

SAFETY DATA SHEET



COBALT

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

1.1 Product identifier

Product name : COBALT SULPHATE

Other means of : Sulfuric acid, cobalt(2+) salt (1:1), heptahydrate; Cobalt sulfate (CoSO₄), **identification** heptahydrate; Cobalt sulphate, heptahydrate; cobalt sulfate heptahydrate; Cobalt(II) sulfate (1:1), heptahydrate

EC number : 233-334-2

REACH Registration number

Registration number

01-2119517426-41-0000

CAS number : 10026-24-1 **Product code** : 20053

Telephone number : Carechem: +44 1235 239670

Hours of operation : 24 hours per day

Date of issue/Date of revision : 11/1/2016 Date of previous issue : 10/31/2016 Version : 2 1/16

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

Identified uses
Manufacture of cobalt sulphate Formulation of metal surface treatment pre-formulations Formulation for water treatment chemicals, oxygen scavengers, corrosion inhibitors Formulation of fertilizers and/or feed grade materials Formulation of mixtures for use in biogas production Use of cobalt sulphate in the manufacture of other chemicals (intermediate use) Use of cobalt sulphate as catalyst in synthesis processes Passivation processes in surface treatment Plating processes in surface treatment Use of water treatment chemicals, oxygen scavengers, corrosion inhibitors Battery production (intermediate use) Manufacture of inorganic pigments, frits, ceramic ware, glass Production of dyes for the textile, leather, wood and paper industry (intermediate use) Use in fermentation processes and biogas production Professional use of fertilizers Professional use of formulations in biogas production Industrial handling of surface treated articles (passivated/plated) Professional handling of surface treated articles (passivated/plated) Service life of cobalt-containing batteries in industrial settings Service life of cobalt-containing batteries in professional settings

1.3 Details of the supplier of the safety data sheet

Keramikos
Oudeweg 153
2031 CC Haarlem
Tel: 023 – 542 44 16
E-mail address: info@keramikos.nl

1.4 Emergency telephone number

Supplier

COBALT SULPHATE

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mono-constituent substance

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

Acute Tox. 4, H302
Eye Irrit. 2, H319
Resp. Sens. 1B, H334
Skin Sens. 1, H317
Muta. 2, H341
Carc. 1B, H350i (inhalation)
Repr. 1B, H360F (Fertility)
Aquatic Acute 1, H400
Aquatic Chronic 1, H410

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

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

Hazard pictograms



Signal word

Hazard statements

- : Danger
- : H302 - Harmful if swallowed.
- : H319 - Causes serious eye irritation.
- : H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- : H317 - May cause an allergic skin reaction.
- : H350i - May cause cancer if inhaled.
- : H360F - May damage fertility.
- : H341 - Suspected of causing genetic defects.
- : H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

- : P201 - Obtain special instructions before use.
- : P202 - Do not handle until all safety precautions have been read and understood. P281 - Use personal protective equipment as required.

Response

- : P308 + P313 - IF exposed or concern: Get medical advice/attention.

Storage

- : P405 - Store locked up.
Refer to Section 7: HANDLING AND STORAGE for additional handling information and protection of employees.

Disposal

Hazardous ingredients

- : P501 - Dispose of contents/container to an approved waste disposal plant.
- : Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7) Not applicable.

Supplemental label elements

- : Restricted to professional users.
- : **Special packaging requirements**

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Containers to be fitted with child-resistant fastenings

- : Not applicable. :
- : Not applicable.

Tactile warning of danger

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2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

- : Not applicable.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII Other hazards which do : None known. not result in classification

- : Not applicable.

SECTION 2: Hazards identification

SECTION 3: Composition/information on ingredients

3.1 Substances : Mono-constituent substance

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	REACH #: 01-2119517426-41 EC: 233-334-2 CAS: 10026-24-1 Index: 027-005-00-0	95 - 100	Carc. Cat. 2; R49 Muta. Cat. 3; R68 Repr. Cat. 2; R60 Xn; R22 Xi; R36 R42/43 N; R50/53 See Section 16 for the full text of the R-phrases declared above.	Acute Tox. 4, H302 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350i (inhalation) Repr. 1B, H360F (Fertility) Aquatic Acute 1, H400 Aquatic Chronic 1, H410 See Section 16 for the full text of the H statements declared above.	[A]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

SECTION 4: First aid measures

4.1 Description of first aid measures

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.

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SECTION 4: First aid measures

- 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 with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. 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 necessary, call a poison center or physician. 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.
- Protection of first-aiders** : 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following: pain or irritation watering redness

- Inhalation** : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma
reduced foetal weight
increase in foetal deaths
- Skin contact** : skeletal malformations
Adverse symptoms may include the following: irritation redness
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

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SECTION 4: First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : This material is very toxic 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:
sulfur oxides metal oxide/oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : 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. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

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SECTION 6: Accidental release measures

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. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s). **7.1 Precautions for safe handling**

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. 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.

Advice on general occupational hygiene 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.

7.2 Conditions for safe storage, including any incompatibilities

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.

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200
C9i: Very toxic for the environment	100	200

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

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SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	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.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	DNEL	Long term Inhalation	0.1052 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	0.0166 mg/m ³	Consumers	Local
	DNEL	Long term Oral	0.025 mg/kg bw/day	Consumers	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	Fresh water	0.6 µg/l	-
	Marine water	2.36 µg/l	-
	Fresh water sediment	9.5 mg/kg dwt	-
	Marine water sediment	9.5 mg/kg dwt	-

	Soil	10.9 mg/kg dwt	-
	Sewage Treatment Plant	0.373 µg/l	-

8.2 Exposure controls

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.

Individual protection measures

Hygiene measures

: 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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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SECTION 8: Exposure controls/personal protection

- 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: chemical splash goggles.
- Skin protection**
- 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. 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.
- Body protection** : accurately estimated. 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

physical

Appearance	Solid. [Crystals.]
Physical state	: Red. - Brown.
Colour	: Odourless.
Odour	: Not applicable.
Odour threshold	: Not applicable.
pH	: 735°C
Melting point/freezing point	: Not available.
Initial boiling point and boiling range	: Not applicable.
Flash point	: Not applicable.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not applicable.
Upper/lower flammability or explosive limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: 3.71
Relative density	: Partially soluble in the following materials: cold water.
Solubility(ies)	: 376.7 g/l Not
Solubility in water	: available.
Partition coefficient: n-octanol/ water	: Not applicable.
Auto-ignition temperature	:

<i>Date of issue</i> / <i>Date of revision</i>	: 11/1/2016	<i>Date of previous issue</i>	: 10/31/2016	<i>Version</i>	: 2	8/16
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SECTION 9: Physical and chemical properties

Decomposition temperature	: Not available.
Viscosity	: Not available.
Explosive properties	: Not available.
Oxidising properties	: No oxidising ingredients present.

9.2 Other information

Remarks : Not available.

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Keep away from heat, sparks and flame. Avoid dust generation.

10.5 Incompatible materials : No specific data.

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information
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11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	LD50 Dermal	Mammal species unspecified	>2000 mg/kg	-
	LD50 Oral	Rat	582 mg/kg	-
	LD50 Oral	Rat	768 mg/kg	-

Conclusion/Summary : Harmful if swallowed.

Irritation/Corrosion : No known significant effects or critical

Skin hazards. : Causes serious eye irritation.

Eyes : No known significant effects or critical hazards.

Respiratory

Sensitisation : May cause an allergic skin reaction.

Skin : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Respiratory

Mutagenicity

Conclusion/Summary : Suspected of causing genetic defects.

Carcinogenicity

Conclusion/Summary : May cause cancer by inhalation.

Reproductive toxicity

Conclusion/Summary : May damage fertility.

Teratogenicity

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SECTION 11: Toxicological information

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure) None.

Specific target organ toxicity (repeated exposure)

None.

Aspiration hazard

None.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin contact : May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

General

: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : May cause cancer if inhaled. Risk of cancer depends on duration and level of exposure.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation watering redness

Inhalation : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation redness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

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SECTION 11: Toxicological information

Mutagenicity : Suspected of causing genetic defects.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : May damage fertility.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	LC50 0.024 mg/l Marine water	Algae	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 days
	NOEC 0.00547 mg/l Fresh water	Daphnia	28 days
	NOEC 0.3514 mg/l	Fish	34 days

Conclusion/Summary : By analogy to similar materials: Cobalt Chloride. Very toxic to aquatic life.

12.2 Persistence and degradability

Conclusion/Summary : The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential

Bioconcentration factor (BCF) : Aquatic plants: BCF>100 - 5000 Aquatic invertebrates.: BCF<300
Fresh water, Fish: BCF/BAF<10
Marine water, Fish: BCF/BAF<10
This product shows a low bioaccumulation potential.

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.
vPvB P: Not available. B: Not available. T: Not available.
: Not applicable. vP: Not available.
vB: Not available.

12.6 Other adverse effects

: No known significant effects or critical hazards.

Date of issue/Date of revision : 11/1/2016	Date of previous issue : 10/31/2016	Version : 2	11/16
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SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods 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 (EWC)

Waste code	Waste designation
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13

Packaging

Methods of disposal : 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.

Type of packaging	European waste catalogue (EWC)
Bag	15 01 10* packaging containing residues of or contaminated by dangerous substances

Special precautions : 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3077	UN3077	UN3077	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt Sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt Sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt Sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt Sulphate)
14.3 Transport hazard class(es)	9 	9 	9 	9
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.

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SECTION 14: Transport information

Additional information	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.1.1.1, 5.0.2.6.1.1 and 5.0.2.8.
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<u>Hazard identification number</u>	<u>Special provisions</u>	<u>Emergency schedules (EmS)</u>	<u>Passenger and Cargo Aircraft</u>
90	274, 335, 375, 601	F-A, S-F	Quantity limitation: 400 kg Packaging instructions: 956
<u>Limited quantity</u>	<u>Special provisions</u>	<u>Special provisions</u>	<u>Cargo Aircraft Only</u>
5 kg		274, 335, 966, 967, 969	Quantity limitation: 400 kg Packaging instructions: 956
<u>Special provisions</u>	<u>Special provisions</u>	<u>Special provisions</u>	<u>Limited Quantities - Passenger Aircraft</u>
274, 335, 601, 375			
<u>Tunnel code</u>	<u>Special provisions</u>	<u>Special provisions</u>	<u>Limited Quantities - Passenger Aircraft</u>
(E)			

Quantity limitation: 30 kg
Packaging instructions: Y956

Special provisions

A97, A158, A179, A197

14.6 Special precautions for user : **Transport within user's premises:** 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.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	Carcinogen	Recommended	ED/95/2010	12/20/2011
-	Toxic to reproduction	Recommended	ED/95/2010	12/20/2011

COBALT SULPHATE

SECTION 15: Regulatory information

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Other EU regulations

Europe inventory : All components are listed or exempted.

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	Carc. 1B, H350i (inhalation)	Muta. 2, H341	-	Repr. 1B, H360F (Fertility)

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1
C9i: Very toxic for the environment

National regulations

Product/ingredient name	List name	Name on list	Classification	Notes
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Sulfuric acid, cobalt(2+) salt, hydrate (1:1:7)	UK Occupational Exposure Limits EH40 - WEL	cobalt compounds	Carc.	-
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International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Japan** : All components are listed or exempted.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- United States** : All components are listed or exempted.

<i>Date of issue/Date of revision</i> : 11/1/2016	<i>Date of previous issue</i> : 10/31/2016	<i>Version</i> : 2	14/16
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SECTION 15: Regulatory information

15.2 Chemical Safety Assessment : Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

📌 Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 vPvB = Very Persistent and Very Bioaccumulative

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

Classification	Justification
Acute Tox. 4, H302	Expert judgment
Eye Irrit. 2, H319	Expert judgment
Resp. Sens. 1B, H334	Expert judgment
Skin Sens. 1, H317	Expert judgment
Muta. 2, H341	Expert judgment
Carc. 1B, H350i (inhalation)	Expert judgment
Repr. 1B, H360F (Fertility)	Expert judgment
Aquatic Acute 1, H400	Expert judgment
Aquatic Chronic 1, H410	Expert judgment

Full text of abbreviated H statements	: H302 H317 H319 H334 H341 H350i H360F (Fertility) H400 H410	Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer if inhaled. May damage fertility. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
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Full text of classifications [CLP/GHS]	: Acute Tox. 4, H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Carc. 1B, H350i (inhalation) Eye Irrit. 2, H319 Muta. 2, H341 Repr. 1B, H360F (Fertility)	ACUTE TOXICITY (oral) - Category 4 ACUTE AQUATIC HAZARD - Category 1 LONG-TERM AQUATIC HAZARD - Category 1 CARCINOGENICITY (inhalation) - Category 1B SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 GERM CELL MUTAGENICITY - Category 2 TOXIC TO REPRODUCTION (Fertility) - Category 1B
Date of issue/ Date of revision 11/1/2016	: Resp. Sens. 1, H334 Resp. Sens. 1B, H334 Skin Sens. 1, H317	RESPIRATORY SENSITIZATION - Category 1 RESPIRATORY SENSITIZATION - Category 1B SKIN SENSITIZATION - Category 1

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Notice to reader

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SECTION 16: Other information

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