

Safety Data Sheet(SDS)

Last revised date : 02-05-2024

1. Identification

1) Product identifier : STARON ADHESIVE (COMPONENT B)

2) Recommended use of the chemical and restrictions on use

- Recommended use of the chemical

Seam adhesive for staron solid surface

- Restrictions on use

Use for recommended use only

Do not use it for weapons manufacturing and related purposes.

3) Details of the supplier of the safety data sheet

- Seller

Company name : Lotte Chemical Corporation

Address : 56, Gosan-ro, Uiwang-si, Gyeonggi-do, Republic of Korea

Telephone number :

Advanced Materials	+82-31-596-3114	Basic Chemicals	+82-2-829-4114
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Emergency phone number

Technology Team	+82-31-596-3861	Yeosu Plant(Advanced	+82-61-689-1100
Yeosu Plant	+82-61-688-2100	Ulsan Plant	+82-52-278-3500

Fax number : +82-31-596-3882

2. Hazards identification

1) Hazard classification

- Skin sensitization Category 1
- Hazardous to the aquatic environment, long-term (chronic) Chronic 2

2) Allocation label elements

Hazard pictograms



Signal word

- WARNING

Hazard statements

H317 May cause an allergic skin reaction

H411 Toxic to aquatic life with long lasting effects

Precautionary statements

- Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

- Response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P320 Specific treatment is urgent (see supplemental instructions on the administration of antidotes on this label).

P333+P313 If skin irritation or a rash occurs: Get medical advice/attention.

P363 Wash contaminated clothing before reuse.

- Disposal

P501 Discard the contents/containers in accordance with the laws and laws related to waste.

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%)
2,2'-Oxybisethanol dibenzoate	Benzo Flex 2-45, Diethylene benzyl benzoate, DIETHYLENE GLYCOL DIBENZOATE	120-55-8	$\geq 70 \sim \leq 80$
Oxybispropanol dibenzoate	Propanol, oxybis-, dibenzoate, Benzoflex 50, DIPROPYLENE GLYCOL DIBENZOATE	27138-31-4	$\geq 10 \sim \leq 20$
Silicon dioxide	silicon dioxide	7631-86-9	$\geq 0.00001 \sim \leq 10$

Benzoyl peroxide	dibenzoyl peroxide	94-36-0	>=2 ~ <=6
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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
 - Seek immediate medical assistance.
- 2) Following skin contact
 - For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
 - For minor skin contact, avoid spreading material on unaffected skin.
 - In case of contact with substance, immediately flush skin or eyes with running water for at least
 - 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.
 - Keep victim warm and quiet.
 - 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
 - May cause an allergic skin reaction
- 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
 - o Suitable extinguishing media
 - Regular foam.
 - CO2.
 - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - Dry chemical.
 - Use dry sand or earth to smother fire.
 - Water spray.
 - o Unsuitable extinguishing media
 - Direct water.
 - High-pressure water.
- 2) Special hazards arising from the substance or mixture

- Pyrolytic product
 - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Risk of fire and explosion
 - Some may burn but none ignite readily.
 - Containers may explode when heated.
- Other
 - May cause toxic effects if inhaled.

3) Special protective equipment for firefighters

- Substance may be transported hot.
- Substance may be transported in a molten form.
- 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: Fight fire from maximum distance or use unmanned hose holders or monitor
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- 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.
- Rescuers should put on appropriate protective gear.

6. Accident release measures

1) Personal precautions, protective equipment and emergency procedures

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Cover with plastic sheet to prevent spreading.
- Do not touch damaged containers or spilled material unless wearing appropriate protective
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- 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 or cover with dry earth, sand or other non-combustible material and transfer to
- 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

7. Handling and storage

1) Precautions for safe handling

- Avoid prolonged or repeated contact with skin.
- CAUTION: High temperature.
- Follow all MSDS/label precautions even after container is emptied because they may retain
- 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)

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

8. Exposure controls & personal protection

1) Chemical exposure limits, Biological exposure standard

Components	ACGIH regulations	Biological limit values
Benzoyl peroxide	5 mg/m ³ TWA	No data available

2) Appropriate engineering controls

- Ensure adequate ventilation and exhaust ventilation at the workplace.

3) Personal protective equipment

- o Respiratory protection
 - If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.
- o Eye protection
 - If the work environment or activity involves dusty conditions, mists or aerosols, wear the
- o Hand protection
 - Wear chemical safety gloves.
- o 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	liquid	
Color	colourless	
Odor	ester-like	
Odor threshold	No data available	
pH	No data available	
Melting point/freezing point	No data available	
Initial boiling point and boiling range(°C)	340°C	
Flash point(°C)	224.4°C	
Evaporation rate	No data available	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	No data available	
Vapour pressure	0.00005 mmHg at 69°C	
Solubility(ies)	< 0.01%	
Vapour density	9.38	
Relative density	1.17 ~ 1.20 at 25°C	
n-octanol/water partition coefficient	No data available	
Auto ignition temperature	No data available	
Decomposition temperature	No data available	
Viscosity(mm ² /s, 40°C)	300 cps at 25°C	
Molecular weight(mass)	No data available	
Specific gravity	No data available	

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.
- Fire may produce irritating, corrosive and/or toxic gases.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Some may burn but none ignite readily.

2) Conditions to avoid

- Heat, contamination.
- Ignition source(heat, spark, flame, etc.).

3) Incompatible materials

- Combustibles, reducing material.

4) Hazardous decomposition products

- Corrosive/toxic fume.
- Irritating and/or toxic gas.
- Irritating, corrosive 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

- Oxybispropanol dibenzoate
: LD50 4673 mg/kg Test species: Rat (Van Waters and Rogers)

- 2,2'-Oxybisethanol dibenzoate
: LD50 2830 mg/kg Test species: Rat

- Silicon dioxide
: LD50 3160 mg/kg Test species: Rat

- Benzoyl peroxide
: LD50 >2000 mg/kg Species : Mouse (Mice/male mice, no deaths, OECD Guideline 401 ,GLP)

● Acute toxicity(Dermal) PRODUCT : Not classified

- Silicon dioxide
: LD50 >5000 mg/kg Experimental species: Rabbit

● Acute toxicity(Inhalation:Gases) PRODUCT : Not classified

- No data available

● Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified

- No data available

● Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified

- Silicon dioxide
: LC50 5.01 mg/l 4 hr Test species: Rat (Original text: aerosol)

- Benzoyl peroxide
: LD50 24.3 mg/l 4 hr Test species: Rat (OECD TG 403)

○ Skin corrosion/irritation PRODUCT : Not classified

- 2,2'-Oxybisethanol dibenzoate
: Rabbit - light stimulation (24hr)
- Silicon dioxide
: rabbit light stimulation
- Benzoyl peroxide
: As a result of skin corrosion/irritation test using rabbits, no skin corrosion was observed (OECD Guideline 404, GLP).
- Serious eye damage/eye irritation PRODUCT : Not classified
 - 2,2'-Oxybisethanol dibenzoate
: Rabbit - light stimulation (24hr)
 - Benzoyl peroxide
: Ministry of Environment(Category 2)
- Respiratory sensitization PRODUCT : Not classified
 - No data available
- Skin sensitization PRODUCT : Category 1
 - Silicon dioxide
: No skin sensitization
 - Benzoyl peroxide
: Ministry of Environment(Category 1)
- Carcinogenicity PRODUCT : Not classified
 - Silicon dioxide
: 3 Silica, amorphous (IARC)
 - Benzoyl peroxide
: 3 (IARC)
- Germ cell mutagenicity PRODUCT : Not classified
 - Benzoyl peroxide
: Gene mutation test result using in vitro mammalian cultured cells, negative with or without metabolic activation system (OECD476, GLP) Reversion mutation test result using in vitro microorganisms, negative with or without metabolic activation system (OECD Guideline 471) In vivo Negative micronucleus test using mammalian red blood cells (OECD Guideline 474, GLP)
- Reproductive toxicity PRODUCT : Not classified
 - Benzoyl peroxide
: Testicular atrophy and decreased pregnancy were observed as a result of a reproductive toxicity test using rats (male/female) (NOAE=500 mg/kg bw/day) (OECD Guideline 422 , GLP) Results of a developmental toxicity/teratogenicity test using rats, 1000 Two females died at mg/kg/day (NOAE=300 mg/kg bw/day) (OECD Guideline 414, GLP)
- Specific target organ toxicity single exposure PRODUCT : Not classified

- 2,2'-Oxybisethanol dibenzoate
: Human skin/eye irritation
- Benzoyl peroxide
: As a result of acute inhalation toxicity test using rats, strabismus, dyspnea, salivation, lacrimation, erythema increased, and respiratory rate decreased, increased and decreased motor activity after 4 hours of exposure (OECD TG 403)
- Specific target organ toxicity repeated exposure PRODUCT : Not classified
 - 2,2'-Oxybisethanol dibenzoate
: Target organ: central nervous system
 - Silicon dioxide
: In humans, quartz and cristobalite have been reported for silicosis. The possibility of fiber formation in quartz and cristobalite was also reported in laboratory animals. Autoimmune disease and chronic kidney disease have been reported for quartz.
 - Benzoyl peroxide
: As a result of repeated toxicity test using freshwater snails, productivity was decreased and the yield of 40 PPM decreased by 72.6%.
- Aspiration hazard PRODUCT : Not classified
 - No data available

12. Ecological information

1) Ecotoxicity

- Fish
 - Oxybispropanol dibenzoate
: LC50 5.114 mg/l 96 hr Others
 - 2,2'-Oxybisethanol dibenzoate
: LC50 13.213 mg/L 96 hr
 - Silicon dioxide
: LLO 10000 mg/l 96 hr Brachydanio rerio
 - Benzoyl peroxide
: LC50 0.06 mg/l 96 hr Oncorhynchus mykiss (OECD Guideline 203, GLP)
- Crustaceans
 - Oxybispropanol dibenzoate
: LC50 5.239 mg/l 48 hr Others
 - 2,2'-Oxybisethanol dibenzoate
: LC50 28.249 mg/l 48 hr Daphnia pulex
 - Silicon dioxide
: EC50 >5000 mg/l 48 hr Daphnia magna
 - Benzoyl peroxide
: LC50 0.11 mg/l 48 hr Daphnia magna (OECD Guideline 202, GLP)

- Aquatic algae
 - Oxybispropanol dibenzoate
: EC50 1.436 mg/l 96 hr Others
 - 2,2'-Oxybisethanol dibenzoate
: EC50 1.093 mg/L 96 hr
 - Silicon dioxide
: EC50 >173.1 mg/l 72 hr Others (NOEC: 173.1 mg/L, test species *Desmodesmus subspicatus*)
 - Benzoyl peroxide
: ErC50 0.071 mg/l 72 hr Others (*Pseudokirchnerella subcapitata*, OECD Guideline 201 ,GLP)

2) Persistence and degradability

No data available

3) Bioaccumulative potential

- n-octanol water partition coefficient
 - Oxybispropanol dibenzoate
: 3.88 log Kow ((estimate))
 - 2,2'-Oxybisethanol dibenzoate
: 3.04 log Kow (estimated)
 - Silicon dioxide
: 0.53 log Kow
 - Benzoyl peroxide
: 3.2 log Kow
- Bioconcentration factor(BCF)
 - Oxybispropanol dibenzoate
: 192.5
 - 2,2'-Oxybisethanol dibenzoate
: 120 (predicted value)
 - Silicon dioxide
: 3.162

4) Mobility in soil

No data available

5) Results of PBT and vPvB assessment

PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

6) Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

7) 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 or package)
 - Dispose of in accordance with local regulations.
 - Send to a licensed waste management company.

14. Transport information

- 1) UN No. : 1133
- 2) Proper shipping name : ADHESIVES containing flammable liquid
- 3) Hazard class : 3
- 4) Packing group : II
- 5) Marine pollutant : Not applicable
- 6) Special precautions for user related to transport or transportation measures :
 - Emergency measures in case of fire : F-E
 - Emergency measures in the effluent : S-D
- ADR
 - Tunnel restriction code : Not applicable
- IMDG
 - Marine pollutant : Not applicable
- Air transport(IATA)
 - UN No. : 1133
 - Proper shipping name : ADHESIVES containing flammable liquid
 - Class or division : 3
 - Packing group : II
- 7) Maritime transport in bulk according to IMO instruments
 - Not applicable

15. Regulatory information

Australia Industrial Chemicals Act

- Not applicable

China Inventory of Existing Chemical Substances (IECSC)

- Inventory - China - Inventory of Existing Chemical Substances (IECSC)

- Oxybispropanol dibenzoate : Present [07291]
- 2,2'-Oxybisethanol dibenzoate : Present [07290]
- Silicon dioxide : Present [11361]
- Benzoyl peroxide : Present [14122]

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)

- Oxybispropanol dibenzoate : 248-258-5
- 2,2'-Oxybisethanol dibenzoate : 204-407-6
- Silicon dioxide : 231-545-4
- Benzoyl peroxide : 202-327-6

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

- Inventory - Japan - Existing and New Chemical Substances (ENCS)

- Oxybispropanol dibenzoate : (3)-1390
- 2,2'-Oxybisethanol dibenzoate : (3)-1390
- Silicon dioxide : (1)-548
- Benzoyl peroxide : (3)-1349

New Zealand Environmental Protection Authority, Inventory of Chemicals

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

- Oxybispropanol dibenzoate : May be used as a single component chemical under an appropriate group standard
- 2,2'-Oxybisethanol dibenzoate : HSNO Approval: HSR004037
- Silicon dioxide : May be used as a single component chemical under an appropriate group standard
- Benzoyl peroxide : HSNO Approval: HSR001372, HSR007398 (dilution)

Turkey Regulation on Inventory and Control of Chemicals

- Not applicable

Taiwan Chemical Substance Inventory

- Inventory - Taiwan - Taiwan Chemical Substance Inventory (TCSI)
 - Oxybispropanol dibenzoate : Present
 - 2,2'-Oxybisethanol dibenzoate : Present
 - Silicon dioxide : Present
 - Benzoyl peroxide : Present

U.S. Toxic Substances Control Act

- Inventory - United States - Section 8(b) Inventory (TSCA)
 - Oxybispropanol dibenzoate : Present (ACTIVE)
 - 2,2'-Oxybisethanol dibenzoate : Present (ACTIVE)
 - Silicon dioxide : Present (ACTIVE)
 - Benzoyl peroxide : Present (ACTIVE)

Vietnam National Chemicals Inventory (NCI)

- Inventory - Vietnam - National Chemicals Inventory (NCI) (DRAFT)
 - Oxybispropanol dibenzoate : Present 16720
 - 2,2'-Oxybisethanol dibenzoate : Present 02368
 - Silicon dioxide : Present 11406
 - Benzoyl peroxide : Present 01138

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

2) Issue date : 15-12-2023

3) Revision date

- Revised date count : 2-1
- Last revised date : 15-12-2023

4) Other

ACGIH : American Conference of Governmental Industrial Hygienists
ADR : Agreement Concerning the International Carriage of Dangerous Goods by Road
ATE : The Acute Toxicity Estimate
ECHA : European Chemicals Agency
EPA : United States Environmental Protection Agency
EPI Suite : The Estimation Programs Interface for Windows
EU IUCLID : International Uniform Chemical Information Database
HSDB : Hazardous Substances Data Bank
IARC : International Agency for Research on Cancer
IATA : International Air Transport Association
IMDG : International Maritime Dangerous Goods Codes
INCHEM : Internationally Peer Reviewed Chemical Safety Information
M-Factor : The Multiplication Factor
NIOSH : National Institute of Occupational Safety and Health
NITE : National Institute of Technology and Evaluation(JAPAN)
NTP : National Toxicology Program
SCL : Specific Concentration Limit
OECD SIDS : Organization for Economic Co-operation and Development Screening Information Dataset