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SAFETY DATA SHEET

SDS: Co

1. PRODUCT & IDENTIFICATION DETAILS

Cobalt Oxide K283

2. HAZARD IDENTIFICATION

COBALT OXIDE

EC No: 215-157-2

CAS No: 1308-06-1

REACH Reg No: 01-2119517310-56-0000

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

Resp. Sens. 1B, H334

Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Classification according to Directive 67/548/EEC [DSD]

R42 R52/53

Signal word: Danger



Hazard Statements:

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H412 - Harmful to aquatic life with long lasting effects.

Precautionary Statements:

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 - Avoid release to the environment.

P285 - In case of inadequate ventilation wear respiratory protection.

P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

P304 + P341 - If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

Disposal:

P501 - Dispose of contents/container to an approved waste disposal plant

Hazardous ingredients : tricobalt tetraoxide

Cont'd

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Product / Ingredient</u>	<u>Identifiers</u>	<u>%</u>	<u>Classification</u> <u>67/548/EEC</u>	<u>Classification</u> <u>Regulation (EC) No</u> <u>1272/2008 [CLP]</u>
Tricobalt Tetraoxide	EC: 215-157-2 CAS: 1308-06-1	97-100	R42 R52/53	Resp. Sens. 1B, H334 Aquatic Chronic 3, H412
Cobalt Oxide	EC: 215-154-6 CAS: 1307-96-6 Index: 027-002-00-4	<1	T+, R26 Xn, R22 R42/43 R50/53	Acute Tox. 3, H301 Acute Tox 2, H330 Resp. Sens. 1B, H334 Skin sens 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

4. FIRST AID

Eye contact:

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.

Skin Contact:

Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion:

Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

First Aider Protection:

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Acute Health Effects (Possible)

- Eye contact: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
- Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact: No known significant effects or critical hazards.
- Ingestion: No known significant effects or critical hazards.

Over Exposure Symptoms

- Eye contact: Irritation / Soreness / Redness
- Inhalation: Respiratory irritation / Coughing / Wheezing
- Skin: No specific data
- Ingestion: No specific data

Notes to doctor:

Treat symptomatically.

Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. FIRE FIGHTING PROCEDURES

Use an extinguishing agent suitable for the surrounding fire.

Hazards from the product:

This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products:

Decomposition products may include the following materials: metal oxide/oxides.

Advice for fire-fighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

6. ACCIDENTAL RELEASE MEASURES

Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Small spill:

Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill:

Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor.

7. HANDLING & STORAGE

Protective Measures:

Put on appropriate personal protective equipment (see Section 8). Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing dust. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Product</u>	<u>Exposure Limit</u>
Tricobalt Tetraoxide	EH40/2005 WELs (United Kingdom (UK), 12/2011). Skin sensitiser. TWA: 0.1 mg/m ³ , (as Co) 8 hours
Cobalt Oxide	EH40/2005 WELs (United Kingdom (UK), 12/2011). Skin sensitiser. TWA: 0.1 mg/m ³ , (as Co) 8 hours

Recommended Monitoring Procedures:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate Engineering Controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Protection Measures for Individuals

Hygiene:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye / Face Protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Hand Protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body Protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other Skin Protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory Protection

Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: particulate filter (P3)

Environmental Exposure Controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. PHYSICAL & CHEMICAL PROPERTIES

Form: Solid Powder
Colour: Black Grey
Odour: Odourless.

10. STABILITY & REACTIVITY

Reactivity: No specific data available
Stability: Product is stable
Hazardous Reactions: Under normal conditions of storage and use, hazardous reactions will not occur
Conditions to avoid: None known

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Not classified
Irritation / Corrosion: Not classified
Mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified

Potential acute health effects

Eye Contact:

Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation:

Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms related to the physical, chemical and toxicological characteristics

Eye Contact:

Adverse symptoms may include the following: irritation redness

Inhalation:

Adverse symptoms may include the following: respiratory tract irritation coughing wheezing and breathing difficulties asthma

Delayed and immediate effects and also chronic effects from short and long term exposure

Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

12. ECOLOGICAL INFORMATION

Toxicity

Product	Result	Species	Exposure
Tricobalt Tetraoxide	LC50 0.024 mg/l Marine water	Akgae	7 days
	LC50 0.144 mg/l Fresh water	Algae	72 hours
	LC50 2.32 mg/l Marine water	Crustaceans	72 hours
	LC50 1.5 mg/l Fresh water	Fish	96 hours
	NOEC 0.00123 mg/l Marine water	Algae	7 days
	NOEC 0.0049 mg/l Fresh water	Algae	7 days
	NOEC 0.206 mg/l Marine water	Crustaceans	113 hours
	NOEC 0.00547 mg/l Fresh water	Daphnia	28 hours
	NOEC 0.3514 mg/l	Fish	34 days

Conclusion: Harmful to aquatic organisms. By analogy to similar materials: Cobalt Chloride

13. DISPOSAL

Method of disposal

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste

Yes

European Waste Catalogue

Waste Code: 03 03 15 Waste designation: metallic oxides containing heavy metals

The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14. TRANSPORTATION

	<u>ADR/RID</u>	<u>ADN</u>	<u>IMDG</u>	<u>IATA</u>
UN Number	N/A	N/A	N/A	N/A

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

15. REGULATORY INFORMATIONSafety, health and environmental regulations/legislation specific for the substance or mixtureEU Regulation (EC) No. 1907/2006 (REACH)Annex XIV - List of substances subject to authorizationAnnex XIV

None of the components are listed

Substances of very high concern

None of the components are listed

National Regulations

<u>Product</u>	<u>List name</u>	<u>Name on list</u>	<u>Classification</u>
Tricobalt Tetraoxide	UK Occupational Exposure Limits EH40 – WEL	Cobalt compounds	Carc.
Cobalt Oxide	UK Occupational Exposure Limits EH40 – WEL	Cobalt compounds	Carc.

16. OTHER INFORMATION

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Resp. Sens. 1B, H334	Expert judgment
Aquatic Chronic 3, H412	Expert judgment

Full text of abbreviated H Statements

H301 Toxic if swallowed.

H317 May cause an allergic skin reaction.

H330 Fatal if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

Full text of abbreviated R Phrases

R26 Very toxic by inhalation.

R2 Harmful if swallowed.

R4 May cause sensitisation by inhalation.

R42/43 May cause sensitisation by inhalation and skin contact.

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

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications

T+ - Very toxic

Xn - Harmful

N - Dangerous for the environment

DISCLAIMER

The information contained in this safety data sheet has been prepared using the best available information, however in view of technical developments, this may alter.

The material must only be used for its stated purpose and the information contained within this data sheet is offered solely for use in the evaluation of this product in respect of safety, health and environmental hazards.

Due to the many factors outside our control when using this product, we cannot accept liability for any injury, accident, loss or damage caused through its use.