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: PAN Indicator Solution 0.1%**

· **Catalogue number:** CW/53.06.30

· **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: 68-12-2 EINECS: 200-679-5 EC Number: 616-001-00-X	N,N-dimethylformamide	Repr. Cat. 2; T; R 61-20/21-36	45-50%

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

* 3 Hazards identification

· **Hazard designation:**

T Toxic

· **Information pertaining to particular dangers for man and environment**
Heightened risk of fire and danger of explosion at accumulation in lower-lying or closed rooms
Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.
R 61 May cause harm to the unborn child.
R 20/21 Harmful by inhalation and in contact with skin.
R 36 Irritating to eyes.
Restricted to professional users.
· **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: PAN Indicator Solution 0.1%

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4 First aid measures

· **General information**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **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**
Call a doctor immediately.
Instantly wash with water and soap and rinse thoroughly.
· **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
· **After swallowing**
Drink copious amounts of water, induce vomiting.
Call a doctor immediately.
· **Information for doctor**
· **The following symptoms may occur:**
after swallowing:
sickness
vomiting
gastric pain
diarrhoea
· **Danger** Condition may deteriorate with alcohol consumption.

* 5 Fire fighting measures

· **Suitable extinguishing agents**
Foam
Fire-extinguishing powder
· **Special hazards caused by the material, its products of combustion or resulting gases:**
carbon monoxide and carbon dioxide
nitrous gases
Under certain fire conditions, traces of other toxic gases cannot be excluded.
· **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.
· **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.

* 7 Handling and storage

· **Handling**
· **Information for safe handling:**
Open and handle container with care.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep breathing equipment ready.

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Product name: PAN Indicator Solution 0.1%

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Fumes can combine with air to form an explosive mixture.
Keep ignition sources away - Do not smoke.

· **Storage**
· **Requirements to be met by storerooms and containers:** Store in cool location.
· **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
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:**	
68-12-2 N,N-dimethylformamide	
WEL (Great Britain)	Short-term value: 61 mg/m³, 20 ppm Long-term value: 30 mg/m³, 10 ppm

· **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.
Store protective clothing separately.
Avoid contact with the eyes and skin.

· **Breathing equipment:**
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
· **Recommended filter device for short term use:** Filter A
· **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**
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.5 mm
· **Penetration time of glove material**
Value for the permeation: Level ≥ 6 (480 min)
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Tightly sealed safety glasses.
· **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· **Form:**	Fluid
· **Colour:**	Dark orange
· **Odour:**	Ammonia-like
· **Melting point/Melting range:**	Not determined
· **Boiling point/Boiling range:**	~ 100°C
· **Flash point:**	> 90°C
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/steam mixtures is possible.
· **Density at 20°C**	1.046 g/cm³

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Product name: PAN Indicator Solution 0.1%

(Contd. of page 3)

· **Solubility in / Miscibility with**	
Water:	Fully miscible
· **pH-value at 20°C:**	8
· **Solvent content:**	
Organic solvents:	< 50 %
Water:	< 30 %
· **Solids content:**	< 20 %

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
· **Materials to be avoided:**
Hydrohalogens
alkali metals
halogen compounds
nitrates
oxidizing agents
· **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:**		
68-12-2 N,N-dimethylformamide		
Oral	LD50	2800 mg/kg (rat)
Dermal	LD50	1500 mg/kg (rabbit)
Inhalative	LC50/4 h	9-15 mg/l (rat)
9002-93-1 Octylphenol decaethylene		
Oral	LD50	707 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritant effect.
· **Sensitization:** No sensitizing effect known.
· **Experience with humans:**
Can cause liver damages.
Can cause kidney damages.
· **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:
Danger by skin resorption.
Toxic
Irritant
Product is suspected to cause injury to foetus.

12 Ecological information:

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

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Product name: PAN Indicator Solution 0.1%

(Contd. of page 4)

· **Behaviour in environmental systems:**	
68-12-2 N,N-dimethylformamide	
log P(o/w)	-0.85 (.)

· **Ecotoxical effects:**

· **Acquatic toxicity:**	
68-12-2 N,N-dimethylformamide	
EC50	15700 mg/l/48h (Daphnia magna)
LC50	9800 mg/l/96h (Onchorhynchus mykiss)
	10600 mg/l/96h (Pimephales promelas)
9002-93-1 Octylphenol decaethylene	
EC50	26 mg/l/48h (Daphnia magna)
LC50	8.9 mg/l/96h (Pimephales promelas)

· **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 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:** -

· **Maritime transport IMDG:**
· **IMDG Class:** -
· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**
· **ICAO/IATA Class:** -

· **Transport/Additional information:** Not dangerous according to the above specifications.

* 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:**
T Toxic

· **Hazard-determining components of labelling:**
N,N-dimethylformamide

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Product name: PAN Indicator Solution 0.1%

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· **Risk phrases:**
61 May cause harm to the unborn child.
20/21 Harmful by inhalation and in contact with skin.
36 Irritating to eyes.

· **Safety phrases:**
53 Avoid exposure - obtain special instructions before use.
9 Keep container in a well-ventilated place.
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.

· **Special designation of certain preparations:**
Restricted to professional users.

· **National regulations**

· **Information about limitation of use:**
Employment restrictions concerning young persons must be observed.
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**
20/21 Harmful by inhalation and in contact with skin.
36 Irritating to eyes.
61 May cause harm to the unborn child.

· **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 12.10.2005 Reviewed on 12.10.2005

* 1 Identification of substance:

· **Product details:** Reagent for water analysis

· **Product name: Alkaline-Cyanide Reagent Solution**

· **Catalogue number:** CW/53.06.20

· **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: 143-33-9 EINECS: 205-599-4 EC Number: 006-007-00-5	sodium cyanide	T+, N; R 26/27/28-32-50/53	5-10%
CAS: 1310-73-2 EINECS: 215-185-5 EC Number: 011-002-00-6	sodium hydroxide	C; R 35	2.5-5%

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

* 3 Hazards identification

· **Hazard designation:**

T Toxic
C Corrosive
N Dangerous for the environment

· **Information pertaining to particular dangers for man and environment**
The product is skin-resorbing.
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 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 31 Contact with acids liberates toxic gas.
R 34 Causes burns.
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **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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Material Safety Data Sheet
According to 91/155 EEC

Printing date 16.06.2005 Reviewed on 14.06.2005

Product name: Alkaline-Cyanide Reagent Solution

(Contd. of page 1)

* 4 First aid measures

· **General information**
Provide oxygen treatment if affected person has difficulty breathing.
Keep warm, position comfortably and cover well.
Instantly remove any clothing soiled by the product.
Personal protection for the First Aider!
Remove breathing apparatus only after soiled clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation**
Oxygen supply
Take affected persons into the open air and position comfortably
In case of unconsciousness bring patient into stable side position for transport.
· **After skin contact**
Instantly rinse with water.
Call a doctor immediately.
· **After eye contact**
Call a doctor immediately.
Rinse opened eye for several minutes under running water.
· **After swallowing** Drink copious amounts of water and provide fresh air. Instantly call for doctor.
· **The following symptoms may occur:**
after absorption:
breathing difficulty
cramps
unconsciousness
headache
dazed
vomiting
burns
coma
· **Danger**
blockade of cellular respiration
Danger of disturbed cardiac rhythm.
Danger of gastric perforation.
· **Treatment** If blue colouring appears (lips, ear-lobes, finger-nails), oxygen respiration treatment as quickly as possible.

* 5 Fire fighting measures

· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents** Carbon dioxide
· **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.
hydrogen
cyanide compounds, sodium monoxide
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **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:**
Ensure adequate ventilation
Put on breathing apparatus.
Wear protective equipment. Keep unprotected persons away.

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Material Safety Data Sheet
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Product name: Alkaline-Cyanide Reagent Solution

(Contd. of page 2)

· **Measures for environmental protection:**
Do not allow product to reach sewage system or water bodies.
Inform respective authorities in case product reaches water or sewage system.
· **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.

* 7 Handling and storage

· **Handling**
· **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Keep containers tightly sealed.
Open and handle container with care.
Work only in fume cupboard.
· **Information about protection against explosions and fires:**
Fumes can combine with air to form an explosive mixture.
Keep breathing equipment ready.
The product is not flammable

· **Storage**
· **Requirements to be met by storerooms and containers:**
Do not use light alloy containers.
Unsuitable material for container: aluminium.
Store in cool location.
· **Information about storage in one common storage facility:** Do not store together with acids.
· **Further information about storage conditions:**
Protect from heat and direct sunlight.
Keep container tightly sealed.
Store under dry conditions.
Protect from humidity and keep away from water.
· **Storage class** Not required.

* 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:**	
143-33-9 sodium cyanide	
OES (Great Britain)	Long-term value: 5 mg/m³ Sk; as CN
1310-73-2 sodium hydroxide	
OES (Great Britain)	Short-term value: 2 mg/m³

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

· **Personal protective equipment**
· **General protective and hygienic measures**
Apply water resistant clothing before beginning work.
Clean skin thoroughly immediately after handling the product.
Keep away from foodstuffs, beverages and food.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Store protective clothing separately.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Do not eat, drink or smoke while working.

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Product name: Alkaline-Cyanide Reagent Solution

(Contd. of page 3)

· **Breathing equipment:**
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
· **Recommended filter device for short term use:** Combination filter B-P3
· **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**
nitrile
nitrile rubber, NBR
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.
Recommended thickness of the material: ≥ 0.35 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:** Impervious 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.
· **Density at 20°C**	1.043 g/cm³
· **Solubility in / Miscibility with Water:**	Fully miscible
· **pH-value at 20°C:**	13.7
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	> 90 %
· **Solids content:**	< 6 %

* 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
NHx

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Product name: Alkaline-Cyanide Reagent Solution

(Contd. of page 4)

· **Dangerous reactions**
Corrosive action on metals
Contact with acids releases toxic gases
Corrodes aluminium
Reacts with metals forming hydrogen
Reacts with acids releasing Hydrogen cyanide (prussic acid).
· **Dangerous products of decomposition:**
hydrogen cyanide (prussic acid)
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:**		
143-33-9 sodium cyanide		
Oral	LD50	6.4 mg/kg (rat)
	LDLo	2.8 mg/kg (human)
Dermal	LD50	7.7 mg/kg (rabbit)
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:
Danger by skin resorption.
Toxic
Corrosive
The following complies to cyanogen compounds / nitriles in general:
Utmost caution! Release of hydrocyanic acid is possible - blockade of cellular respiration.
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.
· **Ecotoxical effects:**

· **Acquatic toxicity:**	
143-33-9 sodium cyanide	
LC50	0.083 mg/l/96h (Lepomis macrochirus)
	0.057 mg/l/96h (Onchorhynchus mykiss)
	0.12 mg/l/96h (Pimephales promelas)
1310-73-2 sodium hydroxide	
LC 50	189 mg/l (fish)

· **Remark:**
Forms corrosive mixtures with water even if diluted.
High aquatic toxicity.
Very toxic for fish

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Product name: Alkaline-Cyanide Reagent Solution

(Contd. of page 5)

· **Additional ecological information:**

· **CSB-value:**	
143-33-9 sodium cyanide	
COD	0.816 g/g (.)

· **General notes:**
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.
The product contains materials that are harmful to the environment.

* 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**	
11 03 01	wastes containing cyanide
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 (CT1) Corrosive substances.
· **Kemler Number:** 86
· **UN-Number:** 2922
· **Packaging group:** II
· **Label** 8+6.1
· **Designation of goods:** 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM CYANIDE)

· **Maritime transport IMDG:**

· **IMDG Class:** 8
· **UN Number:** 2922
· **Label** 8+6.1
· **Packaging group:** II
· **EMS Number:** F-A,S-B
· **Marine pollutant:** No
· **Correct technical name:** CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM CYANIDE, SOLID)

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Material Safety Data Sheet
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Printing date 16.06.2005 Reviewed on 14.06.2005

Product name: Alkaline-Cyanide Reagent Solution

(Contd. of page 6)

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

· **ICAO/IATA Class:**	8
· **UN/ID Number:**	2922
· **Label**	8+6.1
· **Packaging group:**	II
· **Correct technical name:**	CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM CYANIDE)

* 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:**
T Toxic
C Corrosive
N Dangerous for the environment

· **Hazard-determining components of labelling:**
sodium cyanide
sodium hydroxide

· **Risk phrases:**
23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
31 Contact with acids liberates toxic gas.
34 Causes burns.
51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Safety phrases:**
4 Keep away from living quarters.
9 Keep container in a well-ventilated place.
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).
57 Use appropriate container to avoid environmental contamination.

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**
26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
32 Contact with acids liberates very toxic gas.
35 Causes severe burns.
50/53 Very toxic 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.**

Material Safety Data Sheet
According to 91/155 EEC

Printing date 10.11.2005 Reviewed on 10.11.2005

* 1 Identification of substance:

· **Product details:** Reagent for water analysis

· **Product name: Ascorbic Acid**

· **Catalogue number:** CW/54.11.00

· **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:**
· **CAS No. Designation:**
50-81-7 ascorbic acid
· **Identification number(s):**
· **EINECS Number:** 200-066-2

* 3 Hazards identification

· **Hazard designation:** void
· **Information pertaining to particular dangers for man and environment** void

* 4 First aid measures

· **General information** No special measures required.
· **After inhalation** Supply fresh air; consult doctor in case of symptoms.
· **After skin contact** Instantly rinse with water.
· **After eye contact** Rinse opened eye for several minutes under running water.
· **After swallowing** In case of persistent symptoms consult doctor.

* 5 Fire fighting measures

· **Suitable extinguishing agents**
Water
Foam
Fire-extinguishing powder
· **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**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EEC

Printing date 10.11.2005 Reviewed on 10.11.2005

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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.
Avoid causing dust.
· **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
· **Measures for cleaning/collecting:**
Collect mechanically.
Ensure adequate ventilation.
Dispose of contaminated material as waste according to item 13.
· **Additional information:** No dangerous materials are released.

* 7 Handling and storage

· **Handling**
· **Information for safe handling:** Thorough dedusting.
· **Information about protection against explosions and fires:** Protect from heat.

· **Storage**
· **Requirements to be met by storerooms and containers:** Store in cool location.
· **Further information about storage conditions:**
Protect from heat and direct sunlight.
Store under dry conditions.
Protect from humidity and keep away from water.
Protect from the effects of light.
· **Storage class** Not required.

* 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:** Not required.
· **Additional information:** The lists that were valid during the compilation were used as basis.

· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures should be adhered to general rules for handling chemicals.
· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
· **Protection of hands:** Preventive skin protection by use of skin-protecting agents is recommended.
· **Material of gloves**
nitrile
Recommended thickness of the material: ≥ 0.11 mm
· **Penetration time of glove material**
Value for the permeation: Level ≥ 6 (480 min)
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Safety glasses
· **Body protection:** Protective work clothing.

* 9 Physical and chemical properties:

· **Form:**	Powder
· **Colour:**	White

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· **Odour:**	Odourless
· **Melting point/Melting range:**	191°C
· **Boiling point/Boiling range:**	Not applicable
· **Flash point:**	Not applicable
· **Density at 20°C**	1.65 g/cm³
· **Settled apparent density at 20°C**	500-900 kg/m³
· **Solubility in / Miscibility with Water at 20°C:**	333 g/l
· **pH-value (2.3 g/l) at 20°C:**	3.1
· **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:** aluminium, copper, zinc, metal ions, oxidizing agent
· **Dangerous reactions** Aqueous solution reacts acidic.
· **Dangerous products of decomposition:** No dangerous decomposition products known

* 11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
50-81-7 ascorbic acid		
Oral	LD50	11900 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Irritant effect.
· **Sensitization:** No sensitizing effect known.
· **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The material is not subject to classification according to EC lists in the last version.
The usual precautionary measures should be adhered to general rules for handling chemicals.

* 12 Ecological information:

· **Information about elimination (persistence and degradability):**
· **Other information:** The product is easily biodegradable.

· **Behaviour in environmental systems:**	
50-81-7 ascorbic acid	
log P(o/w)	-2.15 (.)

· **Mobility and bioaccumulation potential:** Does not accumulate in organisms
· **Ecotoxical effects:**

· **Acquatic toxicity:**	
50-81-7 ascorbic acid	
LC50	33000 (Merck) mg/l/48h (Leuciscus idus) 1020 mg/l/96h (Onchorhynchus mykiss)

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· **General notes:**
Water hazard class 1 (German Regulation) (Assessment by list): 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 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

· **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:** -

· **Maritime transport IMDG:**
· **IMDG Class:** -
· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**
· **ICAO/IATA Class:** -

· **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

· **Designation according to EC guidelines:**
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).

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.

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