

Material Safety Data Sheet

Cobalt(II) Sulfate Heptahydrate

Section 1 – PRODUCT AND COMPANY IDENTIFICATION

MSDS Registration Number	AA00130-0000000101
1. Product Identifier	Cobalt(II) Sulfate Heptahydrat);
2. Recommended Use & Uses advised against	Cobalt(II) Sulfate 7H ₂ O; Cobalt Monosulfate Heptahydrate Uses for Laboratory and R&D only
3. Information of Supplier	SAMCHUN PURE CHEMICAL CO.,LTD ADDRESS; (Mogok-dong) 117, Sandan-ro 16Beon-gil, Pyeongtaek-si, Gyeonggi-do, Korea Emergency Phone; 82-31-668-0700/3 Department; Ministry of Facility Safety Web site; http://www.samchun.com

Section 2 – HAZARDS and DANGER IDENTIFICATION

1.GHS Classification· Identification	Acute toxic(Oral)	Category4
	Serious Eye Damage/Eye Irritation	Category2
	Respiratory sensitization	Category1
	Skin sensitization	Category1
	Germ cell Mutagenicity	Category2
	Carcinogenicity	Category1B
	Reproductive toxic	Category1B
	Specific Target Organ Toxicity (Repeated Exposure)	Category1
	Acute Aquatic Toxicity	Category1
	Chronic Aquatic Toxicity	Category1

2. Label and Mark including Precautionary Statement

◦Label elements



◦Signal word

Danger

◦Hazard · Danger statement

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
H341 Suspected of causing genetic defects
H350 May cause cancer
H360 May damage fertility or the unborn child
H372 Causes damage to organs (Respiratory tract)
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

◦Precautionary statement

- Precaution** P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection
P261 Avoid breathing dust.
P284 [In case of inadequate ventilation] wear respiratory protection.
P272 Contaminated work clothing should not be allowed out of the workplace.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P273 Avoid release to the environment.
- Measures** P330 Rinse mouth.
P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor/...if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor/...
"P321 Specific treatment (If it gets into your eyes, wash your eyes with plenty of water or saline for at least 15 minutes and seek medical attention immediately.
In case of skin contact, immediately remove contaminated clothing and shoes and wash with plenty of water and soap for at least 15 minutes.
In case of inhalation, remove the victim immediately to fresh air and if breathing stops or difficulty, give artificial respiration and seek medical attention.
In case of ingestion, seek medical attention immediately.)."
P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P314 Get medical advice/attention if you feel unwell.
P391 Collect spillage.
- Storage** P405 Store locked up.
- Dispose** P501 Dispose of contents/container to Waste Management Act

3. Other Hazard-Risk which are not included in the classification criteria

NFPA index(0~4steps) : Health=N/A, Fire=N/A, Reaction=N/A

Section 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	Other Name	CAS No.	Content (%)
Cobalt(II) sulfate heptahydrate	Cobalt monosulfate heptahydrate	10026-24-1	97 ~ 100
Water	Dihydrogen oxide	7732-18-5	0 ~ 3

Section 4 – FIRST AID MEASURES

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| 1. Eye Contact | Rinse with plenty of water for at least 15minutes and get medical attention immediately. |
| 2. Skin Contact | Take off contaminated cloths and shoes immediately, wash with plenty of water and soap for at least 15minutes. |
| 3. Inhalation | Move victim to fresh air. If breathing is difficult, give artificial respiration and get medical attention immediately. |
| 4. Ingestion | Do not induce vomiting. Get medical advice/attention immediately. |
| 5. Immediate medical attention and Notes for physician | Keep the medical personnel aware of the materials involved and take protective action. |

Section 5 – FIRE-FIGHT MEASURES

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| 1. Suitable extinguish media | This product is non-flammable |
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	Use extinguishing media suitable for the surrounding environment. Unsuitable extinguishing media : Not applicable Thermal decomposition products: cobalt oxide, sulfur oxide
2. Special hazards arising from the substance	
3. Special protective equipment and Precautions for fire-fighters	Move containers from fire area if you can do it without risk. When extinguishing a fire, be sure to wear personal protective equipment. If it is not possible to extinguish the fire, withdraw immediately. Keep containers cool by spraying with water for a long time, even after the fire is out. Isolate hazardous areas and deny access to people.

Section 6 – ACCIDENTAL RELEASE MEASURES

1. Personal precautions and Emergency procedures	Do not touch spilled material. Avoid inhalation and skin contact. In case of confined space, wear air respirator and ventilate and remove all sources of ignition.
2. Environmental precautions	Minimize leak/spill, collect and keep leak/spill in container
3. Methods and material for containment and cleaning up	Remove residue with high-efficient cleaner

Section 7 – HANDLING AND STORAGE

1. Precautions for safe Handling	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. All containers should be grounded.
2. Conditions for safe storage	Keep container sealed in a dry, cool place Store in a well-ventilated place Keep away from incompatible materials

Section 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

1. Occupational exposure limit, biological exposure limit	
National law of Safety management of Occupational Health and Safety Act	TWA : 0.02mg/m ³ , Cobalt and its inorganic compounds
ACGIH	TWA 0.02mg/m ³
Biological exposure limit	15 ug/L (End of shift at end of workweek, Cobalt in urine), 1 ug/L (End of shift at end of workweek, Cobalt in blood)
2. Appropriate Engineering controls	Ensure compliance with applicable exposure limits and operate local exhaust ventilation when working.
3. Personal protective equipment	
◦ Respiratory protection	Because it is concerned about the harmfulness of human body due to chemical substances, it is recommended to wear respiratory protective equipment with dust mask or dust filter in consideration of physical and chemical characteristics when handling. Respiratory protection should be certified by the Health and Safety Authority. It is concerned about the harmfulness of the human body depending on the working environment, it should wear respirator, air-purifying respirator
◦ Eye-protection	Wear safety glasses when handling as they may cause human health hazards due to chemicals. Install eye wash facilities and emergency eyewash stations near chemical handling sites
◦ Hand protection	Wear safety gloves when handling, as it is likely to harm human health due to chemicals
◦ Skin and body protection	Wear chemical protective clothing when handling, as it is likely to harm human health due to chemicals

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

1. Physical state and color	Solid(Pink-red)	2. Odor	Odorless
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3.threshold	N/A	4. pH	N/A
5.Melting/Freezing point	96.8°C	6.Boiling point/range	Converted to anhydrous at 420°C
7. Flashing point	Non-described	8. Evaporation speed	N/A
9. Flammability(solid,gas)	Non-described	10. Flash or Explosion limit upper / lower	Non-described
11. Vapor pressure	N/A	12. Solubility	60.4g/ml(3°C)
13. Vapor density	N/A	14.Gravity	2.03(7°C)
15. n-octanol-water Partition coefficient	N/A	16. Self ignition temp(°C)	Non-described
17. Cracking temp(°C)	735°C	18. Viscosity	N/A
19. Molecular Weight	281.13		

Section 10 – STABILITY AND REACTIVITY

1.Chemical stability and Possibility of Hazardous Reactions	Stable under normal temp. and pressure Dust may react with oxidizing agents and explode
2. Conditions to Avoid	Avoid heat, sparks, flames and other sources of ignition.
3. Incompatible Materials	Oxidizing agent, nitrate, oxidizing acid, chlorine bleach
4. Hazardous Decomposition Products	Thermal Decomposition Products: Cobalt Oxide, Sulfur Oxide

Section 11 – TOXICOLOGICAL INFORMATION

1. Information on the likely routes of exposure.

N/A

2. Health hazard information

◦Acute toxic	Oral : LD50 582mg/kg Rat Skin : N/A Inhalation : N/A
◦Serious skin corrosive / irritation	No skin irritation as a result of testing according to OECD Guideline 439 (similar substance: cobalt sulfate)
◦Serious eye damage / irritation	Tests according to OECD Guideline 405 showed eye irritation to rabbit eyes (similar substance: cobalt sulfate)
◦Respiratory sensitization	Chronic asthma has been observed in factory workers handling cobalt compounds.
◦Skin sensitization	Skin sensitization to guinea pigs as a result of testing according to OECD Guideline 406 (similar substance: cobalt sulfate)
◦ Carcinogenicity	Occupational Safety and Health Act: No data available Ministry of Employment and Labor Notice: 2 IARC: 2B OSHA: Described ACGIH : N/A NTP : N/A EU CLP : N/A
◦ Germ cell Mutagenicity	Results of in vitro bacterial reverse mutation analysis according to OECD guideline 471: positive in some strains In vivo mammalian bone marrow chromosomal abnormality test result according to OECD Guideline 475: negative
◦ Reproductive toxic	As a result of the test according to the OECD Guideline 422, the loss after implantation and the birth index of offspring decreased (similar substance: cobalt)

◦Specific target organ toxicity (single exposure)	The toxicity observed in the single exposure study is the same as that observed in the acute toxicity oral study, and therefore does not apply to single exposure classification. (Symptoms of poisoning; decreased general activity, increased water consumption, lack of hindlimb mobility, decreased pain sensitivity, etc.)
◦Specific target organ toxicity (repeated exposure)	Inhalation toxicity test in rats for 90 days resulted in severe necrosis and damage to the respiratory tract. In a 2-year inhalation study, inflammatory, fibrotic and proliferative lesions of the respiratory tract were observed in male and female rats exposed to cobalt sulfate heptahydrate.
◦Aspiration hazard	N/A

Section 12 – ECOLOGICAL INFORMATION

1.Acquatic and Terrestrial eco toxicity	Fish toxicity : LC50 1.406mg/L 96hr Oncorhynchus mykiss NOEC 0.21mg/L 34day Fathead minnow Invertebrate toxicity : EC50 1.49mg/L 48hr Daphnia magna EC10 0.0079mg/L 21day Daphnia magna
2.Persistence and degradability	Sea algae : EC50 0.023mg/L 72hr Raphidocelis subcapitata Persistence : N/A Degradability : N/A
3.Bioaccumulative potential	Concentrations : N/A Bioaccumulative : N/A
4.Mobility in soil	N/A
5.Other adverse effects	N/A

Section 13 – Disposable considerations

1.Waste methods	Dispose in accordance with local regulations.
2.Waste warning	Dispose prohibited substances and waste separately from others.

Section 14 – TRANSPORT INFORMATION

1. UN No.	3077
2.Proper shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
3.Hazard class	9(P)
4.Packing group	III
5.Marine pollutant	Described
6.Particular safety Measures for transportation	Fire emergency : F-A Emergency measures RELEASE : S-F

Section 15 – REGULATORY INFORMATION

1.Occupation safety and health acts	Standard material of exposure Test material of working environment (Test period; 6months) Hazardous material of administration objective Permissible Levels substances
2. Chemical Substances Control Act	Toxicity
3. National law of Safety management of hazardous material	Non-described
4.National law of management of Wastes	Designated Waste, waste toxic

5. Other domestic and foreign law

As it falls under toxic substances, the <Regulations on Classification and Labeling of Chemical Substances> is applied.

Section 16 – OTHER INFORMATION

- 1. Material source** ECHA, HSDB
A chemical information MSDS Safety and Health Agency
National Institute of Environmental Research Chemical Information Systems
Korea Industrial Technology National Fire Hazardous Materials Information System
- 1. The 1st edition** 2002.07.30
- 2. Revision and The final revision** 9 / 2023.10.19
- . Other references**

*** The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.**