

Safety Data Sheet(SDS)

Last revised date : 19-01-2023

1. Identification

- 1) Product identifier : ABS ABF-0200HF
- 2) Recommended use of the chemical and restrictions on use
 - Recommended use of the chemical Others(Synthetic Resin Plastics)
 - Restrictions on use

3) Details of the supplier of the safety data sheet

° Seller

Company name : Lotte Chemical Corporation

Address : 05551 Lotte World Tower, 300, Olympic-ro, Songpa-gu, Seoul, 05551 Rep. of KOREA Telephone number :

	Basic Chemicals	+82-2-829-4114	Advanced Materials	+82-31-596-3114	
Eme	ergency phone number				
	Yeosu Plant	+82-61-688-2100	Ulsan Plant	+82-52-278-3500	
	Daesan Plant	+82-41-689-5900	Yeosu Plant(Advanced Materials)	+82-61-689-1100	

Fax number : +82-2-834-6070

2. Hazards identification

- 1) Hazard classification
 - Hazardous to the aquatic environment, long-term (chronic) Chronic 2

2) Allocation label elements

Hazard pictograms



Signal word

- NONE

Hazard statements

H411 Toxic to aquatic life with long lasting effects

Precautionary statements

- Prevention

P273 Avoid release to the environment.

- Response

P391 Collect spillage.

- Disposal

P501 Dispose of contents/container to ...

3) Other hazards:

According to experience and information provided, this product does not affect harmful effects when using and handling it as a regulation.

3. Composition/Information on ingredients

Chemical name	Common name	CAS No.	Content(wt%)
2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene	ABS Resin	9003-56-9	>=92 ~ <=99
N,N'-ethylenedi(stearamide)	-	110-30-5	>=0.1 ~ <=4
Zinc oxide	-	1314-13-2	>=2.5 ~ <=5

4. First-aid measures

- 1) Following eye contact
 - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
 - Seek immediate medical assistance.
- 2) Following skin contact
 - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
 - Remove and isolate contaminated clothing and shoes.
 - Seek immediate medical assistance.

3) Following inhalation

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

- 4) Following ingestion
 - Seek immediate medical assistance.
- 5) Delayed and immediate effects and also chronic effects from short and long term exposure No data available
- 6) Advice to physician
 - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Fire-Fighting measures

- 1) Suitable (and unsuitable) extinguishing media
 - Suitable extinguishing media
 - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - Dry chemical.
 - CO2.
 - Regular foam.
 - Use dry sand or earth to smother fire.
 - Water spray.
 - ° Unsuitable extinguishing media
 - High-pressure water.
- 2) Special hazards arising from the substance or mixture
 - Pyrolytic product
 - No data available
 - $^{\circ}$ Risk of fire and explosion
 - Some may burn but none ignite readily.
 - Containers may explode when heated.
 - \circ Other
 - May cause toxic effects if inhaled.
- 3) Special protective equipment for firefighters
 - Dike fire-control water for later disposal; do not scatter the material.
 - Evacuate area and fight fire from a safe distance.
 - Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
 - 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.
 - Move containers from fire area if you can do it without risk.
 - Substance may be transported hot.

6. Accident release measures

- 1) Personal precautions, protective equipment and emergency procedures
 - Clean up spills immediately, observing precautions in Protective Equipment section.
 - Do not touch or walk through spilled material.
 - Please note that materials and conditions to be avoided.
 - Prevent dust cloud.
 - Stop leak if you can do it without risk.

2) Environmental precautions

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

3) Methods and materials for containment and cleaning up

- Absorb spill 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.
- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Large Spill: Dike far ahead of liquid spill for later disposal.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

7. Handling and storage

1) Precautions for safe handling

- CAUTION: High temperature.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Handling refer to engineering control/personal protection section.
- Please note that materials and conditions to be avoided.

2) Conditions for safe storage (including any incompatibilities)

- Please note that materials and conditions to be avoided.
- Store in a dry place. Store in a closed container.

8. Exposure controls & personal protection

1) Chemical exposure limits, Biological exposure standard

Components	ACGIH regulations	Biological limit values
Zinc oxide	2 mg/m3 TWA (respirable particulate matter) 10 mg/m3 STEL (respirable particulate matter)	No data available

2) Appropriate engineering controls

- Ensure adequate ventilation and exhaust ventilation at the workplace.
- 3) Personal protective equipment
 - Respiratory protection

- If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.
- \circ Eye protection
 - If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
- \circ Hand protection
 - Wear chemical safety gloves.
- Skin protection
 - Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

9. Physical and chemical information

Property name	Values	Source
Appearance		
Physical state	Soild	
Color	Depends on customer needs	
Odor	Odorless	
Odor threshold	No data available	
рН	No data available	
Melting point/freezing point	No data available	
Initial boiling point and boiling range(°C)	No data available	
Flash point(°C)	No data available	
Evaporation rate	No data available	
Flammability(solid, gas)	2.5mm V-0 (UL94)	
Upper/lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Solubility(ies)	Insolubility	
Vapour density	No data available	
Relative density	No data available	
n-octanol/water partition coefficient	No data available	
Auto ignition temperature	≥ 466°C	
Decomposition temperature	≥ 400°C	
Viscosity(mm²/s, 40°C)	No data available	
Molecular weight(mass)	60,000-200,000	
Specific gravity	1.12 ~ 1.30	

10. Stability and reactivity

- 1) Chemical stability and Possibility of hazardous reactions
 - Containers may explode when heated.
 - Fire may produce irritating and/or toxic gases.
 - Some may burn but none ignite readily.
- 2) Conditions to avoid
 - Heat, contamination.
- 3) Incompatible materials
 - Combustible material
- 4) Hazardous decomposition products
 - Irritating and/or toxic gas.

11. Toxicological information

1) Information on the likely routes of exposure

- No data available

2) Health hazard information

- Acute toxicity
 - Acute toxicity(Oral) PRODUCT : Not classified
 - N,N'-ethylenedi(stearamide)
 - : LD50> 5000 mg / kg
 - Zinc oxide

: LD50> 5000 mg / kg experimental species: Rat, (the route of administration: gavage, male / female male, OECD TG 401)

- Acute toxicity(Dermal) PRODUCT : Not classified
 - N,N'-ethylenedi(stearamide)
 - : LD50> 2000 mg / kg
 - Zinc oxide
 - : LD50> 2000 mg / kg experimental species: Rat, (female / male, OECD TG 402, GLP)
- Acute toxicity(Inhalation:Gases) PRODUCT : Not classified
 - Zinc oxide
 - : LC50> 5700 mg / m³ 4 hr experimental species: Rat, (female / male, OECD TG 403)
- Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified
 - No data available
- Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified
 - No data available
- $^{\circ}$ Skin corrosion/irritation $\$ PRODUCT : Not classified

- Zinc oxide

: Not irritant, Rabbit

○ Serious eye damage/eye irritation PRODUCT : Not classified

- Zinc oxide

: Not irritant, Rabbit, 72-hour fully reversible, EU Method B.5

Respiratory sensitization
PRODUCT : Not classified

- No data available

Skin sensitization PRODUCT : Not classified

- Zinc oxide

: Sensitization No, Guinea pig, GLP, female, guinea pig maximization test (GMPT): dose levels: 0.02, reaction: 0/10, OECD TG 406

° Carcinogenicity PRODUCT : Not classified

- No data available

Germ cell mutagenicity PRODUCT : Not classified

- N,N'-ethylenedi(stearamide)

: In vitro / audio

- Zinc oxide

: in vitro - reverse mutation test using bacteria: Negative (S. typhimurium TA1535, TA1537, TA98, TA100, irrespective of metabolic activation system), OECD TG 471

Reproductive toxicity PRODUCT : Not classified

- Zinc oxide

: May be regarded, under the test conditions, maturity, mating, pregnancy and early lactation showed in adults, and 30, 15 mg / kg / d, effects which, natjiman appear in the 7.5 mg / kg / d that is not substantially important. NOAEL = 7.5 mg / kg / d, equivalent or similar to Guideline: OECD TG 416, under the test conditions, of up to 88 mg / kg of zinc sulfate (about 35.2 mg or 19.9 mg Zn2 + / kg bw, for the anhydrous and monohydrate) of when administered adult hamsters and fetal no negative side effects., hamster

• Specific target organ toxicity single exposure PRODUCT : Not classified

- Zinc oxide

: Oral: toxic side effects without signs (rat / male / female / equivalent or similar guidelines: OECD TG 401) dermal: general discomfort some signs commonly found in dermal toxicity studies, the overall health status is also good throughout the entire study / over is not found (rat / male / female / OECD TG 402 / GLP) inhalation: nateu dirty hair appears on the head or side effects were observed (rat / male / female / equivalent or similar to Guideline :. OECD TG 403)

 $^{\circ}$ Specific target organ toxicity repeated exposure $\$ PRODUCT : Not classified

- Zinc oxide

: Orally (sub-chronic): NOAEL = 31.52 mg / kg-bw / day (. Approx 13.26 mg Zn2 + / kg-bw / day), Rat, OECD TG 408, GLP transdermal (short repeated): After a percutaneous exposure through the rat, on the basis of the decrease of collagen content, LOAEL for systemic toxicity natjiman show the lowest test dose of 75 mg / kg bw / day, these effects are reversible been a period of 14 days, Rat, OECD TG 410 suction (sub-

chronic): under the experimental conditions, NOAEL was 1.5 mg / $m^{\scriptscriptstyle 0}$ to be evaluated, Rat, OECD TG 413, GLP

- Aspiration hazard PRODUCT : Not classified
 - No data available

12. Ecological information

- 1) Ecotoxicity
 - Fish
 - 2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene
 - : LC50 11.5 mg / ℓ 96 hr Pimephales promelas
 - Zinc oxide
 - : LC50 315 µg / ℓ 96 hr Thymallus arcticus , (ASTM, exponential expression, fresh water)
 - Crustaceans
 - Zinc oxide
 - : LC50 1220 µg / ℓ 48 Hr Daphnia Magna, (US EPA / 600 / 4-85 / 013, Exponential, freshwater, GLP)
 - Aquatic algae
 - Zinc oxide
 - : EC10 350 μg / ℓ 48 hr Chlorella sp. , (Exponential manner, fresh water)
- 2) Persistence and degradability
 - Degradability

No data available

- Biodegradation
 - N,N'-ethylenedi(stearamide)
 - : 15 (%) 28 day
 - Zinc oxide
 - : 100 (%) 40 hr
- 3) Bioaccumulative potential
 - n-octanol water partition coefficient
 - N,N'-ethylenedi(stearamide)
 - : 13.98 log Kow (@ 25 °C)
 - Bioconcentration factor(BCF)
 - Zinc oxide
 - : 0.002 BCF,
- 4) Mobility in soil

No data available

- 5) Other adverse effects
 - No data available

13. Disposal considerations

- 1) Disposal methods
 - Empty containers should be taken to an approved waste handling site for recycling or disposal.
- 2) Precautions (including disposal of contaminated container of package)
 - Dispose of in accordance with local regulations.
 - Send to a licensed waste management company.

14. Transport information

- 1) UN No. : Not applicable
- 2) Proper shipping name : Not applicable
- 3) Hazard class : Not applicable
- 4) Packing group : Not applicable
- 5) Marine pollutant : No
- 6) Special precautions for user related to transport or transportation measures :

Emergency measures in case of fire : Not applicable

Emergency measures in the effluent : Not applicable

- ADR
 - · Tunnel restriction code : Not applicable
- IMDG
 - · Marine pollutant : No
- Air transport(IATA)
 - · UN No. : Not applicable
 - · Proper shipping name : Not applicable
 - · Class or division : Not applicable
 - · Packing group : Not applicable
- remarks:

Zinc Oxide의 용출시험(OECD TG 120, Solution/Extraction Behaviour of Polymers in Water) 결과, Zinc Oxide는 미검출 되었습니다. 수생환경 유해성 분류(2번 항목) 및 Zinc Oxide의 환경에 미치는 영향(12번 항목)은 사용자에 게 정보제공 차원으로 작성한 사항이며, 해당 제품은 수생환경에 유해하지 않다고 판단하여 운송에 위험한 물질로 분류하지 않았습니다.(14번 항목)

15. Regulatory information

Australia Industrial Chemicals Act

- Not applicable

China Inventory of Existing Chemical Substances (IECSC)

- Inventory China Inventory of Existing Chemical Substances (IECSC)
- 2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene : Present [03641]
- N,N'-ethylenedi(stearamide) : Present [38286]
- Zinc oxide : Present [37649]

92/32/EEC

- Not applicable

European Union Official Journal of the European Communities 15 June 1990 - Annex Based on Article 13 of Directive 67/548/EEC Amended by Directive 79/831/EEC

- Inventory European Union European Inventory of Existing Commercial Chemical Substances (EINECS)
- N,N'-ethylenedi(stearamide) : 203-755-6
- Zinc oxide : 215-222-5

Japan Law Concerning the Examination and Regulations of Manufacture, etc. of Chemical Substances

- Inventory Japan Existing and New Chemical Substances (ENCS)
- 2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene : (6)-176
- N,N'-ethylenedi(stearamide) : (2)-831
- Zinc oxide : (1)-561

New Zealand Environmental Protection Authority, Inventory of Chemicals

• Inventory - New Zealand - Inventory of Chemicals (NZIoC)

- 2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene : May be used as a single component chemical under an appropriate group standard

- N,N'-ethylenedi(stearamide) : May be used as a single component chemical under an appropriate group standard

- Zinc oxide : HSNO Approval: HSR003104

Turkey Regulation on Inventory and Control of Chemicals

- Not applicable

Taiwan Chemical Substance Inventory

• Inventory - Taiwan - Taiwan Chemical Substance Inventory (TCSI)

- 2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene : Present
- N,N'-ethylenedi(stearamide) : Present
- Zinc oxide : Present
- U.S. Toxic Substances Control Act

Vietnam National Chemicals Inventory (NCI)

- Inventory Vietnam National Chemicals Inventory (NCI) (DRAFT)
- 2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene : Present 12125
- N,N'-ethylenedi(stearamide) : Present 01999
- Zinc oxide : Present 06676

16. Other information

1) Reference

NCIS, KOSHA, Montreal Protocol, ECHA, OECD SIDS, EU IUCLID, HSDB(PubChem), NITE, NTP, ACGIH, IARC, NIOSH, ChemIDplus, EPA, EPI Suite, INCHEM

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- 3) Revision date
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