

Material Safety Data Sheet

1. Chemical Product and Company Identification

Trade Name	HOC-701(Hardner)
General Use	Outdoor switchgear casting resin
Manufacturer	Jeil Chemical Co., Ltd. 38-16, Hoehak 3-gil, Onsan-Eup, Ulju-Gun, Ulsan, South Korea 052-227-5003

2. Hazards Identification

a. Hazards Classification and Statements	Acute. Tox. : Category 4 Skin Irrit. : Category 2 Eye Irrit. : Category 2 Skin Sens. : Category 1 Carcinogenicity : Category 1A Acute. Tox. : Category 4 STOT Rep. : Category 1 Aquatic Chronic : Category 2
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b. Hazards Description:

Pictogram



Signal word

DANGER

Hazards Classification and Statements

H302 May be harmful if swallowed
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H370 Causes damage to organs
H372 Causes damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

Prevention precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P264 Wash...thoroughly after handling

P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wash...thoroughly after handling
P281 Use personal protective equipment as required.

Response precautionary statements

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P302+P352 IF ON SKIN (or hair): Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.

	P363 Wash contaminated clothing before reuse.
	P391 Collect spillage.
Storage precautionary statements	P405 Store locked up
Disposal precautionary statements:	P501 Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).
다. Other harmful or danger characteristic (NFPA)	
QUARTZ (SiO ₂)	
Health hazard	1
Fire	0
Reactivity Hazard	0
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	
Health hazard	2
Fire	1
Reactivity Hazard	0
tetraaluminium hexahydroxide tris(sulphate)	
Health hazard	No Data
Fire	No Data
Reactivity Hazard	No Data

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS NO.	Amount(%)
QUARTZ (SiO ₂)	14808-60-7	40~50
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	85-42-7	30~40
tetraaluminium hexahydroxide tris(sulphate)	53810-32-5	30~40

4. First aid measures

가. Eye contact	Flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Consult a physician if signs of irritation appear.
나. Skin contact	Immediately remove contaminated clothing or shoes, wash skin with plenty of water for at least 15 minutes. Use soap if readily available, or follow by thoroughly washing soap and water. Do not reuse clothing until thoroughly decontaminated.
다. Inhalation	Move person to fresh air area and provide oxygen if breathing is difficult. Consult a physician if effects occur.
라. Ingestion	Do not induce vomiting because of risk of aspiration. Rinse mouth with water. Consult a physician if effects occur.

5. Fire fighting measures

Hazardous products of Combustion	In case of fire, toxic fumes might be formed
Extinguishing media	Water spray, foam, dry chemical, or carbon dioxide
Unusual fire or explosion Hazards	May produce hazardous fumes of hazardous decomposition products
Special fire fighting Procedures	When fire fighting, wear full protective equipment including self-contained breathing

6. Accidental release measures

Personal precautions	Put on adequate protective equipment. See section 8, Exposure control/ Personal Protection
Environmental precautions	Keep away from drains, surface-water, ground water and soil.
Clean-up Method	Sweep spilled material into non-leaking containers. All disposal methods must be in compliance with applicable local regulations.

7. Handling and storage

a. Storage	Keep away from: acids, alkalis, oxidizers. Keep in cool, dry, ventilate storage and in closed containers. Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Avoid freezing temperatures during storage. Do not store in reactive metal containers. Product
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may partially freeze with extended exposure to cold temperatures.

b. Handling

When handling, do not eat, drink, or smoke. Avoid contact with eyes. Avoid contact with skin. Spraying increases the risk of hazardous exposure. In atmospheres where the material is sprayed, workers should avoid contact with aerosols containing S through proper engineering controls, such as exhaust ventilation. Wear goggles and face shield. Do not get into the eyes. Other individuals working in the vicinity of the product where exposure can occur should also be fitted with chemical splash goggles. Contaminated clothing should be properly disposed of in a manner that will not cause additional exposure. Workers should be strongly encouraged to follow good personal hygiene practices, such as thorough washing of hands, arms, neck and face following working with HOC-701.

8. Exposure controls/personal protection

a. Exposure Limits

National regulations

QUARTZ (SiO ₂)	TWA – 0.05mg/m ³
1,3-ISOBENZOFURANDIONE, HEXAHYDRO tetraaluminium hexahydroxide tris(sulphate)	No Data
	No Data

ACGIH regulations

QUARTZ (SiO ₂)	TWA 0.025 mg/m ³
1,3-ISOBENZOFURANDIONE, HEXAHYDRO tetraaluminium hexahydroxide tris(sulphate)	No Data
	No Data

Biological exposure limits

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO tetraaluminium hexahydroxide tris(sulphate)	No Data
	No Data

b. Suitable Engineering Management

Use process isolation, local ventilation or other engineering management to maintain air quality under exposure limits.
Set wash up facilities and safe shower system, where storage or use of this material.

c. Personal protector

Eye protection	Safety glasses with side shields.
Hands protection	Chemical resistant gloves.
Skin and body protection	Chemical resistant protective suit. Chemicals resistant boots.
Respiratory protection	Never exceed the national Occupational Exposure Limit. Use local. Exhaust ventilation or handle in a ventilated enclosure. For greater protection a face piece chemical cartridge respirator is recommended.

9. Physical and chemical properties

1. Appearance

Type	Liquid
Color	Natural
2. Odor	No Data
3. Odour threshold	No Data
4. pH	No Data
5. Melting Point/Freezing Point	No Data
6. Boiling Point	No Data
7. Flash Point	254.4
8. Evaporation Rate	No Data
9. Flammability	No Data
10. Flammable Limits	No Data
11. Vapor Pressure	No Data
12. Solubility in WATER	No Data
13. Vapor density(water=1)	No Data
14. Density	1.75~1.85
15. n-Octanol/Water Partition coefficient	No Data
16. Autoignition Temperature	No Data
17. Decomposition Temperature	No Data
18. Viscosity(at 25℃)	8,000~14,000cps(at 40℃)
19. Molecular Weight	No Data

10. Stability and reactivity

Conditions to avoid	Can react strongly with epoxy resins at elevated temperature
Materials to avoid	Acids, amines, bases, oxidizing agents
Hazardous reaction	Hazardous polymerization does not occur by itself
Decomposition temperature	Not available
Hazardous decomposition component	Hazardous decomposition products are not expected to form during normal storage

11. Toxicological information

a. Information on the likely routes of exposure

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

tetraaluminium hexahydroxide tris(sulphate)	No Data
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b. Acute Toxicity Data

Acute toxic

Oral

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	LD50 4040mg/kg Rat
tetraaluminium hexahydroxide tris(sulphate)	No Data

Dermal

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

Inhalation

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

Skin Corrosion/Irritation

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

tetraaluminium hexahydroxide tris(sulphate)	No Data
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Serious Eye Damage/Irritation

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

Respiratory sensitization

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

Skin sensitization

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	R43
tetraaluminium hexahydroxide tris(sulphate)	No Data

Carcinogenicity

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

IARC

QUARTZ (SiO ₂)	Group 1 (Silica, crystalline (inhaled in the form of quartz or cristobalite from occupational sources))
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

OSHA

QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

ACGIH	
QUARTZ (SiO ₂)	A2
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
NTP	
QUARTZ (SiO ₂)	K (Silica, Crystalline (Respirable Size))
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
EU CLP	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
Germ Cell Mutagenicity	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
Reproductive toxicity	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
Specific target organ toxicity (single exposure):	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
Specific target organ toxicity (repeated exposure):	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
Aspiration hazard	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

12. Environmental information

a. Aquatic and terrestrial ecotoxicity:

Fish toxicity (Acute):	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	LC50 660 mg/ℓ 48 hr <i>Leuciscus idus</i>
tetraaluminium hexahydroxide tris(sulphate)	No Data
Water flea toxicity (Acute):	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	EC50 103 mg/ℓ 24 hr <i>Daphnia magna</i>
tetraaluminium hexahydroxide tris(sulphate)	No Data
Birds growth hinderance test (Acute):	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	EC50 95.6 mg/ℓ 72 hr <i>Scenedesmus subspicatus</i>
tetraaluminium hexahydroxide tris(sulphate)	No Data

b. Persistence and degradability:

Persistence:	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	log Kow 2.17
tetraaluminium hexahydroxide tris(sulphate)	No Data
Degradability:	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

c. Bioaccumulative potential:	
condensability	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
biodegradability	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	0 (%) 28 day
tetraaluminium hexahydroxide tris(sulphate)	No Data
d. Mobility in soil:	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
e. Other adverse effects:	
QUARTZ (SiO ₂)	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data

13. Disposal considerations

Incineration is the recommended disposal method for all chemical wastes. Material collected on absorbent material may be disposed in a landfill in accordance with all applicable local, state and federal regulations

14. Transport information

a. UN No.	3082
b. Proper Shipping Name	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
c. Transportation Class	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
d. Packing Group	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
e. Marine Pollutant	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
f. Special precautions for user	
fire emergency	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
spill Emergency	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable

15. Regulation information

a. Industrial Safety and Health Act	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
b. Toxic Chemical Control Act	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data

tetraaluminium hexahydroxide tris(sulphate)	No Data
c. Dangerous Material Safety Control Act	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
d. Wastes Management Act	
QUARTZ (SiO ₂)	No Data
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	No Data
tetraaluminium hexahydroxide tris(sulphate)	No Data
e. Other requirements in domestic and other countries	
National regulation	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
other countries	
U.S.A(OSHA)	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
U.S.A(CERCLA)	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
U.S.A(EPCRA 302)	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
USA(EPCRA 304)	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	Not applicable
tetraaluminium hexahydroxide tris(sulphate)	Not applicable
EU	
QUARTZ (SiO ₂)	Not applicable
1,3-ISOBENZOFURANDIONE, HEXAHYDRO	R36/38, R43, R51/53
tetraaluminium hexahydroxide tris(sulphate)	Not applicable

16. Other requirements in domestic and other countries

a. Information source and references

QUARTZ (SiO₂)

Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 ECB-ESIS(European chemical Substances Information System)(<http://ecb.jrc.it/esis>)
 ECOTOX Database, EPA(<http://cfpub.epa.gov/ecotox>)
 IUCLID Chemical Data Sheet, EC-ECB
 International Chemical Safety Cards(ICSC)(<http://www.nihs.go.jp/ICSC>)
 TOXNET, U.S. National Library of Medicine(<http://toxnet.nlm.nih.gov>)
 The Chemical Database, The Department of Chemistry at the University of Akron(<http://ull.chemistry.uakron.edu/erd>)
 (<http://hazmat.nema.go.kr>)
 (<http://ncis.nier.go.kr>)

1,3-ISOBENZOFURANDIONE, HEXAHYDRO

National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 European chemical Substances Information System(ECB-ESIS)(<http://ecb.jrc.it/esis>)
 National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 European chemical Substances Information System(ECB-ESIS)(<http://ecb.jrc.it/esis>)

National Library of Medicine/Chemical Carcinogenesis Research Information System(NLM/CCRIS)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CCRIS>)
National Library of Medicine/genetic toxicology(NLM/GENETOX)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?GENETOX>)
National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)

b. Issuing date	2013-06-28
c. Revision number and date	
Revision number	-
Date	-
d. Others	-