

Material Safety Data Sheet According to 91/155 EEC

Printing date 31.01.2006

Reviewed on 31.01.2006

1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Silica Citric Acid F10, 25
- **Catalogue number:** CW/53.17.10, CW/53.17.13, CW/53.19.40, CW/53.19.43
- **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:**
77-92-9 citric acid
- **Identification number(s):**
- **EINECS Number:** 201-069-1

3 Hazards identification

- **Hazard designation:**



Xi Irritant

- **Information pertaining to particular dangers for man and environment**
R 36 Irritating to eyes.

* 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.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
In case of persistent symptoms consult doctor.
- **Information for doctor**
- **The following symptoms may occur:**
After swallowing of large amounts:
sickness

(Contd. on page 2)

— GB —

Material Safety Data Sheet

According to 91/155 EEC

Printing date 31.01.2006

Reviewed on 31.01.2006

Product name: Silica Citric Acid F10, 25

(Contd. of page 1)

diarrhoea
cramps
after inhalation:
irritation

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:**
 - Formation of toxic gases is possible during heating or in case of fire.
 - combustible
 - **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.
 - 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.
-
-

7 Handling and storage

- **Handling**
 - **Information for safe handling:** Ensure good ventilation/exhaustion at the workplace.
 - **Information about protection against explosions and fires:** Protect from heat.
 - **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.
 - store away fom solvents
 - **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
 - Protect from heat and direct sunlight.
 - This product is hygroscopic.
-
-

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.
-
-

(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 31.01.2006

Reviewed on 31.01.2006

Product name: Silica Citric Acid F10, 25

(Contd. of page 2)

- **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
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.
 - **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:	153°C
· Boiling point/Boiling range:	345°C
· Flash point:	Not applicable
· Inflammability (solid, gaseous)	Product is not inflammable.
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	< 0.1 hPa
· Density at 20°C	1.665 g/cm ³
· Settled apparent density at 20°C	560 kg/m ³
· Solubility in / Miscibility with Water at 20°C:	1330 g/l
· pH-value (7.93 g/l) at 20°C:	2.2
· 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:**
alkalis
metals
reducing agents
oxidizing agents

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 31.01.2006

Reviewed on 31.01.2006

Product name: Silica Citric Acid F10, 25

(Contd. of page 3)

- **Dangerous reactions**
Risk of dust explosion if enriched with fine dust in presence of air
Aqueous solution reacts acidic.
 - **Dangerous products of decomposition:** see chapter 5
-

11 Toxicological information

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

77-92-9 citric acid		
Oral	LD50	3000 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.
-

12 Ecological information:

- **Information about elimination (persistence and degradability):**

- **Other information:**

The product is easily biodegradable.
CAS: 77-92-9 Citric acid: 98% / 2 d

- **Behaviour in environmental systems:**

77-92-9 citric acid		
log P(o/w)	-1.72	(20°C) (.)

- **Mobility and bioaccumulation potential:** Does not accumulate in organisms

- **Ecotoxicological effects:**

- **Acquatic toxicity:**

77-92-9 citric acid		
LC50	440-760 mg/l/96h	(Leuciscus idus)

- **Additional ecological information:**

- **COD-value:**

77-92-9 citric acid		
COD	0.728 g/g	(.)

- **BSB5-value:**

77-92-9 citric acid		
BSB5	0.526 g/g	(.)

- **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.
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.

Material Safety Data Sheet

According to 91/155 EEC

Printing date 31.01.2006

Reviewed on 31.01.2006

Product name: Silica Citric Acid F10, 25

(Contd. of page 4)

13 Disposal considerations

- **Product:**
- **Recommendation**
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

· European waste catalogue
16 05 08 discarded organic 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: - |
|--|-------------------------|

- | | |
|-----------------------------------|---------------|
| · 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:**
Xi Irritant
 - **Risk phrases:**
36 Irritating to eyes.
 - **Safety phrases:**
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 - **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.

- **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 16.06.2005

Reviewed on 10.06.2005






* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** LR Silica Amino Acid F / F 10 ml
- **Catalog number:** CW/53.16.00
- **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:

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

- **Dangerous components:**

CAS: 7681-57-4 EINECS: 231-673-0 EC Number: 016-063-00-2	disodium disulphite	 Xn; R 22-31-41	60-70%
CAS: 55-55-0 EINECS: 200-237-1 EC Number: 650-031-00-4	bis(4-hydroxy-N-methylanilinium) sulphate	 Xn,  N; R 22-43-48/22-50/53	25-30%
CAS: 7758-98-7 EINECS: 231-847-6 EC Number: 029-004-00-0	copper sulphate	 Xn,  N; R 22-36/38-50/53	0.1-1.0%

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

* 3 Hazards identification

- **Hazard designation:**



Xn Harmful
N Dangerous for the environment

- **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 22 Harmful if swallowed.
- R 31 Contact with acids liberates toxic gas.
- R 41 Risk of serious damage to eyes.
- R 43 May cause sensitisation by skin contact.
- R 48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

(Contd. on page 2)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 10.06.2005

Product name: LR Silica Amino Acid F / F 10 ml

(Contd. of page 1)

· 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 rinse with water.
 - Seek medical treatment.
 - **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.
 - Induce vomiting.
 - **The following symptoms may occur:**
 - after inhalation:
 - breathing difficulty
 - coughing
 - mucous membrane irritation
 - after swallowing:
 - gastric or intestinal trouble
 - irritation
 - **Danger** risk of skin sensitization
-

*** 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 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:**
 - Put on breathing apparatus.
 - Wear protective equipment. Keep unprotected persons away.
 - **Measures for environmental protection:**
 - Do not allow to enter drainage system, surface or ground water.
 - Inform respective authorities in case product reaches water or sewage system.
 - **Measures for cleaning/collecting:**
 - Dispose of contaminated material as waste according to item 13.
 - Collect mechanically.
 - Ensure adequate ventilation.
-

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 10.06.2005

Product name: LR Silica Amino Acid F / F 10 ml

(Contd. of page 2)

* 7 Handling and storage

- **Handling**
- **Information for safe handling:** Thorough dedusting.
- **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:**
 - Do not store together with acids.
 - Store away from oxidizing agents.
- **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:
7681-57-4 disodium disulphite
OES (Great Britain) Long-term value: 5 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.
- Do not eat, drink or smoke while working.

- **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 P2

- **Protection of hands:**

- 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

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: ≥ 0.11 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 |

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 10.06.2005

Product name: LR Silica Amino Acid F / F 10 ml

(Contd. of page 3)

· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density at 20°C	1.255 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (4 g/l) at 20°C:	5.3
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** strong heating
- **Materials to be avoided:**
 - acids
 - oxidizing agents
 - > forms heat
- **Dangerous reactions**
 - Reacts with strong acids and oxidizing agents
 - Contact with acids releases toxic gases
- **Dangerous products of decomposition:**
 - Carbon monoxide and carbon dioxide
 - Nitrogen oxides (NO_x)
 - Sulphur oxides (SO_x)
 - 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:		
7681-57-4 disodium disulphite		
Oral	LD50	1540 mg/kg (rat)
55-55-0 bis(4-hydroxy-N-methylanilinium) sulphate		
Oral	LD50	237 mg/kg (rat)
Dermal	LD50	> 1000 mg/kg (rat)
7758-98-7 copper sulphate		
Oral	LD50	300 mg/kg (rat)
	LDLo	50 mg/kg (human)

- **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:** Sensitization possible by skin contact.
- **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:

(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 10.06.2005

Product name: Vario LR Silica Amino Acid F / F 10 ml

(Contd. of page 4)

 Harmful
Irritant

*12 Ecological information:

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

- **Aquatic toxicity:**

7681-57-4 disodium disulphite

EC50	89 mg/l/48h (Daphnia magna)
LC50	150-220 mg/l/96h (Onchorhynchus mykiss)

55-55-0 bis(4-hydroxy-N-methylanilinium) sulphate

Dermal	Daphnia EC50	0.019 mg/l/96h (Daphnia magna)
	LC50	0.25 mg/l/96h (Pimephales promelas)

7758-98-7 copper sulphate

EC50	0.024 mg/l/48h (Daphnia magna)
LC50	0.1-2.5 mg/l/96h (fish)

- **Remark:**

Toxic for fish:
sulphates > 7 g/l
Very toxic for fish
copper ions at concentration below 1 mg/l

- **Algeal toxicity:** CAS No. 7681-57-4 Desmodesmus subspicatus IC50: 48mg/l/72 h
- **Bacterial toxicity:** CAS No. 7681-57-4 Pseudomonas putida EC50: 56 mg/l/17 h
- **Additional ecological information:**

- **CSB-value:**

7681-57-4 disodium disulphite

COD	0.168 g/g (.)
-----	---------------

- **General notes:**

Very toxic for aquatic organisms
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.

*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.

 GB
(Contd. on page 6)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

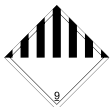
Reviewed on 10.06.2005

Product name: Vario LR Silica Amino Acid F / F 10 ml

(Contd. of page 5)

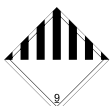
* 14 Transport information

· Land transport ADR/RID (cross-border)



- **ADR/RID-GGVS/E Class:** 9 (M7) Miscellaneous dangerous substances and articles.
- **Kemler Number:** 90
- **UN-Number:** 3077
- **Packaging group:** III
- **Label** 9
- **Designation of goods:** 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (bis(4-hydroxy-N-methylanilinium) sulphate, copper sulphate)

· Maritime transport IMDG:



- **IMDG Class:** 9
- **UN Number:** 3077
- **Label** 9
- **Packaging group:** III
- **EMS Number:** F-A,S-F
- **Marine pollutant:** No
- **Correct technical name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (bis(4-hydroxy-N-methylanilinium) sulphate, copper sulphate)

· Air transport ICAO-TI and IATA-DGR:



- **ICAO/IATA Class:** 9
- **UN/ID Number:** 3077
- **Label** 9
- **Packaging group:** III
- **Correct technical name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (bis(4-hydroxy-N-methylanilinium) sulphate, copper sulphate)

* 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

N Dangerous for the environment

· Hazard-determining components of labelling:

bis(4-hydroxy-N-methylanilinium) sulphate

disodium disulphite

· Risk phrases:

22 Harmful if swallowed.

31 Contact with acids liberates toxic gas.

41 Risk of serious damage to eyes.

43 May cause sensitisation by skin contact.

48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

(Contd. on page 7)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 10.06.2005

Product name: Vario LR Silica Amino Acid F / F 10 ml

(Contd. of page 6)

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· Safety phrases:

- 24 Avoid contact with skin.
 - 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 - 37/39 Wear suitable gloves and eye/face protection.
 - 57 Use appropriate container to avoid environmental contamination.
 - 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

- 22 Harmful if swallowed.
- 31 Contact with acids liberates toxic gas.
- 36/38 Irritating to eyes and skin.
- 41 Risk of serious damage to eyes.
- 43 May cause sensitisation by skin contact.
- 48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- 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 16.06.2005

Reviewed on 16.06.2005

* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** **Molybdate 3 Reagent Solution**
- **Catalogue number:** CW/53.17.30
- **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:

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

- **Dangerous components:**

CAS: 7664-93-9	sulphuric acid		C; R 35	10-20%
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:**



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**
Instantly wash with polyethylene glycol 400.
Instantly rinse with water.

(Contd. on page 2)

— GB —

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 16.06.2005

Product name: Molybdate 3 Reagent Solution

(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

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; instantly call for medical help.

· The following symptoms may occur:

after inhalation:

damage to the affected mucous membranes

breathing difficulty

after swallowing:

sickness

vomiting

diarrhoea

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.

· **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.

Wear full protective suit.

· **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.

Ensure adequate ventilation

· **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.

Ensure adequate ventilation.

Neutralize with diluted sodium hydroxide solution or by throwing on lime sand, lime or sodium carbonate.

*** 7 Handling and storage**

· **Handling**

· **Information for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Open and handle container with care.

Prevent formation of aerosols.

Use only in well ventilated areas.

· **Information about protection against explosions and fires:** The product is not flammable

(Contd. on page 3)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 16.06.2005

Product name: Molybdate 3 Reagent Solution

(Contd. of page 2)

- **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.
 - **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
 - This product is hygroscopic.
 - 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:**
 - 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:**
 - 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 B
 - **Protection of hands:**
 - Acid 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
 - 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: ≥ 0.11 mm
 - **Penetration time of glove material**
 - The exact break through 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:** Acid 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 |
-

(Contd. on page 4)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 16.06.2005

Product name: Molybdate 3 Reagent Solution

(Contd. of page 3)

· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density at 20°C	1.23 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	1.2
· Solvent content:	
Organic solvents:	0.0 %
Water:	> 70 %
· Solids content:	< 12 %

*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
 - halogen compounds
 - combustible substances
 - organic solvents
 - nitriles
 - peroxides
 - oxidizing agents
- **Dangerous reactions**
 - Corrosive action on metals
 - When diluting, always add acid to water, never vice versa
 - Reacts with metals forming hydrogen
 - > Explosive
 - Reacts with organic substances
 - Diluting or dissolving in water always causes rapid heating
- **Dangerous products of decomposition:**
 - nitrous gases
 - Sulphur oxides (SO_x)
 - 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)
10102-40-6 sodium molybdate		
Oral	LD50	4233 mg/kg (rat)
Dermal	LD50	> 2000 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.

(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 16.06.2005

Product name: Molybdate 3 Reagent Solution

(Contd. of page 4)

- **on the eye:** Strong caustic effect.
 - **Sensitization:** No sensitizing effect known.
 - **Experience with humans:**
molybdenum(VI):
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:
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.
Methods for the determination of biodegradability are not applicable to inorganic substances.
- **Ecotoxicological effects:**

· Aquatic toxicity:	
7664-93-9 sulphuric acid	
Daphnia EC50	29 mg/l/24h (Daphnia magna)
10102-40-6 sodium molybdate	
EC50	330 mg/l/48h (Daphnia magna)
LC50	7600 mg/l/96h (Onchorhynchus mykiss)

- **Remark:**
Forms corrosive mixtures with water even if diluted.
Toxic for algae
toxic for fish
 - **Algal toxicity:** CAS-No. 10102-40-6: Selenastrum capricornutum IC50: > 100 mg/l/72 h
 - **Bacterial toxicity:** CAS-No. 10102-40-6: Pseudomonas putida EC10: 50 mg/l/18 h
 - **Remark:** neutralization possible
 - **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 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**
Hand over to disposers of hazardous waste.
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.

(Contd. on page 6)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 16.06.2005

Product name: Molybdate 3 Reagent Solution

(Contd. of page 5)

- **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:** 2796
- **Packaging group:** II
- **Label:** 8
- **Designation of goods:** 2796 SULPHURIC ACID, solution

- **Maritime transport IMDG:**



- **IMDG Class:** 8
- **UN Number:** 2796
- **Label:** 8
- **Packaging group:** II
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Correct technical name:** SULPHURIC ACID, solution

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



- **ICAO/IATA Class:** 8
- **UN/ID Number:** 2796
- **Label:** 8
- **Packaging group:** II
- **Correct technical name:** SULPHURIC ACID, 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:**

sulphuric acid

- **Risk phrases:**

35 Causes severe burns.

- **Safety phrases:**

20 When using do not eat or drink.
23 Do not breathe fumes/aerosol.

(Contd. on page 7)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 16.06.2005

Reviewed on 16.06.2005

Product name: Molybdate 3 Reagent Solution

(Contd. of page 6)

- 25 Avoid contact with eyes.
 - 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.**

— GB —