SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006
Version 5.6 Revision Date 12.10.2013
Print Date 05.04.2017

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

1.1 Product identifiers

Product name : Sodium molybdate

Product Number : 737860
Brand : Aldrich
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No. : 7631-95-0

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Company Ltd.
The Old Brickyard
NEW ROAD, GILLINGHAM
Dorset
SP8 4XT
UNITED KINGDOM

Telephone : +44 (0)1747 833000
Fax : +44 (0)1747 833313
E-mail address : eurtechserv@sial.com

1.4 Emergency telephone number

Emergency Phone # : +44 (0)870 8200418 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

2.2 Label elements

The product does not need to be labelled in accordance with EC directives or respective national laws.

2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : $MoNa_2O_4$
Molecular Weight : 205.92 g/mol
CAS-No. : 7631-95-0
EC-No. : 231-551-7

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Sodium oxides, Molybdenum oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

A part from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Disodium molybdate	7631-95-0	STEL	10 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
		TWA	5 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
		TWA	5 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
		STEL	10 mg/m3	UK. EH40 WEL - Workplace Exposure Limits

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	Melting point/range: 687 °C

f)	Initial boiling point and boiling range	no data available
g)	Flash point	not applicable
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	3.780 g/cm3
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

SECTION 10: Stability and reactivity

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - > 5,000 mg/kg
(OECD Test Guideline 401)

LD50 Inhalation - rat - 4 h - > 5.84 mg/l
(OECD Test Guideline 403)

LD50 Dermal - rat - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test - guinea pig
Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 800 mg/l - 96 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
no data available

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

no data available

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006
Version 5.0 Revision Date 06.07.2012
Print Date 25.02.2017

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name : Iron(III) citrate

Product Number : F6129
Brand : Aldrich
CAS-No. : 3522-50-7

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Company Ltd.
The Old Brickyard
NEW ROAD, GILLINGHAM
Dorset
SP8 4XT
UNITED KINGDOM

Telephone : +44 (0)1747 833000
Fax : +44 (0)1747 833313
E-mail address : eurtechserv@sial.com

1.4 Emergency telephone number

Emergency Phone # : +44 (0)870 8200418 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

2.2 Label elements

This substance is not classified as dangerous according to Directive 67/548/EEC.

2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Ferric citrate

Formula : $C_6H_5FeO_7$
Molecular Weight : 244.94 g/mol

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Iron oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Light sensitive.

7.3 Specific end uses
no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Iron(III) citrate	3522-50-7	TWA	1 mg/m3	UK. EH40 WEL - Workplace Exposure Limits

		STEL	2 mg/m3	UK. EH40 WEL - Workplace Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	no data available
g)	Flash point	no data available
h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	no data available
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Autoignition temperature	no data available

q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
no data available

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.

Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
no data available

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available

15.2 Chemical Safety Assessment

no data available

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **CALCIUM CHLORIDE ANHYDROUS GRANULAR**

CAS-No.: **10043-52-4**

Product Number: **A66679**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]: Eye irritation (Category 2)

Classification according to EU Directives 67/548/EEC or 1999/45/EC: Irritating to eyes.

2.2 *Label elements*

Pictogram 

Signal word Warning

Hazard statement(s)

H319 Causes serious eye irritation.

Precautionary statement(s)

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

According to European Directive 67/548/EEC as amended.

R-phrase(s)

R36 Irritating to eyes.

S-phrase(s)

S22 Do not breathe dust.

S24 Avoid contact with skin.

2.3 *Other hazards* – no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 *Substances*

Calcium chloride

Formula:	$CaCl_2$
Molecular Weight:	**110.99g/mol**
CAS-No.:	**10043-52-4**
EC-No.:	**233-140-8**
Index-No.:	**017-013-00-2**

4. FIRST AID MEASURES

4.1 *Description of first aid measures*

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 *Most important symptoms and effects, both acute and delayed:* To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 *Indication of immediate medical attention and special treatment needed:*

no data available

5. FIRE-FIGHTING MEASURES

5.1 *Extinguishing media*

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 *Special hazards arising from the substance or mixture*

Hydrogen chloride gas, Calcium oxide

5.3 *Precautions for fire-fighters*

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 *Further information*

The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

6.1 ***Personal precautions, protective equipment and emergency procedures:*** Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 ***Environmental precautions:*** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 ***Methods and materials for containment and cleaning up:*** Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 ***Reference to other sections:*** For disposal see section 13.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Air sensitive.

7.3 ***Specific end uses:*** no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters***

Components with workplace control parameters: Contains no substances with occupational exposure limit values.

8.2 ***Exposure controls:*** **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection: Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: **Form**: Granular **Colour**: White

b) Odour: no data available

c) Odour Threshold: no data available

d) pH: no data available

e) Melting/freezing point: 772 °C Melting point/range: no data available

f) Initial boiling point and boiling range: 1,670 °C

g) Flash point: no data available

h) Evaporation rate: no data available

i) Flammability (solid, gas): no data available

j) Upper/lower flammability or explosive limits: no data available

k) Vapour pressure: 0.01 hPa at 20 °C

l) Vapour density: no data available

m) Relative density: 2.150 g/cm^3

n) Water solubility: no data available

o) Partition coefficient: n-octanol/water: no data available

p) Autoignition temperature: no data available

q) Decomposition temperature: no data available

r) Viscosity: no data available

s) Explosive properties: no data available

t) Oxidizing properties: no data available

9.2 *Other safety information*

no data available

10. STABILITY AND REACTIVITY

10.1 ***Reactivity:*** no data available

10.2 ***Chemical stability:*** no data available

10.3 ***Possibility of hazardous reactions:*** no data available

10.4 ***Conditions to avoid:*** Exposure to moisture may affect product quality.

10.5 ***Incompatible materials:*** Strong acids, Borane/boron oxides, Zinc, Calcium oxide, Methyl vinyl ether, Calcium chloride is attacked by bromine trifluoride

10.6 ***Hazardous decomposition products***

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity: LD50 Oral - rat - 1,000 mg/kg

Skin corrosion/irritation: Skin - rabbit - No skin irritation

Serious eye damage/eye irritation: Eyes - rat - Severe eye irritation

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Genotoxicity in vivo - rat – Intraperitoneal: Unscheduled DNA synthesis

Carcinogenicity: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information: RTECS: EV9800000

12. ECOLOGICAL INFORMATION

12.1 *Toxicity:* Toxicity to fish LC50 - *Lepomis macrochirus* - 10,650 mg/L - 96 h

Toxicity to daphnia & other aquatic invertebrates: EC50 - *Daphnia magna* (Water flea) -52 mg/L-48 h

12.2 *Persistence and degradability:* no data available

12.3 *Bioaccumulative potential:* no data available

12.4 *Mobility in soil:* no data available

12.5 *Results of PBT and vPvB assessment:* no data available

12.6 *Other adverse effects:* Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 *Waste treatment methods*

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 *UN-Number*

ADR/RID: - IMDG: - IATA: -

14.2 *UN proper shipping name*

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 *Transport hazard class(es)*

ADR/RID: - IMDG: - IATA: -

14.4 *Packaging group*

ADR/RID: - IMDG: - IATA: -

14.5 *Environmental hazards*

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 *Special precautions for users*

no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

no data available

15.2 *Chemical Safety Assessment*

no data available

16. OTHER INFORMATION

no data available

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **COBALT (II) NITRATE HEXAHYDRATE**

CAS-No.: **10026-22-9**

Product Number: **A67106**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

According to Regulation (EC) No1272/2008: Oxidizing solids (Category 2); Acute toxicity, Oral (Category 4); Skin sensitization (Category 1); Carcinogenicity (Category 2); Acute aquatic toxicity (Category 1)

According to European Directive 67/548/EEC as amended: Contact with combustible material may cause fire. Harmful if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 *Label elements*

Pictogram 

Signal word Danger

Hazard statement(s): H272 May intensify fire; oxidiser.; H302 Harmful if swallowed.;H317 May cause an allergic skin reaction.; H351 Suspected of causing cancer.; H400 Very toxic to aquatic life.

Precautionary statement(s): P220 Keep/Store away from clothing/ combustible materials; P273 Avoid release to the environment; P280 Wear protective gloves.

Hazard symbol(s): O Oxidising; Xn Harmful; N Dangerous for the environment

R-phrase(s): R8 Contact with combustible material may cause fire; R22 Harmful if swallowed; R40 Limited evidence of a carcinogenic effect; R43 May cause sensitization by skin contact; R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s): S17 Keep away from combustible material; S36/37 Wear suitable protective clothing and gloves; S60 This material and its container must be disposed of as hazardous waste; S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

2.3 *Other hazards* – no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 *Substances*

Cobaltous nitrate, hexahydrate (Synonyms : Cobaltous nitratehexahydrate**)**

Formula:	$Co(NO_3)_2 \cdot 6H_2O$
Molecular Weight:	**291.03g/mol**
CAS-No.:	**10026-22-9**

4. FIRST AID MEASURES

4.1 *Description of first aid measures*

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 *Most important symptoms and effects, both acute and delayed:* no data available

4.3 *Indication of immediate medical attention and special treatment needed:* no data available

5. FIRE-FIGHTING MEASURES

5.1 *Extinguishing media:* Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 *Special hazards arising from the substance or mixture:* no data available

5.3 *Precautions for fire-fighters:* Wear self contained breathing apparatus for fire fighting if necessary.

5.4 *Further information:* Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 *Personal precautions, protective equipment and emergency procedures:* Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 *Environmental precautions:* Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided

6.3 ***Methods and materials for containment and cleaning up:*** Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

6.4 ***Reference to other sections:*** For disposal see section 13.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition. Keep away from combustible material.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 ***Specific end uses:*** no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters***

Components with workplace control parameters

Component	CAS No.	Value	Control Parameters	Update
Cobaltous nitrate, hexahydrate	10026-22-9	TWA	0.1mg/m^3	2007-08-01

UK. EH40 Occupational Exposure Limits.

Remarks:

Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological, irritant or other mechanisms. Once the airways have become hyperresponsive, further exposure to the substance, sometimes even to tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyperresponsive. Substances that can cause occupational asthma are classified under the "Chemicals (Hazard information and Packaging for supply) Regulations (CHIP)" and assigned the risk phrase 'R42 May cause sensitisation by inhalation' or 'R42/43 May cause sensitisation by inhalation and skin contact' in the "Approved supply list".

Wherever it is reasonably practicable, exposure to substances that can cause occupational; asthma should be prevented. Where this is not possible, the primary aim is to apply adequate standards of control to prevent workers from becoming hyperresponsive.

For substances that can cause occupational asthma, COSHH requires that exposure be reduced to as low as is reasonably practicable. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employee's exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance.

Capable of causing occupational asthma. The identified substances are those which: - are assigned the risk phrase 'R42: May cause sensitisation by inhalation'; or 'R42/43: May cause sensitisation by inhalation and skin contact' or - are listed in section C of HSE publication 'Asthmagen? Critical assessments of the evidence for agents implicated in occupational asthma' as updated from time to time, or any other substance which the risk assessment has shown to be a potential cause of occupational asthma.

Capable of causing cancer and/or heritable genetic damage. The identified substances include those which: - are assigned the risk phrases 'R45: May cause cancer'; 'R46: may cause heritable genetic damage'; 'R49: May cause cancer by inhalation' or – a substance or process listed in Schedule 1 of COSHH.

Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used. Carcinogenic applies for cobalt dichloride and sulphate. The 'Sen' notation in the list of WELs has been assigned only to those substances which may cause occupational asthma in the listed categories.

8.2 *Exposure controls*

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Face shield and safety glasses

Skin protection: The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Handle with gloves.

Body Protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: **Form**: Crystals with lumps **Colour**: Red

b) Odour: no data available

c) Odour Threshold: no data available

d) pH: 4.0 at 100 g/L at 20 °C

e) Melting/freezing point: 55 °C Melting point/range: no data available

f) Initial boiling point and boiling range: no data available

g) Flash point: no data available

h) Evaporation rate: no data available

i) Flammability (solid, gas): no data available

j) Upper/lower flammability or explosive limits: no data available

k) Vapour pressure: no data available

l) Vapour density: no data available

m) Relative density: 1.88 g/cm^3

n) Water solubility: soluble

o) Partition coefficient: n-octanol/water: no data available

p) Autoignition temperature: no data available

q) Decomposition temperature: no data available

r) Viscosity: no data available

s) Explosive properties: no data available

t) Oxidizing properties: no data available

9.2 ***Other safety information:*** no data available

10. STABILITY AND REACTIVITY

10.1 ***Reactivity:*** no data available

10.2 ***Chemical stability:*** Stable under recommended storage conditions.

10.3 ***Possibility of hazardous reactions:*** no data available

10.4 ***Conditions to avoid:*** Heat. Exposure to moisture.

10.5 ***Incompatible materials:*** Organic materials, Reducing agents

10.6 ***Hazardous decomposition products:*** Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

11.1 ***Information on toxicological effects***

Acute toxicity: LD50 Oral - rat - 691 mg/kg; LD50 Oral - rat - 434 mg/kg; Remarks: anhydrous

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: May cause allergic skin reaction.

Germ cell mutagenicity: no data available

Carcinogenicity: Carcinogenicity – rabbit Tumourigenic: Tumours at site or application.

Limited evidence of carcinogenicity in animal studies.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Cobaltous nitrate, hexahydrate)

Reproductive toxicity: no data available.

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure: no data available

Additional Information: RTECS: QU7355500

12. ECOLOGICAL INFORMATION

12.1 ***Toxicity:*** no data available

12.2 ***Persistence and degradability:*** no data available

12.3 ***Bioaccumulative potential:*** no data available

12.4 ***Mobility in soil:*** no data available

12.5 ***Results of PBT and vPvB assessment:*** no data available

12.6 ***Other adverse effects:*** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 ***Waste treatment methods***

Product: Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 *UN-Number*

ADR/RID:	1477	IMDG:	1477	IATA:	1477

14.2 *UN proper shipping name*

ADR/RID: NITRATES, INORGANIC, N.O.S. (Cobaltous nitrate, hexahydrate)

IMDG: NITRATES, INORGANIC, N.O.S. (Cobaltous nitrate, hexahydrate)

IATA: NITRATES, INORGANIC, N.O.S. (Cobaltous nitrate, hexahydrate)

14.3 *Transport hazard class(es)*

ADR/RID:	5.1	IMDG:	5.1	IATA:	5.1

14.4 *Packaging group*

ADR/RID:	II	IMDG:	II	IATA:	II

14.5 *Environmental hazards*

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 *Special precautions for users:* EMS-No: F-A, S-Q

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

no data available

15.2 *Chemical Safety Assessment*

no data available

16. OTHER INFORMATION: Acute Tox. Acute toxicity; Aquatic Acute Acute aquatic toxicity; Carc. Carcinogenicity; H272 May intensify fire; oxidiser.; H302 Harmful if swallowed.; H317 May cause an allergic skin reaction.; H351 Suspected of causing cancer.; H400 Very toxic to aquatic life.; Ox. Sol. Oxidizing solids; Skin Sens. Skin sensitization; N Dangerous for the environment; O Oxidising

Xn Harmful; R 8 Contact with combustible material may cause fire.; R22 Harmful if swallowed.; R40 Limited evidence of a carcinogenic effect.; R43 May cause sensitization by skin contact.; R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **COPPER (II) SULPHATE HYDRATE**

CAS-No.: **23254-43-5**

Product Number: **A67313**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

According to Regulation (EC) No1272/2008; Acute toxicity (Category 4); Eye irritation (Category 2); Skin irritation (Category 2); Acute aquatic toxicity (Category 1); Chronic aquatic toxicity (Category 1)

According to European Directive 67/548/EEC as amended: Highly flammable.

2.2 *Label elements*

Pictogram 

Signal word Warning

Hazard statement(s): H319 Causes serious eye irritation; H315 Causes skin irritation; H302 Harmful if swallowed; H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s): P273 Avoid release to the environment. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/ container to an approved waste disposal plant.

Hazard symbol(s): Xn Harmful N Dangerous for the environment

R-phrase(s): R22 Harmful if swallowed. R36/38 Irritating to eyes and skin. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s): S22 Do not breathe dust. S60 This material and its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

2.3 *Other hazards* – no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 *Substances*

Copper (II) sulphate hydrate

Formula:	$CuO_4S \cdot 5H_2O$
Molecular Weight:	**159.61g/mol**
CAS-No.:	**23254-43-5**
EC-No.:	**231-847-6**
Index-No.:	**029-004-00-0**

4. FIRST AID MEASURES

4.1 *Description of first aid measures*

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 *Most important symptoms and effects, both acute and delayed:* no data available

4.3 *Indication of immediate medical attention and special treatment needed:* no data available

5. FIRE-FIGHTING MEASURES

5.1 *Extinguishing media*

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 *Special hazards arising from the substance or mixture:* no data available

5.3 *Precautions for fire-fighters:* Wear self contained breathing apparatus for fire fighting if necessary.

5.4 *Further information:* no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 *Personal precautions, protective equipment and emergency procedures:* Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 *Environmental precautions:* Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 ***Methods and materials for containment and cleaning up:*** Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Keep container tightly closed in a dry and well-ventilated place. Store in cool place. Air sensitive. hygroscopic Handle and store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters:*** Contains no substances with occupational exposure limit values.

8.2 ***Exposure controls:***

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment; Eye/face protection: Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: **Form**: Solid **Colour**: Light Grey

b) Odour: no data available

c) Odour Threshold: no data available

d) pH: no data available

e) Melting/freezing point: 200 °C Melting point/range: no data available

f) Initial boiling point and boiling range: no data available

g) Flash point: no data available

h) Evaporation rate: no data available

i) Flammability (solid, gas): no data available

j) Upper/lower flammability or explosive limits: no data available

k) Vapour pressure: 9.7 hPa at 25 °C

l) Vapour density: no data available

m) Relative density: 3.603 g/cm3

n) Water solubility: no data available

o) Partition coefficient: n-octanol/water: no data available

p) Autoignition temperature: no data available

q) Decomposition temperature: no data available

r) Viscosity: no data available

s) Explosive properties: no data available

t) Oxidizing properties: no data available

9.2 *Other safety information:* no data available

10. STABILITY AND REACTIVITY

10.1 *Reactivity:* no data available

10.2 *Chemical stability:* Stable under recommended storage conditions.

10.3 *Possibility of hazardous reactions:* no data available

10.4 *Conditions to avoid:* Air sensitive. Hygroscopic

10.5 *Incompatible materials:* Powdered metals, Anhydrous copper(II) sulphate, reacts violently with:, hydroxylamine, Magnesium

10.6 *Hazardous decomposition products:* Hazardous decomposition products formed under fire conditions. - Sulphur oxides, Copper oxides

11. TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity: no data available

Carcinogenicity: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: Possible risk of congenital malformation in the foetus. Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes serious eye irritation.

Signs and Symptoms of Exposure: Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information: RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 *Toxicity:* Toxicity to daphnia and other aquatic invertebrates.

EC50 - *Daphnia magna* (Water flea) - 0.024 mg/L - 48 h

12.2 *Persistence and degradability:* no data available

12.3 *Bioaccumulative potential:* no data available

12.4 *Mobility in soil:* no data available

12.5 *Results of PBT and vPvB assessment:* no data available

12.6 *Other adverse effects:* Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 *Waste treatment methods*

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 *UN-Number*

ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 *UN proper shipping name*

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) sulphate hydrate)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) sulphate hydrate)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) sulphate hydrate)

14.3 *Transport hazard class(es)*

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 *Packaging group*

ADR/RID: III IMDG: III IATA: III

14.5 *Environmental hazards*

ADR/RID: no IMDG Marine pollutant: YES IATA: no

14.6 *Special precautions for users:* EMS-No: F-A, S-F. EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

16. OTHER INFORMATION: Acute Tox. Acute toxicity; Aquatic Acute Acute aquatic toxicity; Aquatic Chronic Chronic aquatic toxicity; Eye Irrit. Eye irritation; H302 Harmful if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. H410 Very toxic to aquatic life with long lasting effects. N Dangerous for the environment; Xn Harmful; R22 Harmful if swallowed. R36/38 Irritating to eyes and skin. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY DATA SHEET

EDTA DISODIUM SALT

Compilation date: 14/05/2015

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EDTA DISODIUM SALT

CAS number: 6381-92-6

EINECS number: 205-358-3

Product code: A67647

Synonyms: ETHYLENEDIAMINETETRAACETIC ACID DISODIUM SALT DIHYDRATE

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

Use of substance / mixture: Laboratory Chemicals, Manufacture of Substances.

1.3. Details of the supplier of the safety data sheet

Company name: PHILIP HARRIS
2 Gregory Street
Hyde
Cheshire
SK14 4HR
United Kingdom

Tel: +44 (0)845 1200 506

Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0) 845 1200 506

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CHIP: This product has no classification under CHIP.

Classification under CLP: This product has no classification under CLP.

2.2. Label elements

Label elements: This product has no label elements.

2.3. Other hazards

Other hazards: The substance is not classified as hazardous to health or the environment according to the CLP regulation. This substance is not classified as dangerous according to Directive 67/548/EEC.

PBT: This product is not identified as a PBT/vPvB substance.

[cont...]

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: EDTA DISODIUM SALT

CAS number: 6381-92-6

EINECS number: 205-358-3

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes. Remove contact lenses, if present and easy to do. Protect Uninjured eye. Consult a doctor.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give nothing to eat or drink. Consult a doctor.

Inhalation: Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artifical respiration.

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

Skin contact: May be harmful if absorbed through skin. May cause skin irritation.

Eye contact: There may be irritation and redness.

Ingestion: May be harmful if swallowed.

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Delayed / immediate effects: No data available.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 Show this safety data sheet to the doctor in attendance.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings. CO2, extingushing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes of carbon dioxide / carbon monoxide. In combustion emits toxic fumes of nitrogen oxides. In combustion emits toxic fumes of sodium oxide gases.

5.3. Advice for fire-fighters

Advice for fire-fighters: DO NOT fight fire when fire reaches explosives.

[cont...]

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid dust formation. Avoid inhalation of dust. Refer to section 8 of SDS for personal protection details. Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Spilled product must never be returned to the original container for recycling. Collect in closed and suitable containers for disposal. Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections: Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventillated by technical means. Protect from moisture. For precautions see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Storage temperature 15-25°C Store in a cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s): Apart from uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Technical measures and the application of suitable work processes have priority over personal protection equipment. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Respiratory protection: Not required under normal use with small quantities. Where protection from nuisance levels of dust are desired, use type P1 (EN143) dust masks. Use respirators and

[cont...]

components tested and approved uder appropriate government standards such as CEN (EU).

Hand protection: Impermeable gloves. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching the gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use.

Wash and dry hands. Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Eye protection: Safety glasses with side-shields. Face shield and safety glasses. Use equipment for eye protection test and approved under approperiate government statments such as NIOSH (US) or EN 166(EU)

Skin protection: Protective clothing. Wash hands before breaks and after work. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Environmental: Do not let product enter drains. Discharge into the environment must be avoided.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Solid

Colour: Colourless

Odour: No data available

Evaporation rate: No data available

Oxidising: No data available

Solubility in water: No data available.

Also soluble in: No data available.

Viscosity: No data available

Viscosity test method: No data available.

Boiling point/range°C: No data available.

Melting point/range°C: 801°C

Flammability limits %: lower: No data available.

upper: No data available.

Flash point°C: No data available.

Part.coeff. n-octanol/water: No data available.

Autoflammability°C: No data available.

Vapour pressure: No data available.

Relative density: No data available.

pH: No data available.

VOC g/l: No data available.

[cont...]

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: No data available.

10.2. Chemical stability

Chemical stability: Stable at room temperature. Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

Hazardous reactions: No data available.

10.4. Conditions to avoid

Conditions to avoid: Oxidising agents

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents.

10.6. Hazardous decomposition products

Haz. decomp. products: In the event of fire see section 5.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
ORAL	RAT	LD50	2000	mg/kg

Symptoms / routes of exposure

Skin contact: May be harmful if absorbed through skin. May cause skin irritation.

Eye contact: There may be irritation and redness.

Ingestion: May be harmful if swallowed.

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Delayed / immediate effects: No data available.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: No data available.

[cont...]

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: No data available.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company. Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Disposal of packaging: Dispose of as unused product.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

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

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

MAGNESIUM SULFATE HEPTAHYDRATE

Compilation date: 01/06/2015

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: MAGNESIUM SULFATE HEPTAHYDRATE

CAS number: 10034-99-8

EINECS number: 231-298-2

Product code: A69059

Synonyms: EPSOM SALTS

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

Use of substance / mixture: Laboratory Chemicals, Manufacture of Substances.

1.3. Details of the supplier of the safety data sheet

Company name: PHILIP HARRIS

2 Gregory Street

Hyde

Cheshire

SK14 4HR

United Kingdom

Tel: +44 (0)845 1200 506

Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0) 845 1200 506

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: This product has no classification under CLP.

2.2. Label elements

Label elements: This product has no label elements.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: MAGNESIUM SULFATE HEPTAHYDRATE

CAS number: 10034-99-8

[cont...]

EINECS number: 231-298-2

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes. Consult a doctor.

Ingestion: Never give anything by mouth to an unconcious person Wash out mouth with water.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If breathing is irregular or stopped, administer artifical respiration. Consult a doctor.

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

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: IF exposed or if you feel unwell: Call a POISON CENTRE or DOCTOR. Show this safety data sheet to the doctor in attendance. The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. CO2, extingushing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes. In combustion emits toxic fumes of sulphur oxides. Magnesium Oxides

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Avoid dust formation. Avoid breathing vapors, mist or gas.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

[cont...]

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Shovel/Sweep up into container for removal wash area down with copious amounts of water.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS. Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid the formation or spread of dust in the air. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Tightly Closed. Dry.

7.3. Specific end use(s)

Specific end use(s): Apart from uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Respiratory protection: Where protection from nuisance levels of dust are desired, use type P1 (EN143) dust masks. Use respirators and components tested and approved uder appropriate government standards such as CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching the gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use.

Wash and dry hands. Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

[cont...]

Eye protection: Safety glasses. Face shield and safety glasses. Use equipment for eye protection test and approved under appropriate government statments such as NIOSH (US) or EN 166(EU) Ensure eye bath is to hand.

Skin protection: Protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Crystals

Colour: White

Odour: No data available

Evaporation rate: No data available.

Oxidising: No data available.

Solubility in water: No data available.

Viscosity: No data available.

Boiling point/range°C: No data available.

Melting point/range°C: No data available.

Flammability limits %: lower: No data available.

upper: No data available.

Flash point°C: No data available.

Part.coeff. n-octanol/water: No data available.

Autoflammability°C: No data available.

Vapour pressure: No data available.

Relative density: 1.67

pH: 5-8

VOC g/l: No data available.

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Moist air.

10.5. Incompatible materials

Materials to avoid: Strong reducing agents. Strong acids. Organic materials. Finely powdered metals.

[cont...]

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes. In the event of fire see section 5.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Disposal of packaging: Dispose of as unused product.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

[cont...]

Section 15: Regulatory information

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

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **MANGANESE (II) CHLORIDE TETRAHYDRATE**

CAS-No.: **13446-34-9**

Product Number: **A69103**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Acute toxicity, Oral (Category 4)

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Harmful if swallowed. Harmful to aquatic organisms.

2.2 *Label elements*

Pictogram 

Signal word WARNING

Hazard statement(s): H302 Harmful if swallowed.

According to European Directive 67/548/EEC as amended.

Hazard symbol(s): 

R-phrase(s): R22 Harmful if swallowed. R52 Harmful to aquatic organisms.

2.3 *Other hazards* – no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 *Substances*

Manganese dichloride

Formula:	**$MnCl_2 . 4H_2O$**
Molecular Weight:	**197.91**
CAS-No.:	**13446-34-9**
EC-No.:	**231-869-6**

4. FIRST AID MEASURES

4.1 *Description of first aid measures*

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Flush eyes with water as a precaution.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 *Most important symptoms and effects, both acute and delayed:* no data available

4.3 *Indication of immediate medical attention and special treatment needed:* no data available

5. FIRE-FIGHTING MEASURES

5.1 *Extinguishing media*

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 *Special hazards arising from the substance or mixture:* Hydrogen chloride gas, Manganese/manganese oxides

5.3 *Precautions for fire-fighters:* Wear self contained breathing apparatus for fire fighting if necessary.

5.4 *Further information:* The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

6.1 *Personal precautions, protective equipment and emergency procedures:* Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

6.2 *Environmental precautions:* Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 *Methods and materials for containment and cleaning up:* Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 *Reference to other sections:* For disposal see section 13.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: 2-8°C

7.3 ***Specific end uses:*** no data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters***

Components with workplace control parameters

Component	CAS No.	Value	Control Parameters	Update
Manganese dichloride	13446-34-9	TWA	0.5mg/m^3	EH40 WEL

Remarks Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

8.2 ***Exposure controls***

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance:	**Form**:	Crystalline	**Colour**: Light Red
b) Odour:		no data available	
c) Odour Threshold:		no data available	
d) pH:		4.0 - 6 at 99 g/l at 25 °C	

e) Melting/freezing point: 58 °C Melting point/range: no data available

f) Initial boiling point and boiling range: 1,190 °C at 1,013 hPa

g) Flash point: no data available

h) Evaporation rate: no data available

i) Flammability (solid, gas): no data available

j) Upper/lower flammability or explosive limits: no data available

k) Vapour pressure: no data available

l) Vapour density: no data available

m) Relative density: 1.913 g/cm3

n) Water solubility: 99 g/l at 20 °C - completely soluble

o) Partition coefficient: n-octanol/water: no data available

p) Autoignition temperature: no data available

q) Decomposition temperature: no data available

r) Viscosity: no data available

s) Explosive properties: no data available

t) Oxidizing properties: no data available

9.2 *Other safety information:* no data available

10. STABILITY AND REACTIVITY

10.1 *Reactivity:* no data available

10.2 *Chemical stability:* no data available

10.3 *Possibility of hazardous reactions:* no data available

10.4 *Conditions to avoid:* no data available

10.5 *Incompatible materials:* Sodium/sodium oxides, Strong acids, Potassium, Zinc

10.6 *Hazardous decomposition products:* Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity: LD50 Oral - rat - 1,484 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Laboratory experiments have shown mutagenic effects.

Carcinogenicity: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure: no data available.

Additional Information: RTECS: OO9650000

12. ECOLOGICAL INFORMATION

12.1 *Toxicity:* Toxicity to fish LC50 - *Carassius auratus* (goldfish) - 18.8 mg/l - 7 d

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - > 11 mg/l - 48 h

12.2 *Persistence and degradability:* no data available

12.3 *Bioaccumulative potential:* no data available

12.4 *Mobility in soil:* no data available

12.5 *Results of PBT and vPvB assessment:* no data available

12.6 *Other adverse effects:* Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 *Waste treatment methods*

Product: Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 *UN-Number*

ADR/RID: - IMDG: - IATA: -

14.2 *UN proper shipping name*

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 *Transport hazard class(es)*

ADR/RID: - IMDG: - IATA: -

14.4 *Packaging group*

ADR/RID: - IMDG: - IATA: -

14.5 *Environmental hazards*

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 *Special precautions for users*

no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 ***Safety, health and environmental regulations/legislation specific for the substance or mixture:*** no data available

15.2 ***Chemical Safety Assessment:*** no data available

16. OTHER INFORMATION

no data available

SAFETY DATA SHEET

DI-POTASSIUM HYDROGEN ORTHOPHOSPHATE

Compilation date: 13/01/2014

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: DI-POTASSIUM HYDROGEN ORTHOPHOSPHATE

CAS number: 7758-11-4

Product code: A70397 F79610

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

1.3. Details of the supplier of the safety data sheet

Company name: Philip Harris Ltd
2 Gregory Street
Hyde
Cheshire
SK14 4HR
United Kingdom

Tel: +44 (0)845 1200 506

Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0) 845 1200 506

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: This product has no classification under CLP.

2.2. Label elements

Label elements: This product has no label elements.

2.3. Other hazards

Other hazards: The substance is not classified as hazardous to health or the environment according to the CLP regulation. Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008. This substance is not classified as dangerous according to Directive 67/548/EEC.

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: DI-POTASSIUM HYDROGEN ORTHOPHOSPHATE

[cont...]

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Do not induce vomiting. Wash out mouth with water. Consult a doctor.

Inhalation: Move to fresh air in case of accidental inhalation of vapours. If unconscious, check for breathing and apply artificial respiration if necessary. Consult a doctor.

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

Skin contact: There may be mild irritation at the site of contact.

Eye contact: No data available.

Ingestion: No data available.

Inhalation: No data available.

Delayed / immediate effects: No data available.

4.3. Indication of any immediate medical attention and special treatment needed

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes of sulphur oxides. In combustion emits toxic fumes of phosphorus oxides.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid dust formation. Avoid breathing vapors, mist or gas.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Spilled product must never be returned to the original container for recycling. Take up dust-free and set down dust-free. Collect in closed and suitable containers for disposal.

6.4. Reference to other sections

[cont...]

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid inhalation of vapour or mist. Avoid contact with skin and eyes. Use extractor hood (laboratory). If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventillated by technical means.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Storage temperature 15-25oC Store in cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: If handled uncovered use local exhaust ventilation. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Respiratory protection: Respiratory protection not required.

Hand protection: Use nitrile rubber gloves with a breakthrough time of 480 minutes. For immersion protection thickness of glove minimum 0.38mm. For splash protection thickness of gloves minimum 0.12mm.

Eye protection: Safety glasses with side-shields.

Skin protection: The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Solid

Colour: White

Melting point/range°C: 340 **Relative density:** 2.3g/cm3 (20oC)

9.2. Other information

Other information: No data available.

[cont...]

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: No data available.

10.2. Chemical stability

Chemical stability: Stable at room temperature.

10.3. Possibility of hazardous reactions

Hazardous reactions: No data available.

10.4. Conditions to avoid

Conditions to avoid: No data available

10.5. Incompatible materials

Materials to avoid: No data available.

10.6. Hazardous decomposition products

Haz. decomp. products: No data available.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: No data available.

Ingestion: No data available.

Inhalation: No data available.

Delayed / immediate effects: No data available.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available.

12.4. Mobility in soil

Mobility: No data available.

[cont...]

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: No data available.

Section 13: Disposal considerations

13.1. Waste treatment methods

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

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

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **SODIUM CARBONATE ANHYDROUS**

CAS-No.: **497-19-8**

Product Number: **A71169**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

According to Regulation (EC) No1272/2008; Eye irritation (Category 2)

According to European Directive 67/548/EEC as amended: Irritating to eyes.

2.2 *Label elements*

Pictogram 

Signal word Warning

Hazard statement(s): H319 Causes serious eye irritation.

Precautionary statement(s): P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

According to European Directive 67/548/EEC as amended.

Hazard symbol(s) 

R-phrase(s): R36 Irritating to eyes.

S-phrase(s): S22 Do not breathe dust. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3 *Other hazards* – no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 *Substances*

Sodium carbonate (Synonyms : Soda ash**)**

Formula:	Na_2CO_3
Molecular Weight:	**105.99**
CAS-No.:	**497-19-8**
EC-No.:	**207-838-8**
Index-No.:	**011-005-00-2**

4. FIRST AID MEASURES

4.1 *Description of first aid measures*

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 *Most important symptoms and effects, both acute and delayed:* no data available

4.3 *Indication of immediate medical attention and special treatment needed:* no data available

5. FIRE-FIGHTING MEASURES

5.1 *Extinguishing media*

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 *Special hazards arising from the substance or mixture:* Carbon oxides, nitrogen oxides (NOx)

5.3 *Precautions for fire-fighters:* Wear self contained breathing apparatus for fire fighting if necessary.

5.4 *Further information:* The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

6.1 *Personal precautions, protective equipment and emergency procedures:* Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 *Environmental precautions:* Do not let product enter drains.

6.3 *Methods and materials for containment and cleaning up:* Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 *Reference to other sections:* For disposal see section 13.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 ***Specific end uses:*** no data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters:*** Contains no substances with occupational exposure limit values.

8.2 ***Exposure controls***

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance:	**Form**: Powder	**Colour**: White	
b) Odour:	no data available		
c) Odour Threshold:	no data available		
d) pH:	pH 12 at 106 g/l at 25 °C		
e) Melting/freezing point:	851 °C	Melting point/range: no data available	
f) Initial boiling point and boiling range:	no data available		
g) Flash point:	no data available		
h) Evaporation rate:	no data available		
i) Flammability (solid, gas):	no data available		
j) Upper/lower flammability or explosive limits:	no data available		

k) Vapour pressure:	no data available
l) Vapour density:	no data available
m) Relative density:	2.532 g/cm3
n) Water solubility:	106 g/l at 20 °C - completely soluble
o) Partition coefficient: n-octanol/water: no data available	
p) Autoignition temperature:	no data available
q) Decomposition temperature:	no data available
r) Viscosity:	no data available
s) Explosive properties:	no data available
t) Oxidizing properties:	no data available
9.2 *Other safety information:*	no data available

10. STABILITY AND REACTIVITY

10.1 *Reactivity:* no data available

10.2 *Chemical stability:* hygroscopic Stable under recommended storage conditions.

10.3 *Possibility of hazardous reactions:* no data available

10.4 *Conditions to avoid:* Exposure to moisture.

10.5 *Incompatible materials:* Strong acids

10.6 *Hazardous decomposition products:* formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity: LD50 Oral - rat - 4,090 mg/kg

LC50 Inhalation - rat - 2 h - 5,750 mg/l

Skin corrosion/irritation: Skin - rabbit - Mild skin irritation - 24 h

Serious eye damage/eye irritation: Eyes - rabbit - Eye irritation - 24 h

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	May be harmful if swallowed. Causes burns.
Skin	May be harmful if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

Signs and Symptoms of Exposure: burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

Additional Information: RTECS: VZ4050000

12. ECOLOGICAL INFORMATION

12.1 *Toxicity:* Toxicity to fish LC50 - Lepomis macrochirus (Bluegill) - 300 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.

EC50 - Daphnia magna (Water flea) - 265 mg/l - 48 h

12.2 *Persistence and degradability:* no data available

12.3 *Bioaccumulative potential:* no data available

12.4 *Mobility in soil:* no data available

12.5 *Results of PBT and vPvB assessment:* no data available

12.6 *Other adverse effects:* no data available

13. DISPOSAL CONSIDERATIONS

13.1 *Waste treatment methods*

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 *Safety, health and environmental regulations/legislation specific for the substance or mixture:* no data available

15.2 *Chemical Safety Assessment:* no data available

16. OTHER INFORMATION

Eye Irrit. Eye irritation

H319 Causes serious eye irritation.

Xi Irritant

R36 Irritating to eyes.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **SODIUM NITRATE**

CAS-No.: **7631-99-4**

Product Number: **A71523**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

According to Regulation (EC) No1272/2008; Oxidizing solids (Category 3), Acute toxicity, Oral (Category 4), Skin irritation (Category 2), Eye irritation (Category 2), Specific target organ toxicity - single exposure (Category 3)

According to European Directive 67/548/EEC as amended: Contact with combustible material may cause fire. Harmful if swallowed. Irritating to eyes, respiratory system and skin.

2.2 *Label elements*

Pictogram 

Signal word Warning

Hazard statement(s): H272 May intensify fire; oxidiser. H302 Harmful if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation.

Precautionary statement(s): P220 Keep/Store away from clothing/ combustible materials. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Hazard symbol(s):  

R-phrase(s): R 8 Contact with combustible material may cause fire. R22 Harmful if swallowed. R36/37/38 Irritating to eyes, respiratory system and skin.

S-phrase(s): S17 Keep away from combustible material. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3 *Other hazards* – no data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 *Substances*

Sodium nitrate (Synonyms : Chile salpeter**)**

Formula:	$NaNO_3$
Molecular Weight:	**84.99**
CAS-No.:	**7631-99-4**
EC-No.:	**231-554-3**

4. FIRST AID MEASURES

4.1 *Description of first aid measures*

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 *Most important symptoms and effects, both acute and delayed:* no data available

4.3 *Indication of immediate medical attention and special treatment needed:* no data available

5. FIRE-FIGHTING MEASURES

5.1 *Extinguishing media*

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 *Special hazards arising from the substance or mixture:* no data available

5.3 *Precautions for fire-fighters:* Wear self contained breathing apparatus for fire fighting if necessary.

5.4 *Further information:* Use water spray to cool unopened containers

6. ACCIDENTAL RELEASE MEASURES

6.1 *Personal precautions, protective equipment and emergency procedures:* Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 ***Environmental precautions:*** Do not let product enter drains.

6.3 ***Methods and materials for containment and cleaning up:*** Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 ***Reference to other sections:*** For disposal see section 13.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

7.3 ***Specific end uses:*** no data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters:*** Contains no substances with occupational exposure limit values.

8.2 ***Exposure controls***

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: **Form**: Solid **Colour**: no data available

b) Odour: no data available

c) Odour Threshold: no data available

d) pH: pH 9 at 100 g/l at 20 °C

e) Melting/freezing point: 306 °C Melting point/range: no data available

f) Initial boiling point and boiling range: 380 °C

g) Flash point: no data available

h) Evaporation rate: no data available

i) Flammability (solid, gas): no data available

j) Upper/lower flammability or explosive limits: no data available

k) Vapour pressure: no data available

l) Vapour density: no data available

m) Relative density: 2.261 g/cm3

n) Water solubility: 874 g/l at 20 °C

o) Partition coefficient: n-octanol/water: -3.8 at 25 °C

p) Autoignition temperature: no data available

q) Decomposition temperature: no data available

r) Viscosity: no data available

s) Explosive properties: no data available

t) Oxidizing properties: no data available

9.2 *Other safety information:* no data available

10. STABILITY AND REACTIVITY

10.1 *Reactivity:* no data available

10.2 *Chemical stability:* Stable under recommended storage conditions.

10.3 *Possibility of hazardous reactions:* no data available

10.4 *Conditions to avoid:* Fusion of mixtures of metal cyanides, including lead thiocyanate, with metal chlorates, perchlorates, nitrates or nitrites causes a violent explosion. Addition of one solid component (even as a residue in small amount) to another molten component is also highly dangerous. Heat.

10.5 *Incompatible materials:* Strong acids, Strong reducing agents, Powdered metals, Organic materials, Alkali metals, Alkaline earth metals, Cyanides, thiocyanates

10.6 *Hazardous decomposition products:* formed under fire conditions. - Sodium oxides, nitrogen oxides (NOx) Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity: LD50 Oral - rat - 1,267 mg/kg

LD50 Oral - rabbit - 2,680 mg/kg

LDLO Oral - Child - 22.5 mg/kg

LD50 Intravenous - mouse - 175 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Genotoxicity in vitro - Hamster – fibroblast. Cytogenetic analysis

Genotoxicity in vitro - Hamster – Embryo. Host-mediated assay

Genotoxicity in vitro - Human - HeLa cell.Unscheduled DNA synthesis

Genotoxicity in vivo - mouse – Oral. Micronucleus test

Genotoxicity in vivo - mouse – Oral. Cytogenetic analysis

Genotoxicity in vivo - mouse – Oral. sperm

Carcinogenicity: Carcinogenicity - rat - Oral

Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Liver:Tumors.

Carcinogenicity - rat - Oral

Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Tumorigenic Effects: Testicular tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: Reproductive toxicity - mouse - male - Oral

Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Specific target organ toxicity - single exposure: Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes serious eye irritation.

Signs and Symptoms of Exposure: Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

Additional Information: RTECS: WC5600000

12. ECOLOGICAL INFORMATION

12.1 ***Toxicity:*** Toxicity to fish static test LC50 - *Gambusia affinis* (Mosquito fish) - 6,650 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.

EC50 - *Daphnia magna* (Water flea) - 6,000 mg/l - 24 h

12.2 *Persistence and degradability:* no data available

12.3 *Bioaccumulative potential:* no data available

12.4 *Mobility in soil:* no data available

12.5 *Results of PBT and vPvB assessment:* no data available

12.6 *Other adverse effects:* no data available

13. DISPOSAL CONSIDERATIONS

13.1 *Waste treatment methods*

Product: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 *UN-Number*

ADR/RID:	1498	IMDG:	1498	IATA:	1498

14.2 *UN proper shipping name*

ADR/RID:	SODIUM NITRATE
IMDG:	SODIUM NITRATE
IATA:	SODIUM NITRATE

14.3 *Transport hazard class(es)*

ADR/RID:	5.1	IMDG:	5.1	IATA:	5.1

14.4 *Packaging group*

ADR/RID:	III	IMDG:	III	IATA:	III

14.5 *Environmental hazards*

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 *Special precautions for users:* EMS-No: F-A, S-Q

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

16. OTHER INFORMATION: Acute Tox. Acute toxicity, Eye Irrit. Eye irritation, H272 May intensify fire; oxidiser. H302 Harmful if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. Ox. Sol. Oxidizing solids, Skin Irrit. Skin irritation, O Oxidising, Xn Harmful, R 8 Contact with combustible material may cause fire. R22 Also harmful if swallowed. R36/37/38 Irritating to eyes, respiratory system and skin.

SAFETY DATA SHEET

ORTHO-BORIC ACID

Compilation date: 14/02/2014

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: ORTHO-BORIC ACID

CAS number: 10043-35-3

Product code: F76013

Synonyms: TRIOXO BORIC III ACID POWDER

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

1.3. Details of the supplier of the safety data sheet

Company name: Philip Harris Ltd
2 Gregory Street
Hyde
Cheshire
SK14 4HR
United Kingdom

Tel: +44 (0)845 1200 506

Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0) 845 1200 506

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: This product has no classification under CLP.

2.2. Label elements

Label elements: This product has no label elements.

2.3. Other hazards

Other hazards: The substance is not classified as hazardous to health or the environment according to the CLP regulation. This substance is not classified as dangerous according to Directive 67/548/EEC.

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: ORTHO-BORIC ACID

[cont...]

Contains: Molecular Formula : B(OH)3
Molecular Weight : 61.83 g/mol

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water. Remove all contaminated clothes and footwear immediately unless stuck to skin. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes. Remove contact lenses, if present and easy to do. Protect Uninjured eye. Consult a doctor.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give nothing to eat or drink. Consult a doctor.

Inhalation: Move to fresh air in case of accidental inhalation of vapours. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Consult a doctor.

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

Skin contact: May be harmful if absorbed through skin. May cause skin irritation.

Eye contact: There may be irritation and redness.

Ingestion: May be harmful if swallowed.

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: No restriction.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In case of fire may be liberated: Pyrolysis products, toxic.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes. DO NOT fight fire when fire reaches explosives.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoide breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Spilled product must never be returned to the original container for recycling. Clean

[cont...]

contaminated objects and areas thoroughly observing environmental regulations. Collect in closed and suitable containers for disposal.

6.4. Reference to other sections

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid inhalation of vapour or mist. Avoid contact with skin and eyes. If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventillated by technical means.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Storage temperature 15-25°C Store in cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Technical measures and the application of suitable work processes have priority over personal protection equipment.

Respiratory protection: Respiratory protection (filtering half face mask DIN EN 149) is required at aerosol or mist formation.

Hand protection: Impermeable gloves.

Eye protection: Safety glasses with side-shields.

Skin protection: Protective clothing. Wash hands before breaks and after work. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: No data available

Evaporation rate: No data available

Oxidising: No data available

[cont...]

Solubility in water: No data available
Also soluble in: No data available.
Viscosity: No data available
Viscosity test method: No data available.

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: No data available.

10.2. Chemical stability

Chemical stability: Stable at room temperature.

10.3. Possibility of hazardous reactions

Hazardous reactions: The generally known reaction partners of water.

10.4. Conditions to avoid

Conditions to avoid: No data available

10.5. Incompatible materials

Materials to avoid: No data available.

10.6. Hazardous decomposition products

Haz. decomp. products: No data available.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: May be harmful if absorbed through skin. May cause skin irritation.
Eye contact: There may be irritation and redness.
Ingestion: May be harmful if swallowed.
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: No data available.

[cont...]

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: No data available.

Section 13: Disposal considerations

13.1. Waste treatment methods

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

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

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

CITRIC ACID ANHYDROUS POWDER

Compilation date: 13/01/2014

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: CITRIC ACID ANHYDROUS POWDER

CAS number: 77-92-9

EINECS number: 201-069-1

Synonyms: HYDROXYTRICARBALLYLIC ACID

HYDROXYPLOPANEL 123 CARBOXYLIC ACID

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

1.3. Details of the supplier of the safety data sheet

Company name: Philip Harris Ltd

2 Gregory Street

Hyde

Cheshire

SK14 4HR

United Kingdom

Tel: +44 (0)845 1200 506

Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0) 845 1200 506

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Eye Dam. 1: H318

Classification under CHIP: Xi: R41

Most important adverse effects: Causes serious eye damage.

2.2. Label elements

Label elements under CLP:

Hazard statements: H318: Causes serious eye damage.

Signal words: Danger

Hazard pictograms: GHS05: Corrosion

Precautionary statements: P280: Wear protective gloves/protective clothing/eye protection/face protection.

[cont...]

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309: IF exposed or if you feel unwell:
P310: Immediately call a POISON CENTER or doctor.

2.3. Other hazards

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: CITRIC ACID ANHYDROUS POWDER
Contains: Molecular Formula: C6H8O7
Molecular Weight: 192.13 g/mol

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water. Remove all contaminated clothes and footwear immediately unless stuck to skin. Consult a doctor.
Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.
Ingestion: Immediately call the POISON CENTRE or a doctor. Do not induce vomiting. Rinse mouth with water. Give nothing to eat or drink.
Inhalation: Immediately call the POISON CENTRE or a doctor. Move to fresh air in case of accidental inhalation of vapours. If unconscious, check for breathing and apply artificial respiration if necessary.

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

Skin contact: May be harmful if absorbed through skin. May cause skin irritation.
Eye contact: There may be irritation and redness.
Ingestion: May be harmful if swallowed.
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Delayed / immediate effects: No data available.

4.3. Indication of any immediate medical attention and special treatment needed

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes of carbon dioxide / carbon monoxide. In combustion emits toxic fumes of sulphur oxides.

[cont...]

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid generation of dust. Do not breathe dust. Provide adequate ventilation. Use personal protection equipment.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Spilled product must never be returned to the original container for recycling. Soak up inert absorbent and dispose as waste requiring special attaention. Collect in closed and suitable containers for disposal.

6.4. Reference to other sections

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventillated by technical means. Handle under (Gas): Protective gas, dry.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Storage temperature 15-25°C Keep container tightly closed. Store in cool, well ventilated area.

7.3. Specific end use(s)

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered use local exhaust ventilation.

Respiratory protection: Respiration protection necessary at aerosol or mist formation. FIltering half face mask (DIN EN 149)

Hand protection: Protective gloves. Use nitrile rubber gloves with a breakthrough time of 480 minutes. For

[cont...]

immersion protection thickness of glove minimum 0.38mm. For splash protection thickness of gloves minimum 0.12mm.

Eye protection: Safety glasses with side-shields.

Skin protection: Protective clothing. Wash hands before breaks and after work. When using do not eat, drink or smoke. Avoid contact with skin and eyes.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Solid

Colour: White

Odour: No data available

Evaporation rate: No data available

Oxidising: No data available

Solubility in water: Soluble 1330g/l at 20°C

Also soluble in: No data available.

Viscosity: No data available

Viscosity test method: No data available.

Boiling point/range°C: 310°C

Melting point/range°C: 149 - 151°C

Part.coeff. n-octanol/water: -1.72 (20°C)

Autoflammability°C: 540°C

Vapour pressure: 0.1hPa

Relative density: 1.665g/cm³ (20°C)

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: No data available.

10.2. Chemical stability

Chemical stability: No data available.

10.3. Possibility of hazardous reactions

Hazardous reactions: No data available.

10.4. Conditions to avoid

Conditions to avoid: No data available

10.5. Incompatible materials

Materials to avoid: No data available.

10.6. Hazardous decomposition products

Haz. decomp. products: No data available.

[cont...]

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
ORL	MUS	LD50	5040	mg/kg
ORL	RAT	LD50	3	gm/kg
SCU	RAT	LD50	5500	mg/kg

Relevant hazards for substance:

Hazard	Route	Basis
Serious eye damage/irritation	OPT	Based on test data

Symptoms / routes of exposure

Skin contact: May be harmful if absorbed through skin. May cause skin irritation.

Eye contact: There may be irritation and redness.

Ingestion: May be harmful if swallowed.

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Delayed / immediate effects: No data available.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential: Partition coefficient: n-octanol/water -1.72 at 20°C

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: No data available.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal.

[cont...]

Waste code number: 06 01 06

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

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

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Phrases used in s.2 and 3: H318: Causes serious eye damage.
R41: Risk of serious damage to eyes.

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SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 *Product identifiers*

Product name: **ZINC SULPHATE 7 Water**

CAS-No.: **7446-19-7**

Product Number: **L77616**

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

Identified uses: Laboratory chemicals, Manufacture of substances

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

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR, UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 *Emergency telephone number*

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 *Classification of the substance or mixture*

According to Regulation (EC) No1272/2008; Acute aquatic toxicity (Category 1), Chronic aquatic toxicity (Category 1)

According to European Directive 67/548/EEC as amended: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Risk of serious damage to eyes. Harmful if swallowed.

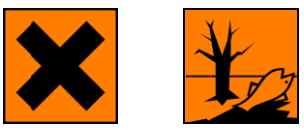
2.2 *Label elements*

Pictogram 

Signal word Danger

Hazard statement(s): H302 Harmful if swallowed. H318 Causes serious eye damage. H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s): P273 Avoid release to the environment. P501 Dispose of contents/container to an approved waste disposal plant.

Hazard symbol(s): 

R-phrase(s): R22 Harmful if swallowed. R41 Risk of serious damage to eyes. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s): S22 Do not breathe dust. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39 Wear eye/face protection. S46 If swallowed, seek medical advice immediately and show this container or label. S60 This material and its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

2.3 ***Other hazards*** – no data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 ***Substances***

Zinc sulphate monohydrate

Formula:	**$ZnSO_4 \cdot 7H_2O$**
Molecular Weight:	**179.47**
CAS-No.:	**7446-19-7**
EC-No.:	**231-793-3**
Index-No.:	**030-006-00-9**

4. FIRST AID MEASURES

4.1 ***Description of first aid measures***

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 ***Most important symptoms and effects, both acute and delayed:*** no data available

4.3 ***Indication of immediate medical attention and special treatment needed:*** no data available

5. FIRE-FIGHTING MEASURES

5.1 ***Extinguishing media***

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 ***Special hazards arising from the substance or mixture:*** no data available

5.3 ***Precautions for fire-fighters:*** Wear self contained breathing apparatus for fire fighting if necessary.

5.4 ***Further information:*** no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 ***Personal precautions, protective equipment and emergency procedures:*** Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

6.2 ***Environmental precautions:*** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 ***Methods and materials for containment and cleaning up:*** Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

6.4 ***Reference to other sections:*** For disposal see section 13.

7. HANDLING AND STORAGE

7.1 ***Precautions for safe handling:*** Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

7.2 ***Conditions for safe storage, including any incompatibilities:*** Store in cool place. Keep container tightly closed in a dry and well-ventilated place. hygroscopic

7.3 ***Specific end uses:*** no data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ***Control parameters:*** Contains no substances with occupational exposure limit values.

8.2 ***Exposure controls***

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection: Safety glasses with side-shields conforming to EN166.

Skin protection: The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Handle with gloves.

Body Protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance:	**Form**: Powder	**Colour**: Beige
b) Odour:	no data available	
c) Odour Threshold:	no data available	
d) pH:	no data available	
e) Melting/freezing point:	Melting point/range: no data available	
f) Initial boiling point and boiling range:	no data available	
g) Flash point:	no data available	
h) Evaporation rate:	no data available	
i) Flammability (solid, gas):	no data available	
j) Upper/lower flammability or explosive limits:	no data available	

k) Vapour pressure:	no data available
l) Vapour density:	no data available
m) Relative density:	no data available
n) Water solubility:	no data available
o) Partition coefficient: n-octanol/water: no data available	
p) Autoignition temperature:	no data available
q) Decomposition temperature:	no data available
r) Viscosity:	no data available
s) Explosive properties:	no data available
t) Oxidizing properties:	no data available
9.2 *Other safety information:*	no data available

10. STABILITY AND REACTIVITY

10.1 *Reactivity:* no data available

10.2 *Chemical stability:* Stable under recommended storage conditions.

10.3 *Possibility of hazardous reactions:* no data available

10.4 *Conditions to avoid:* Avoid moisture.

10.5 *Incompatible materials:* Strong oxidizing agents

10.6 *Hazardous decomposition products:* formed under fire conditions. - Sulphur oxides, Zinc/zinc oxides

11. TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	Causes serious eye irritation.

Signs and Symptoms of Exposure: Zinc oxide dust or fume can irritate the respiratory tract. Prolonged skin contact can produce a severe dermatitis called oxide pox. Exposure to high levels of dust or fume can cause metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, and nausea followed by fever and chills. Severe overexposure may result in bronchitis or pneumonia with a bluish tint to the skin.

Additional Information: RTECS: no data available

12. ECOLOGICAL INFORMATION

12.1 ***Toxicity:*** no data available

12.2 ***Persistence and degradability:*** no data available

12.3 ***Bioaccumulative potential:*** no data available

12.4 ***Mobility in soil:*** no data available

12.5 ***Results of PBT and vPvB assessment:*** no data available

12.6 ***Other adverse effects:*** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 ***Waste treatment methods***

Product: Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 ***UN-Number***

ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 ***UN proper shipping name***

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate monohydrate)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate monohydrate)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate monohydrate)

14.3 ***Transport hazard class(es)***

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 ***Packaging group***

ADR/RID: III IMDG: III IATA: III

14.5 ***Environmental hazards***

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 ***Special precautions for users:*** EMS-No: F-A, S-F

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 ***Safety, health and environmental regulations/legislation specific for the substance or mixture:*** no data available

15.2 ***Chemical Safety Assessment:*** no data available

16. OTHER INFORMATION

Aquatic Acute Acute aquatic toxicity

Aquatic Chronic Chronic aquatic toxicity

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

N Dangerous for the environment

Xn Harmful

R22 Harmful if swallowed.

R41 Risk of serious damage to eyes.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.