

Material Safety Data Sheet According to 91/155 EEC

Printing date 30.01.2006

Reviewed on 30.01.2006

1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Phosphate RGT F 10 ml
- **Catalogue number:** CW/53.15.50, CW/53.15.53
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 5329-14-6	sulphamidic acid	<input checked="" type="checkbox"/> Xi; R 36/38-52/53	20-25%
EINECS: 226-218-8			
EC Number: 016-026-00-0			

- **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard designation:**



Xi Irritant

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 36/38 Irritating to eyes and skin.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water.
Seek medical treatment.

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- **After swallowing**
 - Rinse out mouth and then drink plenty of water.
 - Seek immediate medical advice.
- **Information for doctor**
- **The following symptoms may occur:**
 - after inhalation:
 - irritation
 - coughing
 - breathing difficulty
 - after swallowing:
 - gastric or intestinal trouble
 - sickness
 - vomiting
 - mucous membrane irritation

5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
 - Formation of toxic gases is possible during heating or in case of fire.
 - Nitrogen oxides (NO_x)
 - Sulphur oxides (SO_x)
 - ammonia
- **Protective equipment:** Wear self-contained breathing apparatus.
- **Additional information**
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
 - Collect contaminated fire fighting water separately. It must not enter drains.
 - Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Person-related safety precautions:**
 - Avoid causing dust.
 - Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
- **Measures for cleaning/collecting:**
 - Dispose of contaminated material as waste according to item 13.
 - Collect mechanically.
 - Ensure adequate ventilation.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
 - Thorough dedusting.
 - Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** The product is not flammable
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:**
 - Store away from water.
 - Store away from metals.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Protect from heat and direct sunlight.

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Store under dry conditions.
 Protect from humidity and keep away from water.
 Protect from the effects of light.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
 - **Components with limit values that require monitoring at the workplace:**
 The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:** The lists that were valid during the compilation were used as basis.
 - **Personal protective equipment**
 - **General protective and hygienic measures**
 Keep away from foodstuffs, beverages and food.
 Take off immediately all contaminated clothing
 Wash hands during breaks and at the end of the work.
 Avoid contact with the eyes and skin.
 - **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
 - **Recommended filter device for short term use:** Filter P2
 - **Protection of hands:**
 The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 After use of gloves apply skin-cleaning agents and skin cosmetics.
 - **Material of gloves**
 nitrile rubber, NBR
 Recommended thickness of the material: ≥ 0.11 mm
 - **Penetration time of glove material**
 The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
 Value for the permeation: Level ≥ 6 (480 min)
 - **Eye protection:** Tightly sealed safety glasses.
 - **Body protection:** Protective work clothing.
-

9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	1689°C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Density at 20°C	2.373 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (30 g/l) at 20°C:	1.2
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

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*10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Materials to be avoided:**
 - alkalis
 - acids
 - metals
 - halogen compounds
 - nitrates
 - oxidizing agents
- **Dangerous reactions**
 - Reacts with water
 - Corrosive action on metals
 - Forms hydrogen in aqueous solution with metals
 - > Explosive
 - Aqueous solution reacts acidic.
- **Dangerous products of decomposition:** see chapter 5

11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

- **LD/LC50 values that are relevant for classification:**

5329-14-6 sulphamidic acid

Oral	LD50	3160 mg/kg (rat)
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50-81-7 ascorbic acid

Oral	LD50	11900 mg/kg (rat)
------	------	-------------------

10043-35-3 boric acid, crude natural, containing not more than 85 per cent of H3BO3 calculated on the dry weight

Oral	LD50	2660 mg/kg (rat)
------	------	------------------

Dermal	LD50	> 2000 mg/kg (rat)
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10102-40-6 sodium molybdate

Oral	LD50	4233 mg/kg (rat)
------	------	------------------

Dermal	LD50	> 2000 mg/kg (rat)
--------	------	--------------------

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Irritant
 - The aerosol is corrosive to the eyes, the skin and the respiratory tract. Inhalation of sulfamic acid aerosols may cause lung oedema.

12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:** Quantitative data on the ecological effect of this product are not available.

- **Behaviour in environmental systems:**

5329-14-6 sulphamidic acid

log P(o/w)	-4.34 (.)
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50-81-7 ascorbic acid

log P(o/w)	-2.15 (.)
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10043-35-3 boric acid, crude natural, containing not more than 85 per cent of H₃BO₃ calculated on the dry weight	
log P(o/w)	0.76 (25°C) (.)

· Ecotoxicological effects:

· Aquatic toxicity:	
5329-14-6 sulphamidic acid	
LC50	70.3 mg/l/96h (Pimephales promelas)
50-81-7 ascorbic acid	
LC50	33000 (Merck) mg/l/48h (Leuciscus idus) 1020 mg/l/96h (Onchorhynchus mykiss)
10043-35-3 boric acid, crude natural, containing not more than 85 per cent of H₃BO₃ calculated on the dry weight	
EC50	133 mg/l/48h (Daphnia magna)
LC50	5600 mg/l/96h (Gambusia affinis)
10102-40-6 sodium molybdate	
EC50	330 mg/l/48h (Daphnia magna)
LC50	7600 mg/l/96h (Onchorhynchus mykiss)

· Remark:

Harmful effect due to pH shift.

Toxic for fish:

sulphates > 7 g/l

· Algae toxicity: CAS-No. 10102-40-6: Selenastrum capricornutum IC50: > 100 mg/l/72 h

· Bacterial toxicity:

sulphates toxic > 2.5 g/l

CAS-No. 10102-40-6: Pseudomonas putida EC10: 50 mg/l/18 h

· General notes:

Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

13 Disposal considerations

· Product:
· Recommendation Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue	
16 05 06	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals

· Uncleaned packagings:
· Recommendation: Disposal must be made according to official regulations.

· Recommended cleaning agent: Water, if necessary with cleaning agent.

14 Transport information

· Land transport ADR/RID (cross-border)

· ADR/RID-GGVS/E Class: 8 (C2) Corrosive substances.

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· Kemler Number:	80
· UN-Number:	2967
· Packaging group:	III
· Label	8

· Maritime transport IMDG:


· IMDG Class:	8
· UN Number:	2967
· Label	8
· Packaging group:	III
· EMS Number:	F-A,S-B
· Marine pollutant:	No
· Correct technical name:	SULPHAMIC ACID, mixture

· Air transport ICAO-TI and IATA-DGR:


· ICAO/IATA Class:	8
· UN/ID Number:	2967
· Label	8
· Packaging group:	III
· Correct technical name:	SULPHAMIC ACID, mixture

15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

Xi Irritant

· Risk phrases:

36/38 Irritating to eyes and skin.

· Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

37 Wear suitable gloves.

60 This material and its container must be disposed of as hazardous waste.

· National regulations

· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

36/38 Irritating to eyes and skin.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Department issuing data specification sheet:** Technical Department

· *** Data compared to the previous version altered.**

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* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Potassium Persulfate F 10
- **Catalogue number:** CW/53.15.60
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

* 2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Mixture of anorganic compounds

- **Dangerous components:**

CAS: 7775-27-1 EINECS: 231-892-1	disodium peroxodisulphate	 Xn,  O; R 8-22-36/37/38-42/43	90-100%
CAS: 7727-21-1 EINECS: 231-781-8 EC Number: 016-061-00-1	potassium persulphate	 Xn,  O; R 8-22-36/37/38-42/43	5-10%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



Xn Harmful
O Oxidising

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- R 8 Contact with combustible material may cause fire.
- R 22 Harmful if swallowed.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 42/43 May cause sensitisation by inhalation and skin contact.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

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Product name: Potassium Persulfate F 10

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* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
 - Supply fresh air or oxygen; call for doctor.
 - In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**
 - Instantly rinse with water.
 - Seek medical treatment.
- **After eye contact**
 - Rinse opened eye for several minutes under running water.
 - Call a doctor immediately.
- **After swallowing**
 - Rinse out mouth and then drink plenty of water.
 - Induce vomiting.
- **Information for doctor**
- **The following symptoms may occur:**
 - after inhalation:
 - coughing
 - breathing difficulty
 - irritation
 - after swallowing:
 - headache
 - sickness
 - mucous membrane irritation
 - gastric or intestinal trouble
- **Danger**
 - risk of skin sensitization
 - risk of airways sensitization
 - Danger of pulmonary oedema.

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
 - Formation of toxic gases is possible during heating or in case of fire.
 - Sulphur oxides (SO_x)
- **Protective equipment:**
 - Wear full protective suit.
 - Wear self-contained breathing apparatus.
- **Additional information**
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
 - Collect contaminated fire fighting water separately. It must not enter drains.

* 6 Accidental release measures

- **Person-related safety precautions:**
 - Wear protective equipment. Keep unprotected persons away.
 - Put on breathing apparatus.
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
- **Measures for cleaning/collecting:**
 - Collect mechanically.
 - Dispose of contaminated material as waste according to item 13.
 - Ensure adequate ventilation.

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Product name: Potassium Persulfate F 10

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* 7 Handling and storage

- **Handling**
 - **Information for safe handling:**
 - Thorough dedusting.
 - Work only in fume cupboard.
 - **Information about protection against explosions and fires:**
 - Protect from heat.
 - Keep ignition sources away - Do not smoke.
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.
 - **Information about storage in one common storage facility:** Store away from flammable substances.
 - **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store under dry conditions.
-

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
 - **Components with limit values that require monitoring at the workplace:**
 - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:** The lists that were valid during the compilation were used as basis.
 - **Personal protective equipment**
 - **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Take off immediately all contaminated clothing
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
 - **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
 - **Recommended filter device for short term use:** Filter P2
 - **Protection of hands:**
 - Only use chemical-protective gloves with CE-labelling of category III.
 - After use of gloves apply skin-cleaning agents and skin cosmetics.
 - **Material of gloves**
 - nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm
 - **Penetration time of glove material**
 - The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
 - Value for the permeation: Level ≥ 6 (480 min)
 - **Eye protection:** Tightly sealed safety glasses.
 - **Body protection:** Light weight protective clothing
-

* 9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Odourless
· Melting point/Melting range:	Not applicable
· Boiling point/Boiling range:	Not applicable
· Flash point:	Not determined
· Inflammability (solid, gaseous)	Contact with combustible material may cause fire.
· Density at 20°C	1.224 g/cm ³

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Product name: Potassium Persulfate F 10

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· Solubility in / Miscibility with Water:	Soluble
· pH-value (9 g/l) at 20°C:	4.2
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
 - **Materials to be avoided:**
 - combustible substances
 - alcohols
 - reducing agents
 - **Dangerous reactions**
 - Can react violently with oxygen rich (oxidizing) material. Explosive.
 - Risk of dust explosion
 - **Dangerous products of decomposition:**
 - oxygen
 - see chapter 5
-

* 11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:		
7775-27-1 disodium peroxodisulphate		
Oral	LD50	930 mg/kg (rat)
Inhalative	LC50/4 h	> 5100 mg/l (rat)
	LD50 IPR	226 mg/kg (mouse)
7727-21-1 potassium persulphate		
Oral	LD50	802 mg/kg (rat)

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritant effect.
 - **Sensitization:**
 - Sensitization possible by skin contact.
 - Sensitization possible by inhalation.
 - **Subacute to chronic toxicity:**
 - CAS-No. 7775-27-1:
 - MERCK: Sensitization test (guinea pig): positiv (OECD 406)
 - **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Harmful
 - Irritant
-

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Product name: Potassium Persulfate F 10

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* 12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
Quantitative data on the ecological effect of this product are not available.
Does not cause biological oxygen deficit.
- **Ecotoxicological effects:**
- **Aquatic toxicity:**
Reacts with water

7775-27-1 disodium peroxodisulphate	
EC50	133 mg/l/48h (Daphnia magna)
LC50	771 mg/l/96h (Lepomis macrochirus) 163 mg/l/96h (Onchorhynchus mykiss)
7727-21-1 potassium persulphate	
Daphnia EC50	357 mg/l/24h (Daphnia magna)
LC50	100 mg/l/96h (Poecilia reticulata)

- **Remark:**
Toxic for fish:
sulphates > 7 g/l
Reacts with water to form toxic decomposition products.
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralized.

13 Disposal considerations

- **Product:**
- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

European waste catalogue	
16 05 07	discarded inorganic chemicals consisting of or containing dangerous substances

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* 14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID-GGVS/E Class:** 5.1 (O2) Oxidizing substances.
- **Kemler Number:** 50
- **UN-Number:** 3215
- **Packaging group:** III
- **Label:** 5.1

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· Designation of goods:	3215 PERSULPHATES, INORGANIC, N.O.S. (SODIUM PERSULPHATE, POTASSIUM PERSULPHATE)
· Maritime transport IMDG:	
	
· IMDG Class:	5.1
· UN Number:	3215
· Label	5.1
· Packaging group:	III
· EMS Number:	F-A,S-Q
· Marine pollutant:	No
· Correct technical name:	PERSULPHATES, INORGANIC, N.O.S.
· Air transport ICAO-TI and IATA-DGR:	
	
· ICAO/IATA Class:	5.1
· UN/ID Number:	3215
· Label	5.1
· Packaging group:	III
· Correct technical name:	PERSULPHATES, INORGANIC, N.O.S.

*15 Regulatory information

- Designation according to EC guidelines:**
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)
- Code letter and hazard designation of product:**
Xn Harmful
O Oxidising
- Hazard-determining components of labelling:**
disodium peroxodisulphate
potassium persulphate
- Risk phrases:**
8 Contact with combustible material may cause fire.
22 Harmful if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.
42/43 May cause sensitisation by inhalation and skin contact.
- Safety phrases:**
17 Keep away from combustible material.
22 Do not breathe dust.
24 Avoid contact with skin.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
37 Wear suitable gloves.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
60 This material and its container must be disposed of as hazardous waste.
- National regulations**
- Information about limitation of use:**
Employment restrictions concerning young persons must be observed.

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Product name: Potassium Persulfate F 10

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Employment restrictions concerning pregnant and lactating women must be observed.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant R-phrases**

- 22 Harmful if swallowed.
- 36/37/38 Irritating to eyes, respiratory system and skin.
- 42/43 May cause sensitisation by inhalation and skin contact.
- 8 Contact with combustible material may cause fire.

· **Department issuing data specification sheet:** Technical Department

· *** Data compared to the previous version altered.**

Material Safety Data Sheet According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** **Phosphate Acid Reagent Vial**
- **Catalogue number:** CW/53.52.10, CW/53.52.50
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

* 2 Composition/Data on components:

- **Chemical characterization**
- **Description:** sulfuric acid solution

- **Dangerous components:**

CAS: 7664-93-9	sulphuric acid	 C; R 35	5-10%
EINECS: 231-639-5			
EC Number: 016-020-00-8			

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



Xi Irritant

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 36/38 Irritating to eyes and skin.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.

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Product name: Phosphate Acid Reagent Vial

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- **After swallowing**
Seek medical treatment.
Rinse out mouth and then drink plenty of water.
 - **Information for doctor**
 - **The following symptoms may occur:**
after swallowing:
damage to the affected mucous membranes possible
sickness
vomiting
diarrhoea
after inhalation:
mucous membrane irritation
coughing
 - **Danger** Danger of gastric perforation.
-

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
 - **Special hazards caused by the material, its products of combustion or resulting gases:**
Formation of toxic gases is possible during heating or in case of fire.
nitrous gases
Sulphur oxides (SO_x)
 - **Protective equipment:** Wear self-contained breathing apparatus.
 - **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.
-

* 6 Accidental release measures

- **Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Put on breathing apparatus.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
Neutralize with diluted sodium hydroxide solution or by throwing on lime sand, lime or sodium carbonate.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Ensure adequate ventilation.
Dispose of contaminated material as waste according to item 13.
-

* 7 Handling and storage

- **Handling**
 - **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
 - **Information about protection against explosions and fires:** The product is not flammable
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.
 - **Information about storage in one common storage facility:**
Store away from oxidizing agents.
Store away from metals.
 - **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
-

(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: Phosphate Acid Reagent Vial

(Contd. of page 2)

Protect from humidity and keep away from water.
Protect from the effects of light.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
 - **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:** The lists that were valid during the compilation were used as basis.
 - **Personal protective equipment**
 - **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Do not eat, drink or smoke while working.
 - **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
 - **Recommended filter device for short term use:** Filter B
 - **Protection of hands:**
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
 - **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
 - **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level ≥ 6 (480 min)
 - **Eye protection:** Tightly sealed safety glasses.
 - **Body protection:** Protective work clothing.
-

* 9 Physical and chemical properties:

· Form:	Fluid
· Colour:	Colourless
· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	100°C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Density at 20°C	1.059 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	< 1
· Solvent content:	
Organic solvents:	0.0 %
Water:	< 95 %

— GB —

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: Phosphate Acid Reagent Vial

(Contd. of page 3)

*10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Materials to be avoided:**
 - ammonia
 - alkalis
 - acids
 - metals
 - combustible substances
 - organic solvents
- **Dangerous reactions**
 - Corrosive action on metals
 - Reacts with metals forming hydrogen
 - Reacts with organic substances
 - Forms hydrogen in aqueous solution with metals
 - > Explosive
- **Dangerous products of decomposition:**
 - nitrous gases
 - Sulphur oxides (SOx)
 - see chapter 5

*11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:		
7664-93-9 sulphuric acid		
Oral	LD50	2140 (25%) mg/kg (rat)
Inhalative	LC 50	510 (pure) mg/m ³ /2h (rat)

Oral	LD50	2140 (25%) mg/kg (rat)
Inhalative	LC 50	510 (pure) mg/m ³ /2h (rat)

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Irritant

*12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
 - Methods for the determination of biodegradability are not applicable to inorganic substances.
 - Inorganic substance. Does not cause biological oxygen deficit.
- **Ecotoxicological effects:**

· Acquatic toxicity:	
7664-93-9 sulphuric acid	
Daphnia EC50	29 mg/l/24h (Daphnia magna)

Daphnia EC50	29 mg/l/24h (Daphnia magna)
--------------	-----------------------------

- **Remark:**
 - Toxic for algae
 - Forms corrosive mixtures with water even if diluted.
- **Remark:** neutralization possible
- **General notes:**
 - Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.
 - Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

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Material Safety Data Sheet

According to 91/155 EEC

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Product name: Phosphate Acid Reagent Vial

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Must not reach sewage water or drainage ditch undiluted or unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

13 Disposal considerations

- **Product:**
 - **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- | | |
|-----------------------------------|--------------------------------------------------------------------------------|
| · European waste catalogue | |
| 16 05 07 | discarded inorganic chemicals consisting of or containing dangerous substances |
- **Uncleaned packagings:**
 - **Recommendation:** Disposal must be made according to official regulations.
 - **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

· Land transport ADR/RID (cross-border)


- **ADR/RID-GGVS/E Class:** 8 (C1) Corrosive substances.
- **Kemler Number:** 80
- **UN-Number:** 3264
- **Packaging group:** III
- **Label** 8
- **Designation of goods:** 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)

· Maritime transport IMDG:


- **IMDG Class:** 8
- **UN Number:** 3264
- **Label** 8
- **Packaging group:** III
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Correct technical name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)

· Air transport ICAO-TI and IATA-DGR:


- **ICAO/IATA Class:** 8
- **UN/ID Number:** 3264
- **Label** 8
- **Packaging group:** III

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Material Safety Data Sheet

According to 91/155 EEC

Printing date 01.02.2006

Reviewed on 01.02.2006

Product name: Phosphate Acid Reagent Vial

(Contd. of page 5)

· Correct technical name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)

* 15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

Xi Irritant

· Risk phrases:

36/38 Irritating to eyes and skin.

· Safety phrases:

23 Do not breathe fumes/aerosol.

25 Avoid contact with eyes.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

37 Wear suitable gloves.

60 This material and its container must be disposed of as hazardous waste.

· National regulations**· Information about limitation of use:** Employment restrictions concerning young persons must be observed.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

35 Causes severe burns.

· Department issuing data specification sheet: Technical Department**· * Data compared to the previous version altered.**

Material Safety Data Sheet According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005


1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Sodium hydroxide 1N
- **Catalogue number:** CW/53.15.20
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

2 Composition/Data on components:

- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 1310-73-2	sodium hydroxide		C; R 35	2.5-5%
EINECS: 215-185-5				
EC Number: 011-002-00-6				

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 34 Causes burns.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**
Instantly wash with polyethylene glycol 400.
Instantly rinse with water.

(Contd. on page 2)

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Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1N

(Contd. of page 1)

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

- **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
 - **After swallowing** Drink copious amounts of water and provide fresh air. Instantly call for doctor.
 - **The following symptoms may occur:**
after inhalation:
burns
coughing
breathing difficulty
after swallowing:
Strong caustic effect.
pain
 - **Danger** Danger of gastric perforation.
 - **Treatment** Subsequent observation for pneumonia and pulmonary oedema
-

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
 - **Protective equipment:** Wear self-contained breathing apparatus.
 - **Additional information**
Ambient fire may liberate hazardous vapours.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.
-

* 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
neutralize with diluted sulphuric acid
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
-

* 7 Handling and storage

- **Handling**
 - **Information for safe handling:** Open and handle container with care.
 - **Information about protection against explosions and fires:** The product is not flammable
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.
 - **Information about storage in one common storage facility:**
Store away from metals.
Do not store together with acids.
 - **Further information about storage conditions:**
Keep container tightly sealed.
Store under dry conditions.
Protect from heat and direct sunlight.
 - **Storage class** Not required.
-

— GB —

(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1N

(Contd. of page 2)

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Do not eat, drink or smoke while working.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter B
- **Protection of hands:**
Alkaline resistant gloves
Only use chemical-protective gloves with CE-labelling of category III.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level ≥ 6 (480 min)
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Alkaline resistant protective clothing

* 9 Physical and chemical properties:

· Form:	Fluid
· Colour:	Colourless
· Odour:	Odourless
· Melting point/Melting range:	0°C
· Boiling point/Boiling range:	100°C
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	23 hPa
· Density at 20°C	1.04 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	13.1
· Solvent content:	
Organic solvents:	0.0 %
Water:	> 95 %

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Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1N

(Contd. of page 3)

· Solids content:	< 5 %
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*10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
 - **Materials to be avoided:**
 - acids
 - metals
 - aluminium
 - zinc
 - NH_x
 - **Dangerous reactions**
 - Corrosive action on metals
 - Corrodes aluminium
 - Reacts with metals forming hydrogen
 - > Explosive
 - **Dangerous products of decomposition:**
 - ammonia
 - see chapter 5
-

*11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:

1310-73-2 sodium hydroxide

Oral	LD50	2000 mg/kg (rat)
------	------	------------------

- **Primary irritant effect:**
 - **on the skin:** Caustic effect on skin and mucous membranes.
 - **on the eye:** Strong caustic effect.
 - **Sensitization:** No sensitizing effect known.
 - **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Corrosive
 - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
-

*12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
 - Quantitative data on the ecological effect of this product are not available.
 - Does not cause biological oxygen deficit.
- **Ecotoxic effects:**

· Aquatic toxicity:

1310-73-2 sodium hydroxide

LC 50	189 mg/l (fish)
-------	-----------------

- **Remark:**
 - Forms corrosive mixtures with water even if diluted.
 - Toxic for algae
 - toxic for fish
- **Remark:** neutralization possible

(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1N

(Contd. of page 4)

- **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms.

13 Disposal considerations

- **Product:**

- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **European waste catalogue**

16 05 07	discarded inorganic chemicals consisting of or containing dangerous substances
----------	--------------------------------------------------------------------------------

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID-GGVS/E Class:** 8 (C5) Corrosive substances.

- **Kemler Number:** 80

- **UN-Number:** 1824

- **Packaging group:** II

- **Label** 8

- **Designation of goods:** 1824 SODIUM HYDROXIDE SOLUTION

- **Maritime transport IMDG:**



- **IMDG Class:** 8

- **UN Number:** 1824

- **Label** 8

- **Packaging group:** II

- **EMS Number:** F-A,S-B

- **Marine pollutant:** No

- **Correct technical name:** SODIUM HYDROXIDE SOLUTION

- **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 8

- **UN/ID Number:** 1824

- **Label** 8

- **Packaging group:** II

(Contd. on page 6)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1N

(Contd. of page 5)

· Correct technical name: SODIUM HYDROXIDE SOLUTION

*15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

C Corrosive

· Hazard-determining components of labelling:

sodium hydroxide

· Risk phrases:

34 Causes burns.

· Safety phrases:

20 When using do not eat or drink.

23 Do not breathe fumes/aerosol.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

60 This material and its container must be disposed of as hazardous waste.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

35 Causes severe burns.

· Department issuing data specification sheet: Technical Department**· * Data compared to the previous version altered.**

Material Safety Data Sheet According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005


1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Vario Sodium hydroxide 1.54N
- **Catalogue number:** CW/53.15.50
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

2 Composition/Data on components:

- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 1310-73-2	sodium hydroxide		C; R 35	5-10%
EINECS: 215-185-5				
EC Number: 011-002-00-6				

- **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 35 Causes severe burns.

- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**
Clean with water and soap. If possible, also wash with polyethylene glycol 400.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

(Contd. on page 2)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1.54N

(Contd. of page 1)

- **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
 - **After swallowing** Drink copious amounts of water and provide fresh air. Instantly call for doctor.
 - **The following symptoms may occur:**
after inhalation:
burns
coughing
breathing difficulty
after swallowing:
pain
Strong caustic effect.
 - **Danger** Danger of gastric perforation.
 - **Treatment** Subsequent observation for pneumonia and pulmonary oedema
-

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
 - **Special hazards caused by the material, its products of combustion or resulting gases:**
Development of hazardous combustion gases or vapours possible in the event of fire.
 - **Protective equipment:** Wear self-contained breathing apparatus.
 - **Additional information**
Ambient fire may liberate hazardous vapours.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.
-

* 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
neutralize with diluted sulphuric acid
-

* 7 Handling and storage

- **Handling**
 - **Information for safe handling:** Open and handle container with care.
 - **Information about protection against explosions and fires:** The product is not flammable
 - **Storage**
 - **Requirements to be met by storerooms and containers:** Store in cool location.
 - **Information about storage in one common storage facility:**
Store away from metals.
Do not store together with acids.
 - **Further information about storage conditions:**
Keep container tightly sealed.
Store under dry conditions.
Protect from heat and direct sunlight.
 - **Storage class** Not required.
-

— GB —
(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1.54N

(Contd. of page 2)

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

1310-73-2 sodium hydroxide

OES (Great Britain) Short-term value: 2 mg/m ³

- **Additional information:** The lists that were valid during the compilation were used as basis.

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from foodstuffs, beverages and food.

Take off immediately all contaminated clothing

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.

- **Recommended filter device for short term use:** Filter B

- **Protection of hands:**

Alkaline resistant gloves

Only use chemical-protective gloves with CE-labelling of category III.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

After use of gloves apply skin-cleaning agents and skin cosmetics.

- **Material of gloves**

nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.11 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Value for the permeation: Level ≥ 6 (480 min)

- **Eye protection:** Tightly sealed safety glasses.

- **Body protection:** Alkaline resistant protective clothing

* 9 Physical and chemical properties:

· Form:	Fluid
· Colour:	Colourless
· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	100°C
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	23 hPa
· Density at 20°C	1.068 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	13.3
· Solvent content:	
Organic solvents:	0.0 %
Water:	> 90 %

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1.54N

(Contd. of page 3)

· Solids content:	< 10 %
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*10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
 - **Materials to be avoided:**
 - acids
 - metals
 - aluminium
 - zinc
 - NH_x
 - **Dangerous reactions**
 - Reacts with metals forming hydrogen
 - > Explosive
 - Corrosive action on metals
 - Corrodes aluminium
 - **Dangerous products of decomposition:**
 - ammonia
 - see chapter 5
-

*11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:		
---------------------------------------------------------------	--	--

1310-73-2 sodium hydroxide		
-----------------------------------	--	--

Oral	LD50	2000 mg/kg (rat)
------	------	------------------

- **Primary irritant effect:**
 - **on the skin:** Strong caustic effect on skin and mucous membranes.
 - **on the eye:** Strong caustic effect.
 - **Sensitization:** No sensitizing effect known.
 - **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Corrosive
 - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
-

*12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
 - Methods for the determination of biodegradability are not applicable to inorganic substances.
 - Does not cause biological oxygen deficit.
- **Ecotoxic effects:**

· Aquatic toxicity:	
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1310-73-2 sodium hydroxide	
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LC 50	189 mg/l (fish)
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- **Remark:**
 - Toxic for algae
 - Toxic for fish:
 - Forms corrosive mixtures with water even if diluted.
- **Remark:** neutralization possible

(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1.54N

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- **General notes:**

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

13 Disposal considerations

- **Product:**

- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **European waste catalogue**

16 05 07	discarded inorganic chemicals consisting of or containing dangerous substances
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- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID-GGVS/E Class:** 8 (C5) Corrosive substances.

- **Kemler Number:** 80

- **UN-Number:** 1824

- **Packaging group:** II

- **Label** 8

- **Designation of goods:** 1824 SODIUM HYDROXIDE SOLUTION

- **Maritime transport IMDG:**



- **IMDG Class:** 8

- **UN Number:** 1824

- **Label** 8

- **Packaging group:** II

- **EMS Number:** F-A,S-B

- **Marine pollutant:** No

- **Correct technical name:** SODIUM HYDROXIDE SOLUTION

- **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 8

- **UN/ID Number:** 1824

- **Label** 8

- **Packaging group:** II

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Material Safety Data Sheet

According to 91/155 EEC

Printing date 11.03.2005

Reviewed on 11.03.2005

Product name: Sodium hydroxide 1.54N

(Contd. of page 5)

· Correct technical name: SODIUM HYDROXIDE SOLUTION

* 15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

C Corrosive

· Hazard-determining components of labelling:

sodium hydroxide

· Risk phrases:

35 Causes severe burns.

· Safety phrases:

20 When using do not eat or drink.

23 Do not breathe fumes/aerosol.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

60 This material and its container must be disposed of as hazardous waste.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

35 Causes severe burns.

· Department issuing data specification sheet: Technical Department**· * Data compared to the previous version altered.**