SAFETY DATA SHEET

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

1.1 *Product identifiers*

Product name: **COBALT (II) CHLORIDE hexahydrate**

CAS-No.: **7791-13-1**

Product Number: **A67099**

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: Carcinogenicity (Category 1B); Acute toxicity (Category 4); Respiratory sensitization (Category 1); Skin sensitization (Category 1); Acute aquatic toxicity (Category 1); Chronic aquatic toxicity (Category 1); Germ cell mutagenicity (Category 2); Reproductive toxicity (Category 1B).

According to European Directive 67/548/EEC as amended: May cause cancer by inhalation. Harmful if swallowed. May cause sensitization by inhalation and skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May impair fertility. Possible risk of irreversible effects.

2.2 *Label elements*

Pictogram 

Signal Word Danger

Hazard statement(s): H302 Harmful if swallowed; H317 May cause an allergic skin reaction; H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled;H341 Suspected of causing genetic defects. H410 Very toxic to aquatic life with long lasting effects; H350i May cause cancer by

inhalation; H360 May damage fertility or the unborn child.

Precautionary statement(s): P201 Obtain special instructions before use; P261 Avoid breathing dust/fume/gas/mist/vapours/spray; P273 Avoid release to the environment; P280 Wear protective gloves; P301 + P312 + P330 If Swallowed: Call a poison centre/doctor if you feel unwell. Rinse mouth; P302 + P352 If on skin wash with plenty of water. P308 + P313 IF exposed or concerned: Get medical advice/attention; P501 Dispose of contents/container to an approved waste disposal plant.

Hazard symbol(s): T Toxic; N Dangerous for the environment

R-phrase(s): R49 May cause cancer by inhalation; R60 May impair fertility; R22 Also harmful if swallowed; R68 Possible risk of irreversible effects; R42/43 May cause sensitization by inhalation and skin contact; R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s): S53 Avoid exposure - obtain special instructions before use; S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible); 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. Restricted to professional users.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 ***Substances***

Cobalt dichloride (Synonyms : Cobaltous chloride**)**

Formula:	$CoCl_2.6H_20$
Molecular Weight:	237.93g/mol
CAS-No.:	7791-13-1
EC-No.:	231-589-4
Index-No.:	027-004-00-5

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:*** 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.

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. 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. Store under inert gas. Moisture sensitive. Handle and store under inert gas. Hygroscopic

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
Cobalt dichloride	7791-13-1	TWA	0.1mg/m^3	2007-08-01

UK. EH40 Occupational Exposure Limits.

Remarks:

Substances that can cause occupational asthma (also known as asthmagens andrespiratory 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 hyperSigma-responsive. . 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 fro 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 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

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. 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**: Blue

b) Odour: no data available

c) Odour Threshold: no data available

d) pH: no data available

e) Melting/freezing point: 724 °C Melting point/range: no data available

f) Initial boiling point and boiling range: 1,049 °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: 100 hPa at 818 °C / 53 hPa at 770 °C

l) Vapour density: no data available

m) Relative density: 3.370 g/cm^3

n) Water solubility: no data available

o) Partition coefficient: n-octanol/water: 0.85

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:*** Oxidizing agents, Alkali metals

10.6 ***Hazardous decomposition products:*** Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Cobalt/cobalt oxides

11. TOXICOLOGICAL INFORMATION

11.1 ***Information on toxicological effects***

Acute toxicity: LD50 Oral - rat - 418 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: May cause sensitization by inhalation or by skin contact.

Germ cell mutagenicity: Genotoxicity in vitro - Human - HeLa cell: DNA inhibition

Carcinogenicity: Possible carcinogen.: IARC: 2B - Group 2B: Possibly carcinogenic to humans (Cobalt dichloride)

Reproductive toxicity: Reproductive toxicity - mouse – Oral: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count). Paternal Effects: Testes, epididymis, sperm duct. Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

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: Blood disorders, Cough, Shortness of breath, Headache, Nausea, Vomiting

Additional Information: RTECS: GF9800000

12. ECOLOGICAL INFORMATION

12.1 ***Toxicity:*** Toxicity to fish LC50 - *Cyprinus carpio* (Carp) - 0.33 mg/L - 96 h

Toxicity to daphnia and other aquatic invertebrates.

mortality NOEC - *Daphnia* - < 0.05 mg/L - 7 d

EC50 - *Daphnia magna* (Water flea) - 1.1 - 1.6 mg/L - 48 h

Toxicity to algae EC50 - *Chlorella vulgaris* (Fresh water algae) - 0.52 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:*** 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. 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:	2923	IMDG:	2923	IATA:	2923

14.2 *UN proper shipping name*

ADR/RID:	CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt dichloride)
IMDG:	CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt dichloride)
IATA:	CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt dichloride)

14.3 *Transport hazard class(es)*

ADR/RID:	8 (6.1)	IMDG:	8 (6.1)	IATA:	8 (6.1)

14.4 *Packaging group*

ADR/RID:	III	IMDG:	III	IATA:	III

14.5 *Environmental hazards*

ADR/RID: Yes IMDG Marine pollutant: Yes IATA: Yes

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

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; Aquatic Chronic Chronic aquatic toxicity; Carc. Carcinogenicity; H302 Harmful if swallowed.; H317 May cause an allergic skin reaction.; H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.; H350i May cause cancer by inhalation.; H410 Very toxic to aquatic life with long lasting effects.; Resp. Sens. Respiratory sensitization; N Dangerous for the environment; T Toxic; R22 Harmful if swallowed.; R42/43 May cause sensitization by inhalation and skin contact.; R49 May cause cancer by inhalation.; R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.; R60 May impair fertility.; R68 Possible risk of irreversible effects. Repr.Cat.2 Toxic to Reproduction Category 2