

# SAFETY DATA SHEET

OPA Reagent

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

### 1.1 Product identifier

**Product name** : OPA Reagent  
**Part no.** : 5061-3335

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
6 x 1 ml ampoule  
**Uses advised against** : None known.

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

Agilent Technologies LDA UK Ltd.  
5500 Lakeside Cheadle Royal Business Park,  
Cheadle, Cheshire, SK8 3GR  
United Kingdom  
Tel: +44 (0) 345 712 5292  
**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(44)-870-8200418

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

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

H290	CORROSIVE TO METALS	Category 1
H302	ACUTE TOXICITY (oral)	Category 4
H314	SKIN CORROSION/IRRITATION	Category 1A
H317	SKIN SENSITISATION	Category 1
H360FD	REPRODUCTIVE TOXICITY	Category 1B
H411	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 2

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

**Ingredients of unknown toxicity** : Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%  
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%

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

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

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Danger

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## SECTION 2: Hazards identification

- Hazard statements** : H290 - May be corrosive to metals.  
 H302 - Harmful if swallowed.  
 H314 - Causes severe skin burns and eye damage.  
 H317 - May cause an allergic skin reaction.  
 H360FD - May damage fertility. May damage the unborn child.  
 H411 - Toxic to aquatic life with long lasting effects.
- Precautionary statements**
- Prevention** : P201 - Obtain special instructions before use.  
 P280 - Wear protective gloves, protective clothing and eye or face protection.  
 P273 - Avoid release to the environment.
- Response** : P391 - Collect spillage.  
 P308 + P313 - IF exposed or concerned: Get medical advice or attention.
- Storage** : Not applicable.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazardous ingredients** : potassium hydroxide; boric acid; 3-mercaptopropionic acid; methanol and phthalaldehyde
- Supplemental label elements** : Contains isocyanates. May produce an allergic reaction.
- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Restricted to professional users.
- Special packaging requirements**
- Containers to be fitted with child-resistant fastenings** : Not applicable.
- Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

- Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
- Other hazards which do not result in classification** : Causes severe digestive tract burns.

## SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
potassium hydroxide	EC: 215-181-3 CAS: 1310-58-3 Index: 019-002-00-8	≤10	Acute Tox. 4, H302 Skin Corr. 1A, H314 Eye Dam. 1, H318	[1] [2]
boric acid	EC: 233-139-2 CAS: 10043-35-3 Index: 005-007-00-2	≤5	Repr. 1B, H360FD	[1]
3-Mercaptopropionic acid	EC: 203-537-0 CAS: 107-96-0	≤3	Met. Corr. 1, H290 Acute Tox. 3, H301 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318	[1]
Methanol	EC: 200-659-6	<3	Flam. Liq. 2, H225	[1] [2]

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

Phthalaldehyde	CAS: 67-56-1  EC: 211-402-2 CAS: 643-79-8	≤2.4	Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 STOT SE 1, H370 (central nervous system (CNS), optic nerve) Acute Tox. 3, H301 Skin Corr. 1, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 STOT SE 3, H335 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10)	[1]
alkali salts and alkali earth salts of thiocyanic acid	EC: 206-370-1 CAS: 333-20-0 Index: 615-030-00-5	≤3	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Aquatic Chronic 3, H412	[1] [2]
Dodecan-1-ol, ethoxylated	EC: 500-002-6 CAS: 9002-92-0	≤0.8	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411  <b>See Section 16 for the full text of the H statements declared above.</b>	[1]

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, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

**Eye contact**

: Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.

**Inhalation**

: Get medical attention immediately. Call a poison center or physician. 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 may need to be kept under medical surveillance for 48 hours.

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## SECTION 4: First aid measures

- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. 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. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
 pain  
 watering  
 redness
- Inhalation** : Adverse symptoms may include the following:  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
 pain or irritation  
 redness  
 blistering may occur  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
 stomach pains  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

### 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 an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

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## SECTION 5: Firefighting measures

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:  
 carbon dioxide  
 carbon monoxide  
 nitrogen oxides  
 sulfur oxides  
 metal oxide/oxides  
 Formaldehyde.

### 5.3 Advice for firefighters

- Special protective actions 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.
- 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.

## 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 spilt material. Do not breathe vapour 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 the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Avoid dispersal of spilt 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and material for containment and cleaning up

- Methods for cleaning up** : 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. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

### 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

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.

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## SECTION 7: Handling and storage

**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

**Storage** : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in corrosive resistant container with a resistant inner liner. Store locked up. Keep away from metals. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### Seveso Directive - Reporting thresholds

#### Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E2	200 tonne	500 tonne

### 7.3 Specific end use(s)

**Recommendations** : Industrial applications, Professional applications.

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

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
potassium hydroxide	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020).</b> STEL: 2 mg/m <sup>3</sup> 15 minutes.
Methanol	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.</b> STEL: 333 mg/m <sup>3</sup> 15 minutes. STEL: 250 ppm 15 minutes. TWA: 266 mg/m <sup>3</sup> 8 hours. TWA: 200 ppm 8 hours.
alkali salts and alkali earth salts of thiocyanic acid	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020). [cyanides, except HCN, cyanogen and cyanogen chloride] Absorbed through skin.</b> TWA: 5 mg/m <sup>3</sup> , (as CN) 8 hours.

#### Biological exposure indices

No exposure indices known.

**Recommended monitoring procedures** : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

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

Product/ingredient name	Type	Exposure	Value	Population	Effects	
potassium hydroxide	DNEL	Long term Inhalation	1 mg/m <sup>3</sup>	General population	Local	
	DNEL	Long term Inhalation	1 mg/m <sup>3</sup>	Workers	Local	
boric acid	DNEL	Short term Oral	0.98 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Oral	0.98 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Inhalation	4.15 mg/m <sup>3</sup>	General population	Systemic	
	DNEL	Long term Inhalation	8.3 mg/m <sup>3</sup>	Workers	Systemic	
3-Mercaptopropionic acid	DNEL	Long term Dermal	196 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Dermal	392 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Dermal	0.412 mg/kg bw/day	Workers	Systemic	
Methanol	DNEL	Long term Inhalation	1.45 mg/m <sup>3</sup>	Workers	Systemic	
	DNEL	Short term Oral	4 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Oral	4 mg/kg bw/day	General population	Systemic	
	DNEL	Short term Dermal	4 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Dermal	4 mg/kg bw/day	General population	Systemic	
	DNEL	Short term Dermal	20 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Dermal	20 mg/kg bw/day	Workers	Systemic	
	DNEL	Short term Inhalation	26 mg/m <sup>3</sup>	General population	Local	
	DNEL	Long term Inhalation	26 mg/m <sup>3</sup>	General population	Local	
	DNEL	Short term Inhalation	26 mg/m <sup>3</sup>	General population	Systemic	
	DNEL	Long term Inhalation	26 mg/m <sup>3</sup>	General population	Systemic	
	DNEL	Short term Inhalation	130 mg/m <sup>3</sup>	Workers	Local	
	DNEL	Long term Inhalation	130 mg/m <sup>3</sup>	Workers	Local	
	DNEL	Short term Inhalation	130 mg/m <sup>3</sup>	Workers	Systemic	
	DNEL	Long term Inhalation	130 mg/m <sup>3</sup>	Workers	Systemic	
	Phthalaldehyde	DNEL	Long term Oral	0.82 mg/kg bw/day	General population	Systemic
		DNEL	Long term Dermal	0.82 mg/kg bw/day	General population	Systemic
		DNEL	Long term Dermal	2.3 mg/kg bw/day	Workers	Systemic
		DNEL	Long term Inhalation	2.86 mg/m <sup>3</sup>	General population	Systemic
		DNEL	Long term Inhalation	16.1 mg/m <sup>3</sup>	Workers	Systemic
alkali salts and alkali earth salts of thiocyanic acid	DNEL	Long term Oral	0.3 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Inhalation	0.9 mg/m <sup>3</sup>	General population	Systemic	

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## SECTION 8: Exposure controls/personal protection

Dodecan-1-ol, ethoxylated	DNEL	Long term Dermal	2.6 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	3.6 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	5.1 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Oral	0.167 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.167 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.29 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Dermal	0.467 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.64 mg/m <sup>3</sup>	Workers	Systemic

### PNECs

No PNECs available

### 8.2 Exposure controls

**Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

#### 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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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.
- 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** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- 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.



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**SECTION 9: Physical and chemical properties**

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

**9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : Liquid.  
**Colour** : Yellow. [Light]  
**Odour** : Slight  
**Odour threshold** : Not available.  
**Melting point/freezing point** : Not available.  
**Initial boiling point and boiling range** : Not available.  
**Flammability** : Not applicable.  
**Upper/lower flammability or explosive limits** : Not available.

<b>Flash point</b> :		<b>Closed cup</b>		<b>Open cup</b>	
	<b>Ingredient name</b>	<b>°C</b>	<b>Method</b>	<b>°C</b>	<b>Method</b>
	methanol	9.7	Abel-Pensky	-	-
	phthalaldehyde	>110	Setaflash	-	-

<b>Auto-ignition temperature</b> :	<b>Ingredient name</b>	<b>°C</b>	<b>Method</b>
	methanol	455	DIN 51794

**Decomposition temperature** : Not available.

**pH** : 10.4

**Viscosity** : Not available.

<b>Solubility(ies)</b> :	<b>Media</b>	<b>Result</b>
	water	Soluble

**Miscible with water** : Yes.

**Partition coefficient: n-octanol/water** : Not applicable.

<b>Vapour pressure</b> :		<b>Vapour Pressure at 20 °C</b>			<b>Vapour pressure at 50 °C</b>		
	<b>Ingredient name</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>
	methanol	126.96329	16.9	-	-	-	-
	water	17.5	2.3	-	92.258	12.3	-

**Evaporation rate** : <1 (butyl acetate = 1)

**Relative density** : 1.045

**Density** : 1.045 g/cm<sup>3</sup>

**Vapour density** : Not available.

**Explosive properties** : Not available.

**Oxidising properties** : Not available.

**Particle characteristics**

**Median particle size** : Not applicable.

**9.2 Other information**

No additional information.

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## 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** : No specific data.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
metals  
Reactive or incompatible with the following materials: reducing 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
potassium hydroxide boric acid	LD50 Oral	Rat	273 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat - Male, Female	>2.12 mg/l	4 hours
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
3-Mercaptopropionic acid	LC50 Inhalation Dusts and mists	Rat - Male, Female	1818 mg/m <sup>3</sup>	4 hours
Methanol	LD50 Oral	Rat	96 mg/kg	-
	LC50 Inhalation Vapour	Rat	189.95 mg/l	1 hours
	LC50 Inhalation Vapour	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapour	Rat	83.84 mg/l	4 hours
	LC50 Inhalation Vapour	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
Phthalaldehyde	LD50 Oral	Rat	5600 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	238.12 mg/kg	-
alkali salts and alkali earth salts of thiocyanic acid	LD50 Oral	Rat	854 mg/kg	-
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
Dodecan-1-ol, ethoxylated	LD50 Oral	Rat - Female	1000 mg/kg	-

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
OPA Reagent	1715.2	13200.0	N/A	150.0	56.6
potassium hydroxide	500	N/A	N/A	N/A	N/A
boric acid	5100	N/A	N/A	N/A	N/A
3-Mercaptopropionic acid	96	N/A	N/A	N/A	1.818
Methanol	100	300	N/A	3	N/A
Phthalaldehyde	238.12	N/A	N/A	N/A	N/A
alkali salts and alkali earth salts of thiocyanic acid	854	1100	N/A	N/A	1.5
Dodecan-1-ol, ethoxylated	1000	N/A	N/A	N/A	N/A

#### Irritation/Corrosion

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## SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
<input checked="" type="checkbox"/> Potassium hydroxide	Eyes - Moderate irritant	Rabbit	-	24 hours 1 mg	-
	Skin - Severe irritant	Guinea pig	-	24 hours 50 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 50 mg	-
Methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	40 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
Dodecan-1-ol, ethoxylated	Eyes - Severe irritant	Rabbit	-	24 hours 750 ug	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-

### Sensitiser

**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.

### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
<input checked="" type="checkbox"/> Methanol	Category 1	-	central nervous system (CNS), optic nerve
Phthalaldehyde	Category 3	-	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

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

### Potential acute health effects

**Inhalation** : No known significant effects or critical hazards.

**Ingestion** : Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.

**Skin contact** : Causes severe burns. May cause an allergic skin reaction.

**Eye contact** : Causes serious eye damage.

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

**Inhalation** : Adverse symptoms may include the following:  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

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## SECTION 11: Toxicological information

**Ingestion** : Adverse symptoms may include the following:  
 stomach pains  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

**Skin contact** : Adverse symptoms may include the following:  
 pain or irritation  
 redness  
 blistering may occur  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

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

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary** : Not available.

**General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Reproductive toxicity** : May damage fertility. May damage the unborn child.

**Other information** : Adverse symptoms may include the following: blurred or double vision, Eye contact can result in corneal damage or blindness. Repeated or prolonged exposure to the substance can produce liver damage. Narcotic effect. May cause nervous system disturbances.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
potassium hydroxide	Acute LC50 80 ppm Fresh water	Fish - Western mosquitofish - <i>Gambusia affinis</i> - Adult	96 hours
boric acid	Acute LC50 45.5 mg/l Fresh water	Crustaceans - Water flea - <i>Ceriodaphnia dubia</i>	48 hours
	Acute LC50 133000 µg/l Fresh water	Daphnia - Water flea - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 75 mg/l Marine water	Fish - Red sea bream - <i>Pagrus major</i>	96 hours
	Chronic NOEC 6000 µg/l Fresh water	Daphnia - Water flea - <i>Daphnia magna</i>	21 days
3-Mercaptopropionic acid	Chronic NOEC 2100 µg/l Fresh water	Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i>	87 days
	Acute EC50 26 mg/l Fresh water	Algae	72 hours
	Acute EC50 9 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 98 mg/l Fresh water	Fish	96 hours

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## SECTION 12: Ecological information

Methanol	Acute NOEC 4.1 mg/l Fresh water	Algae	72 hours
	Acute EC50 2736 mg/l Marine water	Algae - Green algae - <i>Ulva pertusa</i>	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Common shrimp, sand shrimp - <i>Crangon crangon</i> - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - Water flea - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - Zebra danio - <i>Danio rerio</i> - Egg	96 hours
Phthalaldehyde	Chronic NOEC 9.96 mg/l Marine water	Algae - Green algae - <i>Ulva pertusa</i>	96 hours
	Acute EC50 90 ppb Fresh water	Daphnia - Water flea - <i>Daphnia magna</i>	48 hours
	Acute LC50 20 ppb Fresh water	Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i>	96 hours
alkali salts and alkali earth salts of thiocyanic acid	Acute LC50 11000 µg/l Fresh water	Daphnia - Water flea - <i>Daphnia pulex</i>	48 hours
	Acute LC50 20.8 mg/l Fresh water	Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i>	96 hours
	Chronic NOEC 1100 µg/l Fresh water	Fish - Bluegill - <i>Lepomis macrochirus</i> - Juvenile (Fledgling, Hatchling, Weanling)	124 days
Dodecan-1-ol, ethoxylated	Acute LC50 6460 µg/l Fresh water	Daphnia - Water flea - <i>Daphnia magna</i>	48 hours
	Acute LC50 1500 µg/l Fresh water	Fish - Atlantic salmon - <i>Salmo salar</i> - Parr	96 hours

**Conclusion/Summary** : Not available.

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
3-Mercaptopropionic acid	301A Ready Biodegradability - DOC Die-Away Test	96 % - Readily - 28 days	-	-

**Conclusion/Summary** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Boric acid	-	-	Not readily
3-Mercaptopropionic acid	-	-	Readily
Methanol	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Boric acid	-1.09	-	Low
3-Mercaptopropionic acid	-2.32	-	Low
Methanol	-0.77	<10	Low
Phthalaldehyde	0.99	-	Low
alkali salts and alkali earth salts of thiocyanic acid	-2.52	-	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

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## SECTION 12: Ecological information

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.






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

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised 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. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
<b>14.1 UN number</b>	UN1814	UN1814	UN1814
<b>14.2 UN proper shipping name</b>	POTASSIUM HYDROXIDE SOLUTION	POTASSIUM HYDROXIDE SOLUTION	Potassium hydroxide solution
<b>14.3 Transport hazard class(es)</b>	8  	8  	8 
<b>14.4 Packing group</b>	II	II	II
<b>14.5 Environmental hazards</b>	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

### Additional information

**Remarks:** De minimis quantities

**ADR/RID** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.  
**Hazard identification number** 80  
**Limited quantity** 1 L  
**Tunnel code** (E)

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.  
**Emergency schedules** F-A, S-B

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.  
**Quantity limitation** Passenger and Cargo Aircraft: 1 L. Packaging instructions: 851. Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: 0.5 L. Packaging instructions: Y840.  
**Special provisions** A3, A803

PA Reagent

## SECTION 14: Transport information

**14.6 Special precautions for user** : **Transport within user's premises:** 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.

**14.7 Transport in bulk according to IMO instruments**      **Proper shipping name** :  Potassium hydroxide solution  
**Remarks** :  **Liquid bulk cargoes:**  
 Ship type: 3  
 Pollution category: Y

## SECTION 15: Regulatory information

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

### UK (GB)/REACH

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

##### Annex XIV

None of the components are listed.

##### Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Toxic to reproduction	boric acid	Candidate	-	6/18/2010

##### Ozone depleting substances

Not listed.

##### Prior Informed Consent (PIC)

Not listed.

##### Persistent Organic Pollutants

Not listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles**

Product / Ingredient name	Identifiers	Status
<input checked="" type="checkbox"/> PA Reagent	-	3
boric acid	EC: 233-139-2 CAS: 10043-35-3 Index: 005-007-00-2	30
Methanol	EC: 200-659-6 CAS: 67-56-1	69

**Label** : Restricted to professional users.

##### Seveso Directive

This product is controlled under the Seveso Directive.

##### Danger criteria

Category
E2

##### EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Listed

☑ PA Reagent

## SECTION 15: Regulatory information

**Industrial emissions (integrated pollution prevention and control) - Water** : Listed

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**United States** : All components are active or exempted.

## 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]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification

Classification	Justification
Met. Corr. 1, H290 Acute Tox. 4, H302 Skin Corr. 1A, H314 Skin Sens. 1, H317 Repr. 1B, H360FD Aquatic Chronic 2, H411	Expert judgment Calculation method Calculation method Calculation method Calculation method Calculation method

### Full text of abbreviated H statements

☑ H225	Highly flammable liquid and vapour.
H290	May be corrosive to metals.
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.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.



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## SECTION 16: Other information

H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360FD	May damage fertility. May damage the unborn child.
H370	Causes damage to organs.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

### Full text of classifications

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Met. Corr. 1	CORROSIVE TO METALS - Category 1
Repr. 1B	REPRODUCTIVE TOXICITY - Category 1B
Skin Corr. 1	SKIN CORROSION/IRRITATION - Category 1
Skin Corr. 1A	SKIN CORROSION/IRRITATION - Category 1A
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
Skin Sens. 1A	SKIN SENSITISATION - Category 1A
STOT SE 1	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 1
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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