

SAFETY DATA SHEET

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

- A. GHS product identifier : Automotive Axion® Econa Black AAX-911K-OP
- B. Recommended use of the chemical and restrictions on use
Recommended use : Not available
Restrictions on use : Not available
- C. Supplier
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
Not classified according to OSHA 29 CFR 1910.1200
- B. GHS label elements, including precautionary statements
Pictogram and symbol : Not applicable
Signal word : Not applicable
Hazard statements : Not applicable
Precautionary statements
Precaution : Not applicable
Treatment : Not applicable
Storage : Not applicable
Disposal : Not applicable
- 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 (%)
Calcium Titanium Borosilicate	65997-17-3	266-046-0	65 - 75

Tin Oxide	18282-10-5	242-159-0	0 - 1
Titanium Dioxide	13463-67-7	236-675-5	3 - 9
Charcoal Powder	16291-96-6	240-383-3	18 - 24
Silane	-	-	0 - 2

4. First aid measures

A. Eye contact

- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.

B. Skin contact

- In case of contact with substance, immediately flush skin with running water at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Wash contaminated clothing and shoes before reuse.
- Get immediate medical advice/attention.

C. Inhalation

- Specific medical treatment is urgent.
- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.

D. Ingestion

- Do not let him/her eat anything, if unconscious.
- Get immediate medical advice/attention.

E. Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

F. Most important symptoms and effects, both acute and delayed

Not available

5. Fire fighting measures

A. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO₂
- Unsuitable extinguishing media: High pressure water streams

B. Specific hazards arising from the chemical

- If inhaled, may be harmful.

C. Special protective equipment and precautions for fire-fighters

- 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; 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.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Please note that materials and conditions to avoid.
- Ventilate the area.
- Do not touch or walk through spilled material.
- Prevent dust cloud.

B. Environmental precautions and protective procedures

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

C. The methods of purification and removal

- Small Spill; Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

7. Handling and storage

A. Precautions for safe handling

- Please note that materials and conditions to avoid.
- Wash thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

B. Conditions for safe storage

- Store in a closed container.
- Store in cool and dry place.

8. Exposure controls/personal protection

A. Occupational Exposure limits

Korea regulation

Calcium Titanium Borosilicate :
TWA = 5 mg/m³ (Fibrous glass dust)
Titanium Dioxide : TWA = 10 mg/m³

ACGIH regulation

Titanium Dioxide : TWA = 10 mg/m³

Biological exposure index : Not available

OSHA regulation :

Calcium Titanium Borosilicate : TWA = 15 mg/ m³ (total dust) TWA = 5 mg/ m³
(Respirable fraction)

Titanium Dioxide : TWA = 15 mg/m³

NIOSH regulation :

Calcium Titanium Borosilicate : TWA = 3 fibers/cm³ (fibers ≤ 3.5 μm in diameter & ≥ 10 μm in length) TWA = 5 mg/m³ (total dust)

Tin Oxide : TWA = 2 mg/m³ (as Sn)

EU regulation :

Titanium Dioxide : TWA = 10 mg/m³

Other : Not available

B. Appropriate engineering controls

- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

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 oxygen breathing apparatus.

Eye protection :

- Wear facepiece with goggles to protect.
- An eye wash unit and safety shower station should be available nearby work place.
- 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 chemical resistant gloves.
- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

Body protection :

- Wear appropriate protective chemical resistant clothing.

- 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 : Not available

C. Odor threshold : Not available

D. pH : Not available

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 available

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 : 2.2 – 2.5 g/ml

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

- Inhalation of material may be harmful.

B. Conditions to avoid

- Ignition sources (heat, sparks or flames)

C. Incompatible materials

- Combustibles

D. Hazardous decomposition products

- Not available

11. Toxicological information

A. Information on the likely routes of exposure

Not available

B. Information of Health Hazardous

Acute toxicity

Oral : Not available

- Calcium Titanium Borosilicate : Rat LD₅₀ > 2000 mg/kg (Read across: 1317-36-8)(OECD TG 423, GLP)
- Tin Oxide : Rat LD₅₀ > 9000 mg/kg
- Titanium Dioxide : Rat LD₅₀ > 5000 mg/kg (OECD Guideline 425, EPA OPPTS 870.1100)

Dermal : Not available

Inhalation : Not available

- Tin Oxide : Rat LC₅₀ > 5 mg/L / 4 hr (OECD TG 403, GLP)
- Titanium Dioxide : Rat LC₅₀ > 6.82 mg/L / 4 hr
- Charcoal Powder : Rat LC₅₀ > 4.97 mg/L / 4 hr (암컷, 수컷)(OECD Guideline 403, EU Method B.2, EPA OPPTS 870.1300, GLP)

Skin corrosion/ irritation : Not classified

- Calcium Titanium Borosilicate : In test on skin irritation with rabbits, skin irritations were not observed. (Read across: 1317-36-8)(OECD TG 404, GLP)
- Tin Oxide : Skin irritation test using rabbit, not skin irritation. (OECD TG 404)
- Titanium Dioxide : In test on skin irritation with rabbits, skin irritations were not observed. (OECD Guideline 404)
- Charcoal Powder : The result of the skin irritation test with rabbits, it was not irritating to the skin of rabbits.(OECD Guideline 404, GLP)

Serious eye damage/ irritation : Not classified

- Calcium Titanium Borosilicate : In test on eyes irritation with rabbits, eyes irritations were not observed.(Read across: 1317-36-8)(OECD TG 405, GLP)
- Tin Oxide : The test substance was not irritating to the rabbit eyes. (OECD TG 405)
- Titanium Dioxide : In test on eye irritation with rabbits, eye irritations were not observed. (OECD Guideline 405, EU Method B.5, EPA OPPTS 870.2400)
- Charcoal Powder : The result of the eye irritation test with rabbits, it was not irritating to the eye of rabbits.(OECD Guideline 405, GLP)

Respiratory sensitization : Not classified

- Titanium Dioxide : Titanium oxide does not show respiratory sensitizing properties in animal studies or in exposure related observations in humans.

Skin sensitization : Not classified

- Calcium Titanium Borosilicate : In the test on guinea pigs, the test substance was not considered to be a dermal sensitizer in guinea pigs.(Read across: 1317-36-8)(OECD TG 406, GLP)
- Tin Oxide : No activation of the lymph nodes of mice were observed in the LLNA performed with the test material. (OECD TG 429)
- Titanium Dioxide : In test on skin sensitization with guinea pig, skin sensitizations were not observed. (OECD Guideline 406, EU Method B.6, EPA OPP 81-6, GLP)
- Charcoal Powder : The result of the skin sensitization test with mouse, it was not sensitising to the skin of mouse.(OECD Guideline 429, GLP)

Carcinogenicity : Not classified

Mutagenicity : Not classified

- Calcium Titanium Borosilicate : In the mammalian cell gene mutation assay, the result of the assay was positive. (OECD TG 476, GLP) But we can't classify as genetic toxicity because in vivo mutagenicity test is not available.
- Tin Oxide : Negative reactions were observed in these in vitro genotoxicity studies(bacterial reverse mutation assay(e.g. Ames test)(gene mutation)(OECD Guideline 471), mammalian cell gene mutation assay(OECD Guideline 476), mammalian cell micronucleus test(OECD Guideline 487)).
- Titanium Dioxide : Negative reactions were observed in in vitro (mammalian cell gene mutation test(OECD Guideline 476, GLP), mammalian chromosome aberration test(OECD Guideline 473, GLP), bacterial reverse mutation assay(OECD Guideline 471)) and in in vivo (micronucleus assay).
- Charcoal Powder : As a result of in vitro germ cell mutagenicity test using bacteria, negative(OECD Guideline 471, EU Method B.13/14, GLP)

Reproductive toxicity : Not classified

- Titanium Dioxide : Based on the weight of evidence from the available long-term toxicity/carcinogenicity studies in rodents and the relevant information on the toxicokinetic behaviour in rats it is concluded that TiO₂ does not present a reproductive toxicity hazard.

Specific target organ toxicity (single exposure) : Not classified

- Charcoal Powder : Acute inhalation toxicity test using rats, dyspnea and decreased activity were observed. (OECD Guideline 403, EU Method B.2, EPA OPPTS 870.1300, GLP)

Specific target organ toxicity (repeat exposure) : Not classified

- Tin Oxide : No toxicity related symptoms were observed in rats as a result of oral toxicity test for 13 weeks (NOAEL \geq 10,000 mg/kg)
- Titanium Dioxide : Titanium dioxide did not show any adverse effects whatsoever in a chronic oral repeated dose toxicity study in rats, with a NOAEL of 3500 mg/kg bw/day.
Titanium dioxide is not absorbed to any relevant extent through human skin, thus no toxic effects can be expected via the dermal route of exposure.
Titanium dioxide showed fibrogenic effects in a chronic inhalation repeated dose toxicity study in rats with a NOAEC of 10 mg/m³.

Aspiration Hazard : Not classified

12. Ecological information

A. Ecological toxicity

- **Acute toxicity** : Not classified

Fish : Not available

- Titanium Dioxide : 96hr-NOEC(Oncorhynchus mykiss) > 100 mg/L (OECD Guideline 203)

crustacean : Not available

- Calcium Titanium Borosilicate : 48hr-NOEC (Mytilus galloprovincialis) =0.232 mg/L (Read across: 10099-74-8)(GLP)

Algae : E(r)C₅₀ = 61 mg/L

- Calcium Titanium Borosilicate : 96hr-NOEC (Skeletonema costatum) =0.0227 mg/L (Read across; 10099-74-8)(GLP)
 - Titanium Dioxide : 72hr-EC₅₀(*Pseudokirchnerella subcapitata*) = 61 mg/L , 72hr-NOEC(*Pseudokirchnerella subcapitata*) = 12.7 mg/L
- Chronic toxicity** : Not classified
- Fish** : Not available
- crustacean** : Not available
- Algae** : Not available
- B. Persistence and degradability**
- Persistence** : Not available
- Tin Oxide : Low persistency (log Kow is less than 4 estimated.) (= 1.29) (estimated)
 - Titanium Dioxide : Low persistency (log Kow is less than 4 estimated.) (= 2.23) (estimated)
 - Charcoal Powder : Low persistency (log Kow is less than 4 estimated.) (= 0.3~1.44) (25 ㉡)
- Degradability** : Not available
- C. Bioaccumulative potential**
- Bioaccumulation** : Not available
- Tin Oxide : Bioaccumulation is expected to be low according to the BCF < 500 (= 100) (estimated)
 - Titanium Dioxide : Bioaccumulation is expected to be low according to the BCF < 500 (= 13.73) (estimated)
- Biodegradation** : Not available
- Tin Oxide : not readily biodegradable (estimated)
 - Titanium Dioxide : not readily biodegradable (estimated)
 - Charcoal Powder : As not well-biodegraded, it is expected to have high accumulation potential in living organisms(2% biodegradation was observed after 28 days) (OECD Guideline 301 B, EU Method C.4-C, GLP)
- D. Mobility in soil** : No potency of mobility to soil. (Koc < 1.5) (25 ㉡) (OECD Guideline 121, EU Method C.19, GLP)
- Tin Oxide : No potency of mobility to soil. (Koc = 13.16) (estimated)
 - Titanium Dioxide : No potency of mobility to soil. (Koc = 86.1) (estimated)
 - Charcoal Powder : No potency of mobility to soil. (Koc < 1.5) (25 ㉡) (OECD Guideline 121, EU Method C.19, GLP)
- 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. Environmental hazards : 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

① KOREA Regulatory information

- A. Occupational Safety and Health Act : Not regulated
 - Calcium Titanium Borosilicate : (dust 6 months)
 - Titanium Dioxide :
- B. Chemicals Control Act : Not regulated
 - Calcium Titanium Borosilicate : (KE-17630)
 - Tin Oxide : (KE-33849)
 - Titanium Dioxide : KE-33900
 - Charcoal Powder : KE-05459
- C. Safety Control of Dangerous Substances Act : Not regulated
 - Tin Oxide : Non-dangerous goods
 - Titanium Dioxide : Non-dangerous goods
- D. Wastes Control Act : Not regulated
 - Calcium Titanium Borosilicate : Controlled Wastes
- E. Other regulation
 - Internal information
 - Persistent Organic Pollutants Acts : Not regulated

② Foreign Regulatory Information

External information

- EU classification(classification) : Not regulated
- EU classification(risk phrases) :
 - Calcium Titanium Borosilicate : Not applicable
 - Tin Oxide : Not applicable
 - Titanium Dioxide : Not applicable
 - Charcoal Powder : Not applicable
- EU SVHC list : Not regulated
- EU Authorisation List : Not regulated
- EU Restriction list : Not regulated
- EU BPR : 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 Convention : Not regulated Not regulated
Substance of Stockholm Convention : Not regulated Not regulated
Substance of Montreal Protocol : Not regulated Not regulated

16. Other information

A. Information source and references :

- American Conference of Governmental Industrial Hygienists TLVs and BEIs.
- EPISUITE v4.11; <http://www.epa.gov/opt/exposure/pubs/episuitedl.html>
- EU CLP; <https://echa.europa.eu/information-on-chemicals/cl-inventory-database>
- Emergency Response Guidebook 2008;
http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/erg2008_eng.pdf
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans;
<http://monographs.iarc.fr>
- Korea Occupational Health & Safety Agency; <http://www.kosha.net>
- Ministry of Public Safety and Security-Korea dangerous material inventory management system; <http://hazmat.mpss.kfi.or.kr/index.do>
- NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>
- National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>
- National Emergency Management Agency-Korea dangerous material inventory management system; <http://www.nema.go.kr/hazmat/main/main.jsp>
- National Institute of Technology and Evaluation(NITE);
<http://www.safe.nite.go.jp/english/db.html>
- National Toxicology Program; <http://ntp.niehs.nih.gov/results/dbsearch/>
- REACH information on registered substances;
<http://apps.echa.europa.eu/registered/registered-sub.aspx>
- REACH information on registered substances; <https://echa.europa.eu/information-on-chemicals/registered-substances>
- TOMES-LOLI@<http://www.rightanswerknowledge.com/loginRA.asp>
- TOMES-LOLI@ <http://www.rightanswerknowledge.com/loginRA.asp>
- TOMES-LOLI@ <http://www.rightanswerknowledge.com/loginRA.asp>
- U.S. National library of Medicine(NLM) Hazardous Substances Data Bank(HSDB);
<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
- Waste Control Act enforcement regulation attached [1]

B. Issuing date : 03-12-2021

C. Revision number and date

revision number 2

date of the latest revision 01-04-2024

D. Others :

- Revised Safety Data Sheet based on the amendments made on the Ministry of Employment and Labor Public Notice on Standard for Classification Labeling of Chemical Substance and Material Safety Data Sheet.
- This SDS is authored in pursuant to the Article 41 of the Occupational Safety and

Health Act.

- The content is based on the latest information and knowledge that we currently possess.
- This SDS was authored to aid buyer, processor or any other third person who handles the chemical of subject in the SDS; additionally, it does not warrant suitability of the chemical for special purposes or the commercial use of statements that approves the use of it in combination with other chemicals as well as technical or legal liabilities.
- The content of the SDS may vary depending on the country or the region and may not coincide with the actual regulations. Therefore, the buyer or the processor of the chemical is responsible for observing responsible government's or the region's regulations.