

SAFETY DATA SHEET

1. Identification of the substance or mixture and of the supplier

- A. GHS product identifier Chaos[®] Ocean Black C-118K
- B. Recommended use of the chemical and restrictions on use
Recommended use Paint and coating additives
Restrictions on use Not available
- C. Manufacturers
Company name CQV Co., Ltd.
Address 144, Seongjung-Ro, Jincheon-Eup, Jincheon-Gun, Chungbuk-Do, Korea
Emergency phone number 82-43-531-2500
Respondent Byung-Ki Choi
Fax 82-43-536-0314

2. Hazards identification

- A. GHS classification of the substance/mixture
Carcinogenicity : Category 2
- B. GHS label elements, including precautionary statements
Pictogram and symbol :



Signal word : Warning

Hazard statements :

H351 Suspected of causing cancer.

Precautionary statements

Precaution

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.

Treatment

P308+P313 If exposed or concerned: Get medical advice/ attention.

Storage

P405 Store locked up.

Disposal

P501 Dispose the contents/container in accordance with local/regional/national/international regulations.

- C. Other hazard information not included in hazard classification (NFPA)

Health 0

Flammability Not available

Reactivity Not available

3. Composition/information on ingredients

Chemical Name	CAS number	EC number	Content (%)
Synthetic Fluorphlogopite	12003-38-2	234-426-5	33 – 47
Iron Oxide	1309-37-1	215-168-2	45 – 53
Cobalt Oxide	1308-06-1	215-157-2	8 – 14

4. First aid measures

A. Eye contact

- Call emergency medical service.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

B. Skin contact

- Call emergency medical service.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.

C. Inhalation

- If exposed or concerned: Get medical advice/ attention.
- Move victim to fresh air.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Keep victim warm and quiet.

D. Ingestion

- If exposed or concerned: Get medical advice/ attention.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

E. Indication of immediate medical attention and notes for physician

- Exposures require specialized first aid with contact and medical follow-up .
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Fire fighting measures

A. Suitable (and unsuitable) extinguishing media

- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.

B. Specific hazards arising from the chemical

- Non-combustible, substance itself does not burn.

C. Special protective equipment and precautions for fire-fighters

- Rescuers should put on appropriate protective gear.
- Evacuate area and fight fire from a safe distance.
- Substance may be transported in a molten form.
- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks; Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.

- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.
- Fire involving Tanks; For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Cover with plastic sheet to prevent spreading.
- Please note that there are materials and conditions to avoid.

B. Environmental precautions and protective procedures

- Prevent entry into waterways, sewers, basements or confined areas.

C. The methods of purification and removal

- Absorb spills with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.

7. Handling and storage

A. Precautions for safe handling

- Do not handle until all safety precautions have been read and understood.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Use carefully in handling/storage.
- Loosen closure cautiously before opening.
- Avoid breathing vapors from heated material.
- Do not enter storage area unless adequately ventilated.
- Please note that there are materials and conditions to avoid.

B. Conditions for safe storage

- Store locked up.
- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

8. Exposure controls/personal protection

A. Occupational Exposure limits

Korea regulation

Iron Oxide TWA = 5 mg/m³

Cobalt Oxide TWA = 0.02 mg/m³

ACGIH regulation

Iron Oxide TWA 5 mg/m³ (respirable fraction)

Cobalt Oxide TWA 0.02 mg/m³ (Cobalt and inorganic compound, as Co)

Biological exposure index : Not available

OSHA regulation

Iron Oxide TWA = 10 mg/m³

NIOSH regulation

Iron Oxide TWA = 5 mg/m³

EU regulation : Not available

Other

Iron Oxide Canada: TWA = 5 mg/m³ (fume, as Fe) Australia: TWA = 5 mg/m³ (fume, as Fe) Finland: TWA = 5 mg/m³ (fume, as Fe) Belgium: TWA = 2 ppm (5 mg/m³) (fume, as Fe) Denmark: TWA = 3.5 mg/m³ (as Fe)

Cobalt Oxide Finland: TWA = 0.05 mg/m³ (as Co)

B. Appropriate engineering controls

- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

C. Personal protective equipment

Respiratory protection

- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In case exposed to particulate material, the respiratory protective equipments as follow are recommended. :facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with powered fan, filter media of use(dust, mist, fume)
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus.oxygen

Eye protection

- Wear breathable safety goggles to protect from particulate material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

Body protection

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

9. Physical and chemical properties

A. Appearance

Description Powder

Color Black

B. Odor No odor

C. Odor threshold Not available

D. pH 7 – 11

E. Melting point/freezing point Not available

F. Initial boiling point and boiling range Not available

G. Flash point Not available

H. Evaporation rate Not available

I. Flammability (solid, gas) Not applicable

J. Upper/lower flammability or explosive limits Not available

K. Vapor pressure Not available

L. Solubility (ies) Not available

- M. Vapor density Not available
N. Specific gravity 3.5 – 3.8 g/cm³
O. Partition coefficient: n-octanol/water Not available
P. Auto ignition temperature Not available
Q. Decomposition temperature Not available
R. Viscosity Not available
S. Molecular weight Not available

10. Stability and reactivity

A. Chemical stability and Possibility of hazardous reactions:

- Non-combustible, substance itself does not burn.

B. Conditions to avoid:

- Heat, sparks or flames

C. Incompatible materials:

- Combustibles, reducing agents

D. Hazardous decomposition products:

- Not available

11. Toxicological information

A. Information of Health Hazardous

Acute toxicity

Oral : Not classified

- **Synthetic Fluorophlogopite** : Rat LD₅₀ > 9,000 mg/kg
- **Iron oxide**: Rat LD₅₀ > 5,000 mg/kg (EU Method B.1)
- **Coblat oxide**: Rat LD₅₀ > 5,000 mg/kg (OECD TG 401, GLP)

Dermal : Not classified

- **Coblat oxide**: Rat LD₅₀ > 2,000 mg/kg (OECD TG 402, GLP)

Inhalation : Not classified

- **Synthetic Fluorophlogopite** : Rat LC₅₀ > 5 mg/L/4hr (OECD Guideline 403)
- **Iron oxide**: Rat LD₅₀ = mg/L Rat = 8.5 mg/kg bw/day
- **Coblat oxide**: Rat LC₅₀ > 5.06 mg/L/4hr (OECD TG 436, GLP)

Skin corrosion/ irritation : Not classified

- **Synthetic Fluorophlogopite** : The test substance was not irritating to the rabbit skin. (OECD Guideline 404)

– **Iron oxide**: As a result of skin irritation test using rabbit, skin irritation was not observed. (OECD TG 404, GLP)

– **Coblat oxide**: In a test with rabbits, this substance was not a skin irritating. (OECD TG 439, GLP)

Serious eye damage/ irritation : Not classified

- **Synthetic Fluorophlogopite** : The test substance was not irritating to the rabbit eyes. (OECD Guideline 405)

– **Iron oxide**: As a result of eye irritation test using rabbit, eye irritation was not observed. (OECD TG 405, GLP)

– **Coblat oxide**: The test item Coblat oxidedid not cause permeability of the corneae compared with the results of the negative control, but slight opacity effects. The calculated mean in vitro score was 10.39 and therefore, the test item was classified as mild eye irritant.(OECD TG 437, GLP)

Respiratory sensitization : Not available

Skin sensitization : Not classified

- **Iron oxide:** As a result of skin sensitization test using guinea pig, it does not cause skin sensitization.
- **Cobalt oxide:** In a LLNA with guinea-pigs, this substance was not classified as skin sensitiser.(OECD TG 429, GLP)

Carcinogenicity : Category 2

IARC

- **Cobalt oxide:** Group 2B Cobalt and cobalt compounds

OSHA

- **Cobalt oxide:** Present

ACGIH

- **Cobalt oxide:** A3 (Cobalt inorganic compounds)

KOREA-ISHL

- **Cobalt oxide:** 2

Cobalt oxide: Under the conditions of these 2-year inhalation studies, there was some evidence of carcinogenic activity of cobalt sulfate heptahydrate in male F344/N rats based on increased incidences of alveolar/bronchiolar neoplasms.(GLP)

Mutagenicity : Not classified

- **Iron oxide:** Negative reactions were observed in both in vitro (mammalian chromosome aberration test (OECD TG 473, GLP, read across), Ames test (read across), mammalian cell gene mutation assay (OECD TG 476, GLP, read across) and in vivo comet assay.

- **Cobalt oxide:** Negative reactions were observed in vitro mammalian cell gene mutation test(OECD TG 476), mammalian cell micronucleus test and in vivo mammalian chromosome aberration assay(OECD 475).

Reproductive toxicity : Not classified

- **Cobalt oxide:** No effect on cultured embryos derived from chronically treated male rats.

Specific target organ toxicity (single exposure) : Not classified

- **Cobalt oxide:** No clinical signs were observed during the study with rats.(OECD TG 402, GLP)

Specific target organ toxicity (repeat exposure) : Not classified

- **Synthetic Fluorophlogopite :** Synthetic Fluorophlogopite showed no adverse effects in a 90-day repeat dose toxicity study in rats. Synthetic Fluorophlogopite is a practically insoluble, inert mineral. Systemic effects after repeated exposure are highly unlikely.

- **Iron oxide:** No adverse effects were observed in sub-chronic inhalation toxicity studies for 90 days with rats. (NOAEC = 4.7 mg/m³) (OECD TG 413)

- **Cobalt oxide:** Repeat exposure to cobalt sulfate heptahydrate caused a spectrum of inflammatory, fibrotic, and proliferative lesions in the respiratory tract of male and female rats.(GLP)

Aspiration Hazard : Not available

12. Ecological information

A. Ecological toxicity

- Acute toxicity : Not classified
- Chronic toxicity : Not classified

Fish

- **Iron oxide:** 96hr-LC₀ (*Brachydanio rerio*) ≥ 50000 mg/L

- **Cobalt oxide:** 96hr-LC₅₀ > 136 mg/L (OECD TG 203, GLP), 34d-NOEC(Pimephales promelas) = 0.21 mg/L

crustacean

– **Iron oxide:** 48hr-EC₅₀ (*Daphnia magna*) > 100 mg/L (OECD TG 202, GLP)

– **Cobalt oxide:** 48hr-LC₅₀ > 136 mg/L (OECD TG 203, GLP)

Algae

– **Cobalt oxide:** 72hr-EC₅₀ (*Selenastrum capricornutum*) = 88 mg/L (OECD TG 201, GLP), 72hr-NOEC(*Selenastrum capricornutum*) = 9.8 mg/L

B. Persistence and degradability

Persistence

– **Iron oxide:** Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.97) (estimated)

Degradability : Not available

C. Bioaccumulative potential

Bioaccumulation

– **Iron oxide:** Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) (estimated)

Biodegradation

– **Iron oxide:** not readily biodegradable (estimated)

D. Mobility in soil

– **Iron oxide:** Low potency of mobility to soil. (Koc = 6.942) (estimated)

E. Other hazardous effect : Not available

F. HAZARDOUS TO THE OZONE LAYER : Not classified

13. Disposal considerations

A. Disposal method

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

B. Disposal precaution

Consider the required attentions in accordance with waste treatment management regulation.

14. Transport information

A. UN Number Not applicable

B. UN Proper shipping name Not applicable

C. Transport Hazard class Not applicable

D. Packing group Not applicable

E. Marine pollutant Not applicable

F. IMDG/IATA/ICAO Not applicable

G. Special precautions

in case of fire Not applicable

in case of leakage Not applicable

15. Regulatory information

A. Occupational Safety and Health Regulation

Iron Oxide : Administration subject listed

Iron Oxide : Occupational exposure limits listed

Iron Oxide : Work environment monitoring listed (6 months)

Iron Oxide : Health examination agent (12 months)

Cobalt Oxide : Administration subject listed
Cobalt Oxide : Occupational exposure limits listed
Cobalt Oxide : Health examination agent (6 month)
Cobalt Oxide : Work environment monitoring listed (6 months)

B. Chemical Control Act

Synthetic Fluorophlogopite : Existing Chemical Substance KE-17066
Iron oxide: Existing Chemical Substance (KE-10897)
Cobalt oxide: Existing Chemical Substance (KE-34112)

C. Dangerous Material Safety Management Regulation

Iron oxide: Dangerous Material Safety Management Regulation

D. Wastes Control Act

Synthetic Fluorophlogopite : Wastes Control Act Controlled Wastes

E. Other regulation (internal and external)

Internal information

Persistent Organic Pollutants Acts : Not regulated

② Foreign Regulatory Information

External information

EU classification(classification)

Iron oxide: Not classified

Cobalt oxide: Not classified

EU classification(risk phrases)

Iron oxide: Not applicable

Cobalt oxide: Not applicable

EU classification(safety phrases)

Iron oxide: Not applicable

Cobalt oxide: Not applicable

EU SVHC list : Not regulated

EU Authorisation List : Not regulated

EU Restriction list : Not regulated

U.S.A management information (OSHA Regulation) : Not regulated

U.S.A management information (CERCLA Regulation) : Not regulated

U.S.A management information (EPCRA 302 Regulation) : Not regulated

U.S.A management information (EPCRA 304 Regulation) : Not regulated

U.S.A management information (EPCRA 313 Regulation) : Not regulated

Substance of Rotterdam Protocol : Not regulated

Substance of Stockholm Protocol : Not regulated

Substance of Montreal Protocol : Not regulated

Foreign Inventory Status

Synthetic Fluorophlogopite

Australia management information Inventory of Chemical Substances (AICS):
Present

Canada Management Information Domestic Substances List (DSL): Present

China management information Inventory of Existing Chemical Substances
(IECSC): Present

New Zealand management information Inventory of Chemicals (NZIoC): May be
used as a component in a product covered by a group standard but it is not
approved for use as a chemical in its own right.

Philippines management information Inventory of Chemicals and Chemical
Substances (PICCS): Present

U.S.A management information Section 8(b) Inventory (TSCA): Present

Iron oxide

U.S.A management information Section 8(b) Inventory (TSCA): Present

Japan management information Existing and New Chemical Substances (ENCS): (5)–5188, (1)–357

Japan management information ISHL Harmful Substances Whose Names Are to be Indicated on the Label: $\geq 1\%$ weight

Japan management information ISHL Notifiable Substances: $\geq 1\%$ weight

China management information Inventory of Existing Chemical Substances (IECSC): Present 29712

Canada management information Domestic Substances List (DSL): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.

Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

Cobalt oxide

Canada management information Domestic Substances List (DSL): Present

U.S.A management information Section 8(b) Inventory (TSCA): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): Present

Japan management information Existing and New Chemical Substances (ENCS): (1)–267

Japan management information ISHL Harmful Substances Whose Names Are to be Indicated on the Label: $\geq 0.1\%$ weight (listed under Cobalt and its compounds)

Japan management information ISHL Notifiable Substances: $\geq 0.1\%$ weight (listed under Cobalt and its compounds)

China management information Inventory of Existing Chemical Substances (IECSC): Present

16. Other information

A. Information source and references

Emergency Response Guidebook 2008;

http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/erg2008_eng.pdf

U.S. National library of Medicine(NLM) ChemIDplus; <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>

Korea Occupational Health & Safety Agency; <http://www.kosha.net>

EPISUITE v4.11; <http://www.epa.gov/opt/exposure/pubs/episuitedi.html>

Ministry of Public Safety and Security–Korea dangerous material inventory management system; <http://hazmat.mpss.kfi.or.kr/index.do>

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>

TOMES–LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>

National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>

Waste Control Act enforcement regulation attached [1]

REACH information on registered substances; <https://echa.europa.eu/information-on-chemicals/registered-substances>

American Conference of Governmental Industrial Hygienists TLVs and BEIs.

NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>

National Toxicology Program; <http://ntp.niehs.nih.gov/results/dbsearch/>

International Uniform Chemical Information Database(IUCLID)

Korea Maritime Dangerous Goods Inspection Center; <http://www.komdi.or.kr/index.html>

EU CLP; <https://echa.europa.eu/information-on-chemicals/cl-inventory-database>

B. Issuing date 22-05-2008

C. Revision number and date

revision number 7

date of the latest revision 01-04-2024

D. Others

- Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.
- The product must not be used for any purposes other than those specified under heading 1 without first obtaining written handling instructions.
- It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.
- The information given on this safety data sheet must be regarded as a description of the safety requirements relating to our product and not a guarantee of its properties.