

Material Safety Data Sheet According to 91/155 EEC

Printing date 26.01.2006

Reviewed on 26.01.2006

* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Manganese Citrate (Buffer) F10 ml
- **Catalogue number:** CW/53.06.50
- **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:** Preparation contains anorganic and organic compounds.

- **Dangerous components:**

CAS: 77-92-9	citric acid	☒ Xi; R 36	10-20%
EINECS: 201-069-1			

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

* 3 Hazards identification

- **Hazard designation:** void
- **Information pertaining to particular dangers for man and environment**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **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** 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**
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

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Product name: Vario Manganese Citrate (Buffer) F10 ml

vomiting

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* 5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **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)
Phosphorus oxides (P_xO_x)
sodium oxide
- **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

* 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:**
Dispose of contaminated material as waste according to item 13.
Collect mechanically.
Ensure adequate ventilation.
- **Additional information:** No dangerous materials are released.

* 7 Handling and storage

- **Handling**
- **Information for safe handling:** Thorough dusting.
- **Information about protection against explosions and fires:** No special measures required.
- **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:**
Protect from heat and direct sunlight.
Store under dry conditions.
Protect from humidity and keep away from water.
This product is hygroscopic.
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**
Wash hands during breaks and at the end of the work.

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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 P1
 - **Protection of hands:**
No chemical-protective gloves required.
Preventive skin protection by use of skin-protecting agents is recommended.
 - **Eye protection:** Not required.
 - **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:	891 °C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	0.1 hPa
· Density at 20°C	1.578 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (19 g/l) at 20°C:	6.3
· 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:**
reducing agents
aluminium
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:		
7558-79-4 disodium hydrogenorthophosphate		
Oral	LD50	17000 mg/kg (rat)
7757-82-6 sodium sulphate		
Oral	LD50	5989 mg/kg (mouse)
77-92-9 citric acid		
Oral	LD50	3000 mg/kg (rat)

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Product name: Vario Manganese Citrate (Buffer) F10 ml

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- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**

The product is not subject to classification according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version.

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 usual precautionary measures should be adhered to general rules for handling chemicals.

*12 Ecological information:

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

- **Other information:**

Quantitative data on the ecological effect of this product are not available.

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:**

Depending on the concentration, phosphorus compounds may contribute to the eutrophication of water supplies.

- **Ecotoxicological effects:**

- **Aquatic toxicity:**

7757-82-6 sodium sulphate	
EC50	2564 mg/l/48h (Daphnia magna)
LC50	13500-14500 mg/l/96h (Pimephales promelas)
77-92-9 citric acid	
LC50	440-760 mg/l/96h (Leuciscus idus)

- **Remark:**

Toxic for fish:
sulphates > 7 g/l

- **Bacterial toxicity:** sulphates toxic > 2.5 g/l

- **Additional ecological information:**

- **BSB5-value:**

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

- **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 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08
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Product name: Vario Manganese Citrate (Buffer) F10 ml

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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:** -

- **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).
 - **Special designation of certain preparations:**
Safety data sheet available for professional user on request.
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* 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 Irritating to eyes.
 - **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:** Sodium periodate F 10 ml
- **Catalogue number:** CW/53.06.60
- **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:

- **Description:** Mixture of anorganic compounds

- **Dangerous components:**

CAS: 7790-28-5	sodium periodate	 Xn,  O; R 8-22-36/37/38	40-45%
EINECS: 232-197-6			

- **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**

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.

- **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.
If skin irritation continues, consult a doctor.
- **After eye contact**
Rinse opened eye for several minutes under running water.
Seek medical treatment.

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Product name: Sodium periodate F 10 ml

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- **After swallowing**
Drink copious amounts of water, induce vomiting.
Call a doctor immediately.
 - **The following symptoms may occur:**
after swallowing:
diarrhoea
sickness
vomiting
-

* 5 Fire fighting measures

- **Suitable extinguishing agents**
Water spray jet
Foam
 - **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.
Sulphur oxides (SO_x)
Sodium monoxide
Iodine compounds
 - **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.
Avoid causing dust.
Keep away from ignition sources
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.
Collect mechanically.
-

* 7 Handling and storage

- **Handling**
 - **Information for safe handling:**
Keep away from heat and direct sunlight.
Keep containers tightly sealed.
Prevent formation of dust.
 - **Information about protection against explosions and fires:**
Substance/product is oxidizing when dry.
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 oxidizing agents.
Store away from flammable substances.
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Product name: Sodium periodate F 10 ml

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- **Further information about storage conditions:**

Store under dry conditions.

Protect from the effects of light.

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:**

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.

- **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. 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:** Safety glasses

- **Body protection:** Protective work clothing.

* 9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Odourless
· Melting point/Melting range:	175°C
· Boiling point/Boiling range:	300°C
· Flash point:	Not applicable
· Inflammability (solid, gaseous)	Contact with combustible material may cause fire.
· Density at 20°C	3.194 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (8.9 g/l) at 20°C:	4.7
· Solvent content:	
Organic solvents:	0.0 %

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· Solids content:	100.0 %
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* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** Explosive thermal decomposition
- **Materials to be avoided:**
 - organic substances
 - acids
 - metals
 - reducing agents
 - aluminium
- **Dangerous reactions** Reacts with powdered metals
- **Dangerous products of decomposition:**
 - sodium monoxide, iodine, hydrogen iodide
 - 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:

7790-28-5 sodium periodate		
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Oral	LD50	264 mg/kg (rat)
	LD50 IPR	58 mg/kg (mouse)

- **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:
 - 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:

7757-82-6 sodium sulphate	
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EC50	2564 mg/l/48h (Daphnia magna)
LC50	13500-14500 mg/l/96h (Pimephales promelas)

- **Remark:**
 - Toxic for fish:
 - sulphates > 7 g/l
- **Bacterial toxicity:** sulphates toxic > 2.5 g/l
- **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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Product name: Sodium periodate F 10 ml

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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:** 1479
- **Packaging group:** II
- **Label** 5.1
- **Designation of goods:** 1479 OXIDIZING SOLID, N.O.S. (sodium periodate)

Maritime transport IMDG:


- **IMDG Class:** 5.1
- **UN Number:** 1479
- **Label** 5.1
- **Packaging group:** II
- **EMS Number:** F-A,S-Q
- **Marine pollutant:** No
- **Correct technical name:** OXIDIZING SOLID, N.O.S. (sodium periodate)

Air transport ICAO-TI and IATA-DGR:


- **ICAO/IATA Class:** 5.1
- **UN/ID Number:** 1479
- **Label** 5.1
- **Packaging group:** II
- **Correct technical name:** OXIDIZING SOLID, N.O.S. (sodium periodate)

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*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:

sodium periodate

· Risk phrases:

8 Contact with combustible material may cause fire.
22 Harmful if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.

· Safety phrases:

17 Keep away from combustible material.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37 Wear suitable protective clothing and gloves.
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.
36/37/38 Irritating to eyes, respiratory system and skin.
8 Contact with combustible material may cause fire.

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