SAFETY DATA SHEET

Date Printed: April 27, 2020
Version: 1
Regulation: According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

1. Identification

1.1 Product identifier
1.1.1 Product of name: CCBA-8725BK
1.1.2 Other means of identification: Not available

1.2 Recommended use of the chemical and restrictions on use
1.2.1 Recommended use: It is used for outer semiconductor layer**.**
1.2.2. Restrictions on use: Do not use for purposes other than those recommended.

1.3 Details of the supplier of the safety data sheet
1.3.1 Manufacturer
Company name: Hanwha Solutions Co, Ltd.
Address: Yeosu plant, Hanwha Solutions Co, Ltd., 117, Yeosusandan 3-ro, Yeosu-si, Jeollanam-do, Korea
Prepared by: W&C Production team
Contact Telephone: +82-61-688-1582, Fax: +82-61-688-1585, e-mail : h0500113@hanwha.com
1.3.2 Supplier & Distributor
Company name: Hanwha Solutions Co, Ltd.
Address: Hanwha Bldg., Janggyo-dong, Jung-gu, Seoul, Korea
Prepared by: W&C Sales team
Contact Telephone: +82-2-729-2644, Fax : 02-729-2563, e-mail : yoosang.yoon@hanwha.com

1.4 Emergency phone number
Emergency phone: +82-2-729-2644

2. Hazard(s) identification

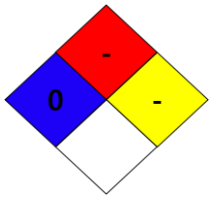
2.1 Classification of the substance or mixture
According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Physical / Chemical Hazards: Not classified

Health Hazards: Not classified

Environmental Hazards:
Acute hazardous to the aquatic environment: Category 3

2.2 Label elements, including precautionary statements
o Pictogram and symbol: Not applicable
o Signal word: Not applicable
o Hazard statements:
H402 Harmful to aquatic life
o Precautionary statements:
- Prevention:
P273 Avoid release to the environment.
- Response: Not applicable
- Storage: Not applicable
- Disposal:
P501 Dispose the contents/container in accordance with local/regional/national/international regulations.



2.3 Other hazard information not included in hazard classification (NFPA)

- **Health:** 0
- **Flammability:** Not available
- **Reactivity:** Not available

3. Composition/information on ingredients

Component	Common name and synonyms	CAS No.	Conc. / %
Acetic acid ethenyl ester, polymer with ethene	EVA; Ethylenevinylacetate copolymer	24937-78-8	>50
Carbon black	-	1333-86-4	<47
Poly(2,2,4-trimethyl-1,2-dihydroquinoline)	Polymer of 2,2,4-trimethyl-1,2-dihydroquinoline	26780-96-1	<2
[1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide	Bis(tert-butylperoxyisopropyl)benzene	25155-25-3	<1

4. First-aid measures

4.1 Description of first aid measures

Eye contact

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

Skin contact

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

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.

Ingestion

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

4.2 Most important symptoms and effects, both acute and delayed

- None known

4.3 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.

5. Fire-fighting measures

5.1 Extinguishing media

- **Suitable extinguishing media:** Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, carbon dioxide

- **Unsuitable extinguishing media**: high pressure water streams

5.2 Specific hazards arising from the chemical

- May be ignited by heat, sparks or flames.
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

5.3 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

6.1 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.

6.2 Environmental precautions

- Prevent entry into water ways, sewers, basements or confined areas.

6.3 Methods and materials for containment and cleaning up

- 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

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

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

8. Exposure controls/personal protection

8.1 Occupational Exposure limits

<Carbon black>

o ACGIH regulation: TWA=3 mg/m³ (inhalable particulate matter)

o OSHA regulation: TWA=3.5 mg/m^3

o NIOSH regulation: TWA=3.5 mg/m^3; 0.1 mg/m^3 (Carbon black in presence of Polycyclic aromatic hydrocarbons, as PAH)

o Biological exposure index: Not available

o EU regulation: Not available

o Other:

- Belgium: TWA= 3.5 mg/m^3
- Denmark: TWA=3.5 mg/m^3
- Finland: TWA= 3.5 mg/m^3, STEL= 7 mg/m^3
- China: TWA=4 mg/m^3 (total dust), STEL= 8 mg/m^3 (total dust)

8.2 Exposure controls

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.

Individual protection measures, such as personal protective equipment

Respiratory protection

- Wear NIOSH approved full or half face piece (with goggles) respiratory protective equipment when necessary.

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

9.1 Information on basic physical and chemical properties

Appearance	
Description:	Solid, Pellet
Color:	Black
Odor :	Not available
Odor threshold :	Not available
pH :	Not available
Melting point/freezing point :	80~110℃
Initial boiling point and boiling range :	Decompose on heating
Flash point :	Not available
Evaporation rate :	Not available
Flammability (solid, gas) :	Not flammable
Upper/lower flammability or explosive limits :	Not available
Vapor pressure :	Not available
Vapor density :	Not available
Relative density	1.15±0.05 (23℃)
Solubility :	Insoluble
Partition coefficient: n-octanol/water :	Not available

Auto-ignition temperature :	Not available
Decomposition temperature	Not available
Viscosity :	Not available

"NOTE: The physical data presented above are typical values and should not be construed as a specification"

10. Stability and reactivity

10.1 Reactivity/Chemical stability/Possibility of hazardous reactions:

- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

10.2 Conditions to avoid:

- Ignition sources (heat, sparks or flames)

10.3 Incompatible materials:

- Combustibles

10.4 Hazardous decomposition products:

- Irritating and/or toxic gases

11. Toxicological information

Information on toxicological effects	
(a) Acute toxicity	
Oral	Not classified (ATE_{mix}=79,750 mg/kg bw)
	- Carbon black: Rat, LD_{50} > 8,000 mg/kg - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): Rat(male/female), LD_{50}=3,190 mg/kg bw - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide: Rat(male/female), LD_{50}>2,000 mg/kg bw (OECD TG 401, 423, GLP)
Dermal	Not classified (ATE_{mix}>3,388 mg/kg bw)
	- Poly(2,2,4-trimethyl-1,2-dihydroquinoline): Rabbit(male/female), LD_{50}>5,190 mg/kg bw - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide: Rat(male/female), LD_{50}>2,000 mg/kg bw (OECD TG 402, GLP)
Inhalation	Not available
(b) Skin Corrosion/ Irritation	Not classified
	- Carbon black: In test on skin irritation with rabbits, skin irritation was not observed. (OECD TG 404) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): It was not irritating to the skin in an study equivalent to OECD TG 404 with 6 rabbits dosed with 500 mg TMQ. - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide:

	It is not considered as a primary dermal irritant.(OECD TG 404, GLP)
(c) Serious Eye Damage/ Irritation	Not classified
	- Carbon black: In test on eye irritation with rabbits, eye irritations were not observed. (OECD TG 405) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): The test compound was not irritating to the eyes in an study equivalent to OECD TG 405 with 6 rabbits dosed with 100 mg TMQ. - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide: The test material was not an eye irritant.(OECD TG 405, GLP)
(d) Respiratory sensitization	Not classified
	- Carbon black: In test on respiratory sensitization with mouse, respiratory sensitization was not observed.
(e) Skin Sensitization	Not classified
	- Carbon black: In skin sensitization test with guinea pigs, skin sensitizations were not observed. (OECD TG 406, GLP) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): A Guinea Pig Maximization Test (GPMT) according to OECD TG 406 was performed on female guinea pigs. The challenge led to no skin effects in the animals of the treatment group or of the control group. In summary, under the conditions of the maximization test and with respect to the evaluation criteria the test item therefore exhibits no skin-sensitization potential. (OECD TG 406, GLP) - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide: Under the experimental conditions of this study, the test item did not induce delayed contact hypersensitivity in the murine Local Lymph Node Assay. (OECD TG 429, GLP)
(f) Carcinogenicity	Not classified
	- Acetic acid ethenyl ester, polymer with ethene : · IARC, IRIS, OSHA, ACGIH, NTP, EU CLP 1272/2008: not listed - Carbon black: · IARC: Group 2B(Possibly carcinogenic to humans) · ACGIH: A3(Confirmed animal carcinogen with unknown relevance to humans) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): · IARC, IRIS, OSHA, ACGIH, NTP, EU CLP 1272/2008: not listed - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide · IARC, IRIS, OSHA, ACGIH, NTP, EU CLP 1272/2008: not listed
(g) Mutagenicity	Not classified

	- Carbon black: · In vitro: Bacterial reverse mutation assay, ambiguous without metabolic activation/negative with metabolic activation (OECD TG 471, GLP) · In vivo: Sex-linked Recessive Lethal Test in Drosophila melanogaster: negative (OECD TG 477) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): · In vitro: Gene mutation study in bacteria: Metabolic activation:with and without; negative (OECD TG 471) Mammalian Chromosome Aberration Test: Metabolic activation:with and without; negative (OECD TG 473, GLP) Gene mutation study in mammalian cells: Metabolic activation:with and without; negative (OECD TG 476, GLP) · In vivo: Not available - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide · In vitro: Gene mutation study in bacteria: Metabolic activation:with and without; negative (OECD TG 471, GLP) Mammalian Chromosome Aberration Test: Metabolic activation:with and without; negative (OECD TG 473, GLP) Gene mutation study in mammalian cells: Metabolic activation:with and without; negative (OECD TG 476, GLP) · In vivo: Not available
(h) Reproductive toxicity	Not classified
	- Poly(2,2,4-trimethyl-1,2-dihydroquinoline): A dose of 20 mg/kg was considered a NOEL for maternal toxicity and a dose of 120 was considered a NOEL for develiopmental toxicity. (GLP) - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide The NOAEL for the systemic toxicity in the parental generation is considered to be 300 mg/kg bw/day, based on decreased body weight gain and food consumption in males and females and microscopic changes in kidneys of females observed at 1,000 mg/kg bw/day. The NOAEL for the fertility was 1000 mg/kg bw/day in males and 300 mg/kg bw/day in females. The NOAEL for the foetal development was 100 mg/kg body weight/day based a lower body weight gain at 300 and 1,000 mg/kg bw/day. (OECD TG 422, GLP)
(i) Specific target organ toxicity (single exposure)	Not classified
	- Poly(2,2,4-trimethyl-1,2-dihydroquinoline): In an acute dermal toxicity study with rabbits(male/female), clinical signs were noted for all animals and gross autopsy of the survivors indicated hemorrhagic areas of the lung, discoloration of liver, spleen and kidney and inflammation of the gastrointestinal tract. LD_{50}>5,190 mg/kg bw. - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide In acute oral/and dermal study, clinical signs of toxicity were not observed.
(j) Specific target organ toxicity (repeat exposure)	Not classified
	- Carbon black: In 90 days subchronic inhalation study with rat, there were no significant adverse effects. (NOAEC = 1.1 mg/m^3 air)(OECD TG 413) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): The following effects were considered to be test material related: effects

	on body weight of females in the high dose group; histopathologic effects on adrenals in the high dose males; effects on liver weight and liver histopathology in the high dose males and in the mid and high dose females. The increased incidence of thyroid follicular adenoma/cystadenomas in the high level males and females was considered to have resulted from compound administration, but may have resulted from compensatory mechanisms as a result of the hepathic changes. The NOAEL for systemic toxicity was considered to be 250 ppm in males and 50 ppm in females. (OECD TG 453, GLP) - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide: The NOAEL is considered to be 300 mg/kg bw/day, based on decreased body weight gain and food consumption in males and females and microscopic changes in kidneys of females observed at 1000 mg/kg bw/day. The NOEL is considered to be 100 mg/kg bw/day based on kidney multifocal tubular degeneration / regeneration and increase in kidney/body weight ratio in males at 300 mg/kg. This NOEL is considered as secure, since effects on male kidneys are related to a species specific alpha 2- μglobuline accumulation as demonstrated in a subsequent 90-day oral study. (OECD TG 422, GLP)
(k) Aspiration Hazard	Not available

12. Ecological information

12.1 Toxicity	
Acute toxicity	Category 3 (ATE_{mix}=37.525 mg/L)
	- Carbon black: · Fish: 96hr LC_0(*Danio rerio*)=1,000mg/L (OECD TG 203, GLP) 96hr LC_0(*Danio rerio*)=10,000mg/L (OECD TG 203, GLP) · Crustacean: 24hr EC_{50}(*Daphnia magna*)>5,600mg/L (OECD TG 202, GLP) 48hr EC_{50}(*Daphnia magna*)=33.08-41.97mg/L 48hr LC_{50}(*Daphnia magna*)=54.55-68.23mg/L · Algae: 72hr EC_{50}(*Desmodesmus subspicatus*)>10,000mg/L (OECD TG 201, GLP) - Poly(2,2,4-trimethyl-1,2-dihydroquinoline): · water solubility: <2.5 mg/L(23 °C, pH:5) · As all L(E)C_{50}s are over water solubility value, acute toxicity is not classified. - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide · water solubility: 0.04 mg/L · As all L(E)C_{50}s are over water solubility value, acute toxicity is not classified.
Chronic toxicity	Not classified
12.2Persistence and degradability	- Poly(2,2,4-trimethyl-1,2-dihydroquinoline): · Persistence: High persistency (log Kow is more than 4 estimated) (Log Kow = 1.2 - 7.7)(25 °C, pH: 6.3)\ · Degradability: Atmospheric half-life of about 1.5-2.0 hours (estimated) - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide · Persistence: High persistency (log Kow is more than 4 estimated) (Log Kow=7.3)(20 ℃, pH: 5 - 9)\ · Degradability: Atmospheric half-life of 1.6 days
12.3Bioaccumulative potential	- Poly(2,2,4-trimethyl-1,2-dihydroquinoline): · Bioaccumulation: Bioaccumulation is expected to be high according to the BCF ≥ 500 (BCF=108-1,300) (OECD TG 305C) · Biodegradation: As not well-biodegraded, it is expected to have high

	accumulation potential in living organisms (0% biodegradation was observed after 28 days; not readily biodegradable) (EU Method C.4-E, GLP) - [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide · Bioaccumulation: Bioaccumulation is expected to be high according to the BCF ≥ 500 (BCF=536 kg/day) (GLP) · Biodegradation: As not well-biodegraded, it is expected to have high accumulation potential in living organisms (0% biodegradation was observed after 28 days; not readily biodegradable) (OECD TG 301 D, GLP)
12.4 Mobility in soil	- [1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide · High potency of mobility to soil. (Koc =2,344,000; estimated)
12.5 Hazardous to the ozone layer	Not classified

13. Disposal considerations

Disposal method

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

Disposal precaution

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

14. Transport information

14.1 UN No.: Not applicable

14.2 UN Proper shipping name: Not applicable

14.3 Transport Hazard classes:

ADR: Not applicable

IMDG: Not applicable

ICAO/IATA: Not applicable

RID: Not applicable

14.4 Packing group: Not applicable

14.5 Environmental hazards: Not applicable

14.6 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable

14.7 Special precautions for user

in case of fire: Not applicable

in case of leakage: Not applicable

15. Regulatory information

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture

<Acetic acid ethenyl ester, polymer with ethene>

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section8 (b) inventory: Present [XU] (ACTIVE)

Proposition 65: Not regulated

OSHA Regulation: Not regulated

CERCLA Regulation: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: Not regulated

Foreign Regulatory Information

Substance of Rotterdam] Protocol: Not regulated

Substance of Stockholm Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-00037)
- European Inventory of Existing Commercial chemical Substances (EINECS) : Present(429-840-1)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((6)-6))
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (39322)
- Australia management information: Inventory of Chemical Substances (AICS): Present
- Canada management information: Domestic Substances List (DSL): 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
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

<Carbon black >

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section8 (b) inventory: Present (ACTIVE)

Proposition 65: Regulated (airborne, unbound particles of respirable size)

OSHA Regulation: Not regulated

CERCLA Regulation: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: Not regulated

Foreign Regulatory Information

Substance of Rotterdam] Protocol: Not regulated

Substance of Stockholm Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-04682)
- European Inventory of Existing Commercial chemical Substances(EINECS) : Present (215-609-9)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((5)-5222, (5)-3328)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (34022)
- Australia management information: Inventory of Chemical Substances (AICS): Present
- Canada management information: Domestic Substances List (DSL): Present
- New Zealand management information: Inventory of Chemicals (NZIoC): Approval: HSR002801
- Philippines management information: Inventory of Chemicals and Chemical Substances (PICCS): Present
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

<Poly(2,2,4-trimethyl-1,2-dihydroquinoline)>

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section8 (b) inventory: Present [XU](ACTIVE)

Proposition 65: Not regulated

OSHA Regulation: Not regulated

CERCLA Regulation: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: Not regulated

Foreign Regulatory Information

Substance of Rotterdam] Protocol: Not regulated

Substance of Stockholm Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-29056)
- European Inventory of Existing Commercial chemical Substances(EINECS) : Present(500-051-3)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((6)-1023, (7)-2019)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (10693)
- Australia management information: Inventory of Chemical Substances (AICS): Present
- Canada management information: Domestic Substances List (DSL): 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
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

<[1,3(or 1,4)-Phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl) peroxide>

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section8 (b) inventory: Present (ACTIVE)

Proposition 65: Not regulated

OSHA Regulation: Not regulated

CERCLA Regulation: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: Not regulated

Foreign Regulatory Information

Substance of Rotterdam] Protocol: Not regulated

Substance of Stockholm Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance(KE-28332)
- European Inventory of Existing Commercial chemical Substances(EINECS) : Present(246-678-3)

- Japan management information: Existing and New Chemical Substances (ENCS): Present ((3)-1067)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (11007)
- Australia management information: Inventory of Chemical Substances (AICS): Present
- Canada management information: Domestic Substances List (DSL): 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
- Taiwan management information: Taiwan Chemical Substance Inventory (TCSI): Present

16. Other information, including date of preparation or last revision

16.1 Indication of changes:

Preparation date: August 13, 2018
Version: 1
Revision date: April 27, 2020

16.2 Key literature reference and sources for data:

○ TSCA; http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/searchbylist/search.do
○ IECSC; http://cciss.cirs-group.com/
○ EU Regulation 1272/2008
○ TOMES-LOLI®; http://www.rightanswerknowledge.com/loginRA.asp
○ UN Recommendations on the transport of dangerous goods 20th
○ IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; http://monographs.iarc.fr
○ ECHA CHEM; http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances
○ HSDB; http://toxnet.nlm.nih.gov/cgi-bin/sis/search2
○ EPA; http://www.epa.gov/iris
○ EPISUITE Program ver.4.1
○ NIOSH(The National Institute for Occupational Safety and Health)
○ ACGIH(American Conference of Governmental Industrial Hygienists)
○ National chemicals information systems; http://ncis.nier.go.kr
○ National Emergency Management Agency-Korea dangerous material inventory management system; http://hazmat.mpss.kfi.or.kr/material.do
○ Waste Control Act enforcement regulation attached [1]

16.3 Abbreviations

ACGIH: American Conference of Governmental Industrial hygienists
NIOSH: The National Institute for Occupational Safety and Health
OSHA: Occupational Safety & Health Administration
IARC: International Agency for Research on Cancer
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Dangerous Goods
ICAO/IATA: International Civil Aviation Organization/ International Air Transport Association
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

16.4 Other

- Product should be handled, stored, and used in accordance with the generally accepted industrial hygiene practices and in conformity with all the applicable legal regulations.
- The information provided herein is based on the knowledge possessed at this present time from the view point of safety requirements.
- It should, therefore, not be construed as guaranteeing specific properties.