Conforms to ANSI Z400.1-2004 Standard (United States, Canada).

Material Safety Data Sheet

Cobalt Sulphate

1 . Product and company identification

Common name : **Cobalt Sulphate 31%**

Material uses : Included in animal feeds.

Supplier/Manufacturer : Pestell Minerals & Ingredients
141 Hamilton Road
New Hamburg, Ontario
Canada, N3A 2H1
Tel : (519) 662-2877
Fax : (519) 662-6242
E-mail: pestellgroup@pestell.com

In case of emergency : CANUTEC (613) 996-6666

MSDS authored by: : Kemika XXI Inc. + 1-450-435-7475 10/15/2006

2 . Hazards identification

Physical state : Solid. (Crystals.)

Odor : Odorless.

Hazard status : This material is classified hazardous under OSHA regulations in the United States and the WHMIS Controlled Product Regulation in Canada.

Emergency overview : WARNING !

CANCER HAZARD.
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
HARMFUL IF INHALED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.
MAY BE HARMFUL IF SWALLOWED.

Do not ingest. Avoid contact with skin and clothing. Do not breathe dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Irritating to eyes.

Skin : Irritating to skin. May cause sensitization by skin contact.

Inhalation : Harmful by inhalation. Irritating to respiratory system. May cause sensitization by inhalation.

Ingestion : May be harmful if swallowed.

Potential chronic health effects : Carcinogenic effects: Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC [Cobalt sulphate]. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP [Cobalt sulphate].
Mutagenic effects: Not available.
Teratogenic effects: Not available.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation.

See toxicological information (section 11)

3 . Composition/information on ingredients

United States

Name	CAS number	%
Cobalt sulphate	10124-43-3	60 - 100

Canada

Name	CAS number	%
Cobalt sulphate	10124-43-3	60 - 100

4 . First aid measures

Eye contact : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention.

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention.

Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention.

Notes to physician : No specific antidote. Medical staff must contact Poison Control Center.

5 . Fire-fighting measures

Flammability of the product : Non-flammable.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific hazard.

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.

6 . Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions : Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

7 . Handling and storage

Handling : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Do not breathe dust. Wash thoroughly after handling.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

United States

Product name	Exposure limits
Cobalt sulphate	**ACGIH TLV (United States, 1/2005).** TWA: 0.02 mg/m^3 8 hour(s). Form: Inorganic

Canada

Product name	Exposure limits
Cobalt sulphate	**ACGIH TLV (United States, 1/2005).** TWA: 0.02 mg/m^3 8 hour(s). Form: Inorganic

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, vapor 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.

Personal protection

Eyes : Safety glasses.

Skin : Synthetic apron.

Respiratory : Vapor respirator.

Hands : Nitrile gloves.

HMIS Code/Personal protective equipment : J

Personal protection in case of a large spill : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

Hygiene measures : Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. Follow good industrial hygiene practice.

9 . Physical and chemical properties

Physical state : Solid. (Crystals.)

Odor : Odorless.

Relative density : The only known value is 1.95 (Water = 1) (Cobalt sulphate).

Solubility : Insoluble in cold water, hot water.

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Reactive with oxidizing materials.

Hazardous polymerization : Will not occur.

Conditions of reactivity : Not available.

11 . Toxicological information

Toxicity data

Product/ingredient name	Test	Result	Route	Species
Cobalt sulphate	LD50	424 mg/kg	Oral	Rat
	LD50	584 mg/kg	Oral	Mouse

Acute Effects

Eyes : Irritating to eyes.

Skin : Irritating to skin. May cause sensitization by skin contact.

Inhalation : Harmful by inhalation. Irritating to respiratory system. May cause sensitization by inhalation.

Ingestion : May be harmful if swallowed.

Potential chronic health effects : Carcinogenic effects: Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC [Cobalt sulphate]. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP [Cobalt sulphate].
Mutagenic effects: Not available.
Teratogenic effects: Not available.

12 . Ecological information

Ecotoxicity data

Product/ingredient name	Species	Period	Result
Cobalt sulphate	Daphnia magna (LC50)	96 hour(s)	1.86 mg/l
	Pimephales promelas (LC50)	96 hour(s)	3.46 mg/l
	Pimephales promelas (LC50)	96 hour(s)	3.75 mg/l

Environmental precautions : Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Products of degradation : These products are sulfur oxides. Some metallic oxides.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. 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 and local authority requirements.

14 . Transport information

Regulatory information

UN/ IMDG/ IATA DOT/ TDG : Not regulated.

15 . Regulatory information

United States

HCS Classification : Toxic material
Irritating material
Sensitizing material
Carcinogen

U.S. Federal regulations : TSCA 6 proposed risk management: Lead
TSCA 8(b) inventory: All components listed.
TSCA 12(b) annual export notification: Lead

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Cobalt sulphate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Cobalt sulphate: Immediate (acute) health hazard

Clean Water Act (CWA) 307: Nickel; Lead; Cadmium; Arsenic

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

		Product name	CAS number	Concentration
Form R - Reporting requirements	:	Cobalt sulphate	10124-43-3	60 - 100
Supplier notification	:	Cobalt sulphate	10124-43-3	60 - 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Cobalt sulphate: (environmental hazard, generic environmental hazard); Nickel: (special hazard, environmental hazard, generic environmental hazard); Lead: (environmental hazard, generic environmental hazard); Cadmium: (special hazard, environmental hazard, generic environmental hazard); Arsenic: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Nickel; Lead; Cadmium; Arsenic
New Jersey: Cobalt sulphate; Nickel; Lead; Cadmium; Arsenic

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Cobalt sulphate	Yes.	No.	No.	No.
Nickel	Yes.	No.	No.	No.
Lead	Yes.	Yes.	15 µg/day (ingestion)	Yes.
Cadmium	Yes.	Yes.	0.05 µg/day (inhalation)	Yes.
Arsenic	Yes.	No.	0.06 µg/day (inhalation)	No.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

DSL : All components listed.

This product has been classified in accordance with the hazard criteria of the Canadian CPR and the United States OSHA. This MSDS contains all the information required by the CPR and OSHA, the American National Standard Institute (ANSI) Z400.1.

International lists : This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, in Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

Label requirements (U.S.A.) : CANCER HAZARD.
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
HARMFUL IF INHALED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.
MAY BE HARMFUL IF SWALLOWED.

Hazardous Material Information System (U.S.A.) :

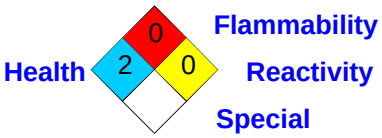
HMIS RATING

Health	*	2
Fire hazard		0
Physical Hazard		0
Personal protection		J

HAZARD RATINGS

4- Extreme
3- Serious
2- Moderate
1- Slight
0- Minimal
See section 8 for more detailed information on personal protection.

National Fire Protection Association (U.S.A.) :



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.