances/mixtures corrosive to metal.	Category 1

### Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

**Symbol(s)** C - Corrosive  
N - Dangerous for the environment  
**R-phrases(s)** R31 - Contact with acids liberates toxic gas  
R34 - Causes burns  
R50 - Very toxic to aquatic organisms

Sodium hypochlorite, 13% active chlorine

Revision Date 01-Oct-2012

## SECTION 2. HAZARDS IDENTIFICATION

### Label Elements



### Signal Word

**Danger**

### Hazard Statements

H314 - Causes severe skin burns and eye damage

H400 - Very toxic to aquatic life

H290 - May be corrosive to metals

EUH031 - Contact with acids liberates toxic gas

### Precautionary Statements - EU (§28, 1272/2008)

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P280 - Wear eye protection/ face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/ physician

P273 - Avoid release to the environment

P233 - Keep container tightly closed

### Other Hazards

No information available.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.
Water 7732-18-5	EEC No 231-791-2	remainder	7732-18-5	-	-	-
Sodium hypochlorite 7681-52-9	EEC No. 231-668-3	5-20	7681-52-9	R31 C; R34 N; R50	Skin Corr. 1B (H314) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) EUH031	01-2119488154-34



Sodium hypochlorite, 13% active chlorine

Revision Date 01-Oct-2012

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

## SECTION 4. FIRST AID MEASURES

### Description of first aid measures

#### **Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

#### **Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

#### **Ingestion**

Do not induce vomiting. Call a physician or Poison Control Center immediately.

#### **Inhalation**

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

#### **Notes to Physician**

Treat symptomatically

## SECTION 5. FIRE-FIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

#### **Special hazards arising from the substance or mixture**

Keep product and empty container away from heat and sources of ignition.

#### **Advice for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

#### **Environmental precautions**

Should not be released into the environment.



# SAFETY DATA SHEET

Sodium hypochlorite, 13% active chlorine

Revision Date 01-Oct-2012

## Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal..

## SECTION 7. HANDLING AND STORAGE

### Precautions for Safe Handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors/dust. Do not ingest.

### Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep refrigerated. Keep away from direct sunlight.

### Specific End Uses

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### **Derived No Effect Level (DNEL)**

No information available.

#### **Predicted No Effect Concentration (PNEC)**

No information available.

### Exposure controls

#### **Engineering Measures**

Use only under a chemical fume hood Ensure that eyewash stations and safety showers are close to the workstation location

#### **Personal protective equipment**

##### **Eye Protection**

Goggles

##### **Hand Protection**

Protective gloves

##### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

##### **Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice

#### **Environmental exposure controls**

No information available.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State

Liquid



Sodium hypochlorite, 13% active chlorine

Revision Date 01-Oct-2012

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow
odor	pungent
pH	No information available.
Boiling Point/Range	No information available.
Melting Point/Range	-16°C / 3.2°F
Flash Point	No information available.
Autoignition Temperature	No information available.
Water Solubility	soluble
Specific Gravity	1.2 - 1.3
Molecular Formula	Cl Na O
Molecular Weight	74.44

## SECTION 10. STABILITY AND REACTIVITY

### Reactivity

### Chemical Stability

Light sensitive.

### Possibility of Hazardous Reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.  
**Hazardous Reactions .** None under normal processing..

### Conditions to Avoid

Incompatible products, Excess heat, Exposure to light.

### Incompatible Materials

Strong oxidizing agents, Metals.

### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Chlorine.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

### Acute Toxicity

### Component Information

#### Component

Water  
Sodium hypochlorite

	LD50 Oral	LD50 Dermal	LC50 Inhalation (Dust)
Water	90 mL/kg ( Rat )		
Sodium hypochlorite	8200 mg/kg ( Rat )	10000 mg/kg ( Rabbit )	



# SAFETY DATA SHEET

Sodium hypochlorite, 13% active chlorine

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## Chronic Toxicity

**Carcinogenicity** There are no known carcinogenic chemicals in this product

**Sensitization** No information available.  
**Mutagenic Effects** No information available  
**Reproductive Effects** No information available.  
**Developmental Effects** No information available.  
**Target Organs** Skin Respiratory system Eyes Gastrointestinal tract (GI)  
**Other Adverse Effects** See actual entry in RTECS for complete information  
**Endocrine Disruptor Information** None known

## SECTION 12. ECOLOGICAL INFORMATION

### Toxicity

**Ecotoxicity effects** Very toxic to aquatic organisms

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Sodium hypochlorite	0.095 mg/L EC50 = 24 h	Pimephales promelas: LC50=0.82-0.98 mg/L 96h		2.1 mg/L EC50 = 96 h 0.033-0.044 mg/L EC50 48 h

### Persistence and degradability

No information available

### Bioaccumulative potential

No information available.

Component	log Pow
Water	-1.87

### Mobility in soil

No information available.

### Results of PBT and vPvB assessment

### Other adverse effects

No information available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

**Waste from Residues / Unused Products** Dispose of in accordance with local regulations



# SAFETY DATA SHEET

Sodium hypochlorite, 13% active chlorine

Revision Date 01-Oct-2012

Contaminated Packaging Empty containers should be taken to local recyclers for disposal

## SECTION 14. TRANSPORT INFORMATION

### IMDG/IMO

UN-No 1791  
Hazard Class 8  
Packing Group III  
Proper Shipping Name HYPOCHLORITE SOLUTION

### ADR

UN-No 1791  
Hazard Class 8  
Packing Group III  
Proper Shipping Name HYPOCHLORITE SOLUTION

### IATA

UN-No 1791  
Hazard Class 8  
Packing Group III  
Proper Shipping Name HYPOCHLORITE SOLUTION

## SECTION 15. REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

WGK Classification Hazardous to water/Class 2

### International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Water	231-791-2	-		X	X	-	X	-	X	X	X
Sodium hypochlorite	231-668-3	-		X	X	-	X	X	X	X	X

### Legend

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances



Sodium hypochlorite, 13% active chlorine

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**CHINA** - China Inventory of Existing Chemical Substances  
**AICS** - Inventory of Chemical Substances  
**KECL** - Existing and Evaluated Chemical Substances

## Chemical Safety Assessment

### SECTION 16. OTHER INFORMATION

#### Full text of R-phrases referred to under sections 2 and 3

R31 - Contact with acids liberates toxic gas

R34 - Causes burns

R50 - Very toxic to aquatic organisms

Revision Date 01-Oct-2012

#### Revision Summary

Reason for revision (M)SDS sections updated, 2, 3.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

#### Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet



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