

# Material Safety Data Sheet (MSDS)

## STARON ADHESIVE (Component A)

Date of issue: 2012-01-20

Revision data : 2018-04-16

Version:

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product Name

- Staron adhesive (component A)

#### 1.2 Product use

- Application : Seam adhesive for staron solid surface  
 - uses advised against : None known

#### 1.3 Detail of the supplier of the safety data sheet

##### ○ Supplier

- Name of Supplier : LOTTE ADVANCED MATERIAL  
 - Address : 56, Gosan-ro, Uiwang-si, Gyeonggi-do, Republic of Korea  
 - Department : Technical Solution Team  
 - Telephone : +82-31-596-3861  
 - Emergency telephone : +82-31-596-3861  
 - FAX No. : +82-31-596-3882

### 2. HAZARD IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### ○ Physical hazard

- Flammable liquids - Category 2

##### ○ Health hazard

- Skin corrosion/irritation - Category 2, Serious eye damage/eye irritation - Category 2A, Respiratory sensitization - Category 1,  
 - Skin sensitization - Category 1, Reproductive toxicity - Category 2, Specific target organ toxicity single exposure - Category 3,  
 - Specific target organ toxicity repeated exposure - Category 1

##### ○ Environmental hazard

- Hazardous to the aquatic environment, acute hazard - Category 3

#### 2.2 Label elements

##### - Symbol



##### - Signal word

Danger

##### - Hazard statement

H225 Highly flammable liquid and vapor.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H319 Causes serious eye irritation.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.  
 H361 Suspected of damaging fertility or the unborn child.  
 H372 Causes damage to organs through prolonged or repeated exposure.  
 H402 Harmful to aquatic life.

#### - Precautionary statement

##### Prevention precautionary statements:

P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P210 Keep away from heat/sparks/open flames/hot surfaces.-No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.  
 P242 Use only non-sparking tools.  
 P243 Take precautionary measures against static discharge.  
 P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P264 Wash ... thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 P272 Contaminated work clothing should not be allowed out of the workplace.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/ protective clothing/eye protection/face protection.  
 P281 Use personal protective equipment as required.  
 P285 In case of inadequate ventilation wear respiratory protection.

##### Response precautionary statements:

P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 P308+P313 IF exposed or concerned: Get medical advice/attention.  
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.  
 P314 Get medical advice/attention if you feel unwell.  
 P321 Specific treatment (see ... on this label).  
 P332+P313 If skin irritation occurs: Get medical advice/attention.  
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.  
 P362 Take off contaminated clothing and wash before reuse.  
 P363 Wash contaminated clothing before reuse.  
 P370+P378 In case of fire: Use ... for extinction.

##### Storage precautionary statements:

P403+P233 Store in a well ventilated place. Keep container tightly closed.  
 P403+P235 Store in a well ventilated place. Keep cool.  
 P405 Store locked up.  
 P501 Dispose of contents/container to ...

### 2.3. Hazards not included in GHS classification

#### National Fire Protection Association-NFPA Rating (USA)

Health: 2, Flammability: 3, Reactivity: 2

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical	Usual Name	CAS No.	Concentration range(%)
Methyl methacrylate	MMA	80 - 62- 6	45 - 60 %
Poly (methyl methacrylate)	PMMA	9011-14-7	25 - 35 %
Aluminium hydroxide	ATH	21645-51-2	5 - 25 %
Others			< 10 %

## 4. FIRST AID MEASURES

### 4.1 Eye Contact

- Rinse thoroughly with plenty of flowing water for over 20 minutes.
- Keep eye wide open while rinsing.
- Remove contact lenses, if present and easy to do.
- Continue rinsing.
- If eye irritation persists, get medical advice/attention.

### 4.2 Skin Contact

- Remove/take off immediately all contaminated clothing.
- Rinse skin with water/shower or wash with plenty of soap and water.
- If skin irritation or rash occurs, seek medical advice/attention.
- Wash contaminated clothing before reuse.

### 4.3 Inhalation

- If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
- If experiencing respiratory symptoms or feel unwell, call a POISON CENTER or doctor/physician.

### 4.4 Ingestion

- Not a likely route of exposure.
- Do not induce vomiting without medical advice.
- There may be irritation to the gastro-intestinal tract with nausea and vomiting.

### 4.5 Most important symptoms and effects, both acute and delayed

- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.

### 4.6 Indication of any immediate medical attention and special treatment needed

- Skin contact may aggravate an existing dermatitis condition.
- Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

## 5. FIRE FIGHTING MEASURES

### 5.1 Extinguishing Media

- Foam, powder, carbon dioxide [ICSC].
- Do not use straight streams of water.
- Do not use halogenated extinguishing agents.
- Water spray may be used to keep fire exposed containers cool.

### 5.2 Special hazards arising from the substance or mixture

- Above flash point, vapor-air mixtures are explosive within flammable limits noted Section 9 (Physical and chemical properties).
- Polymerization may be caused by elevated temperature, oxidizers, peroxides, or sunlight.
- Vapors can flow along surfaces to distant ignition source and flash back.
- Sealed containers may rupture when heated. Sensitive to static discharge.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

### 5.3 Advice for fire-fighters

- In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit. Keep containers cool with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

- Eliminate all ignition sources.
- Restrict access to area as appropriate until clean-up operations are complete.
- Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).
- Stop or reduce any leaks if it is safe to do so.
- Ventilate spill area if possible.
- Ensure clean-up is conducted by trained personnel only.
- Do not touch spilled material.

Have emergency equipment (for fires, spills, leaks, etc.) readily available.  
 Notify appropriate government, occupational health and safety and environmental authorities.

## 6.2. Environmental precautions

Prevent material from entering sewers or waterways.  
 Notify appropriate government, occupational health and safety and environmental authorities.

## 6.3. Methods and material for containment and cleaning up

### Small spills

Soak up spill with absorbent material (sand or other non combustible adsorbent material).  
 Place residues in a suitable, covered, properly labeled container.  
 Wash affected area.

### Large spills

Contain liquid using absorbent material, by digging trenches or by diking.  
 Reclaim into recovery or salvage drums or tank truck for proper disposal.  
 Clean contaminated surfaces with water or aqueous cleaning agents.  
 Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

## 7. HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Do not get in eyes, on skin, on clothing.  
 Do not take internally.  
 Use with adequate ventilation.  
 Do not breathe vapors/gases/dust.  
 In case of inadequate ventilation wear respiratory protection.  
 Keep the containers closed when not in use.  
 Use non-sparking type tools and equipment, including explosion proof equipment.  
 Use connections properly earthed to prevent generation of electrostatic charges.  
 Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back.  
 Have emergency equipment (for fires, spills, leaks, etc.) readily available.  
 Ensure all containers are labelled.  
 Do not use, store, spill or pour near heat, sparks or open flame.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in suitable labelled containers.  
 Store the containers tightly closed.  
 Store away from heat and sources of ignition.  
 Protect from direct sunlight.  
 Keep containers placed in cool, well-ventilated areas at temperature not exceeding 30 °C.  
 Have appropriate fire extinguishers available in and near the storage area.  
 Store separately from incompatibles.  
 Connections must be grounded to avoid electrical charges.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Occupational exposure limits of methyl methacrylate

#### KOREA

Korea. OELs (ISHL Article 42; MOL Public Notice No. 1986-45, as amended through MOL Public Notice No. 2007-25, June 8, 2007)

The 8-hour TWA: 50 ppm

The 8-hour TWA: 205 mg/m<sup>3</sup>

The 15-minute STEL: 100 ppm

The 15-minute STEL: 410 mg/m<sup>3</sup>

#### JAPAN

Japan. OELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits, 2007)

Skin sensitizer: 2 (Probable skin sensitizer).

Respiratory sensitizer: 2 (Probable respiratory sensitizer)

#### OSHA

OSHA Table Z-1 Limits for Air Contaminants (June 30, 1993)(29 CFR 1910.1000)(1971 Permissible Exposure Limits (PELs))

OSHA Z-1 PEL: 100 ppm  
OSHA Z-1 PEL: 410 mg/m<sup>3</sup>

#### ACGIH

ACGIH Threshold Limit Values (2007)

Sensitizer

Carcinogen Category: A4 (Not Classifiable as a Human Carcinogen)

The 8-Hour Exposure Limit (TLV-TWA): 50 ppm

The 15-minute STEL: 100 ppm

#### NIOSH

NIOSH. Pocket Guide to Chemical Hazards, 2005

NIOSH Recommended exposure limit (REL) [for up to a 10-hour workday during a 40-hour workweek]: 100 ppm

NIOSH Recommended exposure limit (REL) [for up to a 10-hour workday during a 40-hour workweek]: 410 mg/m<sup>3</sup>

NIOSH Immediately dangerous to life or health (IDLH) concentration: 1,000 ppm

## 8.2 Exposure control - Appropriate engineering controls

General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

Provide mechanical ventilation of confined spaces.

## 8.3 Individual protection measures, such as personal protective equipment

### General advice

The use and choice of personal protection equipment is related to the hazard of the product, the workplace and the way the product is handled.

In general, we recommend as a minimum precaution that safety glasses with side-shields and work clothes protecting arms, legs and body be used.

In addition any person visiting an area where this product is handled should at least wear safety glasses with side-shields.

### Respiratory protection

Where concentrations in air may exceed the limits given in this section, the use of a half face filter mask or air supplied breathing apparatus is recommended. If significant mists, vapors or aerosols are generated an approved respirator is recommended. A suitable filter material depends on the amount and type of chemicals being handled.

### Eye protection

When handling this product, the use of splash chemical goggles is recommended. Keep an eye wash fountain available.

### Hand protection

It has been demonstrated that MMA easily penetrates rubber latex gloves. All vinyl gloves appeared to provide poorer protection.

Polyethylene gloves give the best protection against MMA diffusion. Replace gloves regularly.

### Skin protection

When handling this product, the use of a chemical resistant suit is recommended. Keep a safety shower available.

## 9. Physical and chemical properties

9.1 Appearance	
- Physical state	Liquid
- Form	Paste
- Color	Various
9.2 Odor	Characteristic order
9.3 Odor Threshold	0.05 ~ 0.34 ppm
9.4 pH	No data available
9.5 Boiling /Freezing point	No data available
9.6 Boiling point/boiling range	101 °C
9.7 Flash point	10 °C (open cap)
9.8 Evaporation rate	3.1 (Ethyl acetate=1)
9.9 Flammability (solid, gas)	No data available
9.10 Upper/lower flammability or explosive limits	12.5/ 1.7
9.11 Vapour pressure	29 mmHg at 20 °C
9.12 Water Solubility	No data available
9.13 Vapour density	3.5
9.14 Relative density	1.10 ~ 1.15 at 25 °C
9.15 Partition coefficient	1.38
9.16 Autoignition Temperature	421 °C
9.17 Decomposition	No data available

9.18 Viscosity	15000 ~ 20000 cps at 25 °C
9.18 Molecular Weight	No data available

## 10. STABILITY AND REACTIVITY

### 10.1 Chemical stability

Inhibited methyl methacrylate is stable at room temperature for a limited storage period. Vapors are uninhibited and may form polymers in vents. Polymerization may be caused by elevated temperature, oxidizers, peroxides, or sunlight.

### 10.2 Possibility of hazardous reactions

The product is readily polymerized by light, heat, or oxidants without inhibitor. If the polymerization takes place inside some containers, it is subject to violent rupture.

### 10.3 Conditions to avoid

Incompatibles, heat, flame and ignition sources.

### 10.4 Incompatible materials

Contact with polymerization catalysts (e.g. peroxides, persulfates), nitric acid, strong oxidizers and other bases (e.g. ammonia, amines), halogens and halogen compounds.

### 10.5 Hazardous decomposition products

Oxides of carbon (COx).

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on likely routes of exposure

**Inhalation: Yes (vapor, mist)**  
**Ingestion: No**  
**Skin contact: Yes**  
**Eye contact: Yes**

### 11.2. Information on toxicological effects

#### ○ Acute toxicity

##### Oral:

Methyl methacrylate: LD50 (Rat): 7872 mg/kg  
 Aluminium hydroxide: LD50 (Rat): >5000 mg/kg

##### Dermal:

Methyl methacrylate: LD50 (Rabbit): > 5000 mg/kg

##### Inhalation:

Methyl methacrylate: LC50 (Rat, 4h): 78 mg/l

#### ○ Skin corrosion/irritation

Methyl methacrylate: Rabbit 0.5 ml, occluded, 4h, effect: Moderately irritating

#### ○ Serious eye damage/eye irritation

Methyl methacrylate: Rabbit, effect: Moderately irritating

#### ○ Respiratory or skin sensitization

Methyl methacrylate: Skin Sensitization (Guinea Pig): Sensitizing  
 Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Inhalation of product mist or vapors may cause respiratory allergy in some individuals.

#### ○ Carcinogenicity

Methyl methacrylate: IARC (The International Agency for Research on Cancer) overall evaluation: Group 3 – not classifiable as to carcinogenicity in humans.  
 ACGIH (American Conference of Governmental Industrial Hygienists) carcinogenic category: A4 - not classifiable as to carcinogenicity in humans.

#### ○ Germ cell mutagenicity

Methyl methacrylate: Not expected to cause mutagenicity based on some mutagenicity.  
 Salmonella typhimurium reverse mutation assay: 10 ~ 10000 ug/plate(+S9), result: negative.  
 Micronucleus assay(in vivo): mouse, result: negative

#### ○ Reproductive toxicity

Methyl methacrylate: Caused teratogenic effects (maternally toxic, foetal toxicity) on laboratory animals

#### ○ Specific target organ toxicity - single exposure

Methyl methacrylate: May cause respiratory irritation and narcotic effects.

**Specific target organ toxicity - repeated exposure**

Methyl methacrylate: Causes damage to respiratory system and central nervous system through prolonged or repeated exposure.

**Aspiration hazard :No data available.**

**Other adverse effects No data available.**

## 12. ECOLOGICAL INFORMATION

### 12.1. Ecotoxicity

#### Acute toxicity

**Fish**

Methyl methacrylate: LC50 (Lepomis macrochirus, 96h): 191 mg/l

LC50 (Oncorhynchus mykiss, 96h): >79 mg/l

Aluminium hydroxide: LC50 (Salmo trutta, 96h): >100 mg/l

**Aquatic invertebrates**

Methyl methacrylate: EC50 (Daphnia magna, 48h): 69 mg/l

Aluminium hydroxide: EC50 (Salmo trutta, 48h): >100 mg/l

**Toxicity to Aquatic Plant**

Methyl methacrylate: EC50 (Scenedesmus quadricauda, 96h): 170 mg/l

Aluminium hydroxide: EC50 (Selenastrum capricornutum, 72h): >100 mg/l

#### Chronic toxicity

**Fish: : No data available**

**Aquatic invertebrates: No data available**

**Toxicity to Aquatic Plants: No data available**

### 12.2 Persistence/degradability

Methyl methacrylate: Moderate biodegradable. (aerobic, 28d) 88%

### 12.3 Bioaccumulative potential

Methyl methacrylate: BCF 2.350

Aluminium hydroxide: BCF 3.162

### 12.4. Mobility in soil

Methyl methacrylate: If MMA released into the soil, MMA is expected to quickly evaporate.

### 12.5 Other adverse effects

Methyl methacrylate: No data available.

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Disposal methods

Must be disposed of as a special waste in accordance with regulations for special waste.

Small quantities may be incinerated under controlled conditions in incinerators.

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility.

Consult local, state, and federal regulations for specific requirements.

### 13.2 Precautions (On disposal of contaminated containers and packages)

Do not dispose of wastes in local sewer or with normal garbage. Combustion products are carbon monoxide, carbon dioxide and water.

## 14. TRANSPORTATION INFORMATION

### 14.1 UN number : 1133

### 14.2 UN proper shipping name

- ADHESIVES containing flammable liquid

### 14.3 Transport hazard class(es): 3

**14.4 UN Packing group: II****14.5. Environmental hazards**

- Not regulated.

**14.6 Special precautions for user**

Fire emergency: F-E

Release emergency: S-D

**15. REGULATORY INFORMATION****15.1 Safety, health and environmental regulations for the methyl methacrylate****EUROPE**

Methyl methacrylate is classified in the Annex I of Directive 67/548/EEC.

Indications of danger: F, Xi

Risk phrases: R11, R37/38, R43

Safety phrases: S2, S24, S37, S46

**U.S. Federal, Environment**

Clean Air Act Section 111, SOCM Intermediate or Final Volatile Organic Compounds (40 CFR 60.489)

CAS RN: 80-62-6

Name: methyl methacrylate

Clean Air Act Section 112, Hazardous Air Pollutants, as amended by 40 CFR 63 (December 19, 2005)

CAS RN: 80-62-6

Name: methyl methacrylate

Hazardous Organic NESHAP (HON) Synthetic Organic Chemicals (40 CFR 63.100-.106, Table 1)

CAS RN: 80-62-6

Name: methyl methacrylate

Hazardous Organic NESHAP (HON) Hazardous Air Pollutants (40 CFR 63.100-.106, Table 2)

CAS RN: 80-62-6

Name: methyl methacrylate

Clean Water Act Section 311 Hazardous Chemicals (40 CFR 116.4)

CAS RN: 80-62-6

Name: methyl methacrylate

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

CAS RN: 80-62-6

Name: methyl methacrylate

The Reportable Quantity Code: C

The Reportable Quantity is: 1000 lbs.

RCRA Appendix VII: Hazardous Constituents (40 CFR 261, App. VII, Basis for Listing Hazardous Waste)

CAS RN: 80-62-6

Name: methyl methacrylate

RCRA Appendix VIII List of Hazardous Constituents (40 CFR 261)

CAS RN: 80-62-6

Name: 2-propenoic acid, 2-methyl-, methyl ester

EPA Hazardous Waste Number: U162

RCRA D List of Characteristic Hazardous Wastes (40 CFR 261.21-24)

CAS RN: 80-62-6 regulated as a member of the Generics group for CAS RN: D001

Generics group name: Unlisted hazardous waste: Characteristic of ignitability

The EPA Hazardous Waste Number: D001

NIOSH Recommended Safety and Health Standards for Hazardous Agents in the Workplace, Health Effects

CAS RN: 80-62-6

Name: methyl methacrylate

NIOSH Health Effects: Respiratory irritation

**U.S. Federal, Right-to-know**

CERCLA Hazardous Substances [other than radionuclides] (40 CFR 302.4)

CAS RN: 80-62-6

Name: 2-propenoic acid, 2-methyl-, methyl ester

The Reportable Quantity (RQ): 1000 lbs.

EPCRA (SARA Title III) Section 313 Toxic Chemical (Reporting Form R Instructions for 2006, as revised January 2007)

CAS RN: 80-62-6



Name: methyl methacrylate  
 De Minimis Concentration for Section 313:1.0 %  
 Reporting threshold for manufacturing and processing: 25000 lbs  
 Reporting threshold for other uses: 10000 lbs

HMIS Chemical Ratings (Hazardous Materials Information System, Chemical Ratings Guide, Third Edition, 2002)

CAS RN: 80-62-6  
 Name: methyl methacrylate  
 Health Hazard: 2 Moderate.  
 Chronic Health Hazard: -  
 Flammability Hazard: 3 Serious.  
 Physical Hazard: 1 Slight.

#### **CANADA**

Canada. WHMIS Ingredient Disclosure List (Can. Gaz., Part II, Vol.122, No.2, January 20, 1988)

CAS RN: 80-62-6  
 Name: methyl methacrylate  
 Canada's WHMIS item number from English Ingredient Disclosure List: 1059  
 Canada's WHMIS Concentration Threshold: 1 %.

Quebec. Guidance WHMIS Classifications (CSST/SRT), May 5, 2007

CAS RN: 80-62-6  
 Name: methyl methacrylate  
 Classification: B2, D2B  
 Disclosure level: 1.0 %  
 Disclosure according to Ingredient Disclosure List

#### **CHINA**

China. List of Dangerous Goods (GB 12268-2005)

CAS RN: 80-62-6  
 Name: methyl methacrylate monomer, stabilized  
 UN Dangerous Goods Number(s) (UN Number): 1247  
 Dangerous Goods Classification(s): 3  
 Dangerous Goods Packing Group(s): II  
 China Dangerous Goods Number(s) (CN Number): 32149  
 Note(s): Flammable liquids

China. Classification and Labeling of Dangerous Chemical Substances Commonly Used (GB 13690 - 92)

CAS RN: 80-62-6  
 Name: methyl methacrylate (Stabilized)  
 Classification Section: Class 3: Combustible Liquids: Medium flashing point liquid  
 Classification: F (Flammable)  
 Dangerous Properties: 5.22, 5.104, 5.109  
 Labeling: Exposure to excessive heat, open flame or strong oxidizing agents can readily cause fire.

#### **KOREA**

Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1, May 29, 2004)

CAS RN: 80-62-6  
 Generics group name: No. 1 water-insoluble petroleum liquids with a flash point below 21 °C  
 Class: 4 (Flammable Liquids)  
 Threshold quantity: 200 liters

## **15.2. International chemical control laws**

### **EUROPE**

The substance in this product is included in or exempted from the EINECS or ELINCS inventories.

### **U.S.**

The substance in this product are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710).

### **JAPAN**

The substance in this product is comply with the Law Regulating the Manufacture and Importation of Chemical Substances and are listed on the Ministry of Economy, Trade and Industry (METI).

### **KOREA**

The substance in this product is comply with the Toxic Chemical Control Law (TCCL) and is listed on the Existing Chemicals Inventory (KECI).

Toxic Chemicals List - None of the component of this product is regulated under TCCL.

Observational Chemicals List - None of the component of this product is regulated under TCCL.

**16. OTHER INFORMATION****16.1 Sources of Data**

Guideline for Globally Harmonized System of Classification and Labelling of Chemicals (GHS)  
WHO/IPCS : International Chemical Safety Cards (ICSC)  
EU European Chemicals Bureau (ECB): International Uniform Chemical Information Database (IUCLID)  
Registry of Toxic Effects of Chemical Substances (NIOSH)  
Registry of Toxic Effects of Chemical Substances (RTECS)  
Joint Assessment of Commodity Chemicals, Methyl methacrylate No. 30, European Centre for Ecotoxicology and Toxicology of Chemicals, Brussels  
European Union Risk Assessment Report (European Commission) (EU-RAR).

**16.2 Creation Date**

- 2012-01-20

**16.3 Number of Revision and Latest Revision Date**

-5th : 2018.04.16

**16.4 Others**

This information is provided without warranty. The information is believed to be correct.

This information should be used to make an independent determination of safeguard workers and the environment.

# Material Safety Data Sheet (MSDS)

## STARON ADHESIVE (Component B)

Date of issue: 2012-01-20

Revision data : 2018-04-16

Version:

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product Name

- Staron adhesive (component B)

#### 1.2 Product use

- Application : Seam adhesive for staron solid surface  
 - uses advised against : None known

#### 1.3 Detail of the supplier of the safety data sheet

##### ○ Supplier

- Name of Supplier : LOTTE ADVANCED MATERIAL  
 - Address : 56, Gosan-ro, Uiwang-si, Gyeonggi-do, Republic of Korea  
 - Department : Technical Solution Team  
 - Telephone : +82-31-596-3861  
 - Emergency telephone : +82-31-596-3861  
 - FAX No. : +82-31-596-3882

### 2. HAZARD IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### ○ Physical hazard

- Organic peroxide TYPE G

##### ○ Health hazard

- Acute toxicity (Oral, Skin, Inhalation) – Category 5

##### ○ Environmental hazard

- Hazardous to the aquatic environment, acute hazard - Category 2

#### 2.2 Label elements

##### - Symbol

No symbol

##### - Signal word

Warning

##### - Hazard statement

H303+H313+H333 May be harmful if swallowed, in contact with skin, or if inhaled.  
 H401 Toxic to aquatic life.

##### - Precautionary statement

###### Prevention precautionary statements:

P273 Avoid release to the environment.

###### Response precautionary statements:

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

###### Storage precautionary statements:

Not applicable

###### Disposal precautionary statements:

P501 Dispose of contents/container to ...

### 2.3. Hazards not included in GHS classification

#### National Fire Protection Association-NFPA Rating (USA)

Health: 1, Flammability: 1, Reactivity: 1

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical	Usual Name	CAS No.	Concentration range(%)
Diethylene glycol dibenzoate		120-55-8	66 - 78 %
Dipropylene glycol dibenzoate		27138-31-4	15 - 20 %
Silica		7631-86-9	< 10 %
Benzoyl peroxide		94-36-0	< 5 %

## 4. FIRST AID MEASURES

### 4.1 Eye Contact

- Rinse thoroughly with plenty of flowing water for over 20 minutes.
- Keep eye wide open while rinsing.
- Remove contact lenses, if present and easy to do. Continue rinsing.
- If eye irritation persists, get medical advice/attention.

### 4.2 Skin Contact

- Remove/take off immediately all contaminated clothing.
- Rinse skin with water/shower or wash with plenty of soap and water.
- If skin irritation or rash occurs, seek medical advice/attention.
- Wash contaminated clothing before reuse.

### 4.3 Inhalation

- If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
- If experiencing respiratory symptoms or feel unwell, call a POISON CENTER or doctor/physician.

### 4.4 Ingestion

- Not a likely route of exposure.
- Do not induce vomiting without medical advice.
- There may be irritation to the gastro-intestinal tract with nausea and vomiting.

### 4.5 Most important symptoms and effects, both acute and delayed

- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.

### 4.6 Indication of any immediate medical attention and special treatment needed

- Skin contact may aggravate an existing dermatitis condition.
- Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

## 5. FIRE FIGHTING MEASURES

### 5.1 Extinguishing Media

- Foam, powder, carbon dioxide [ICSC].
- Do not use straight streams of water.
- Do not use halogenated extinguishing agents.
- Water spray may be used to keep fire exposed containers cool.

### 5.2 Special hazards arising from the substance or mixture

- Sealed containers may rupture when heated.
- Sensitive to static discharge.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

### 5.3 Advice for fire-fighters

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit. Keep containers cool with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Eliminate all ignition sources.

Restrict access to area as appropriate until clean-up operations are complete.

Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).

Stop or reduce any leaks if it is safe to do so.

Ventilate spill area if possible.

Ensure clean-up is conducted by trained personnel only.

Do not touch spilled material.

Have emergency equipment (for fires, spills, leaks, etc.) readily available.

Notify appropriate government, occupational health and safety and environmental authorities.

### 6.2. Environmental precautions

Prevent material from entering sewers or waterways.

Notify appropriate government, occupational health and safety and environmental authorities.

### 6.3. Methods and material for containment and cleaning up

#### Small spills

Soak up spill with absorbent material (sand or other non combustible adsorbent material).

Place residues in a suitable, covered, properly labeled container.

Wash affected area.

#### Large spills

Contain liquid using absorbent material, by digging trenches or by diking.

Reclaim into recovery or salvage drums or tank truck for proper disposal.

Clean contaminated surfaces with water or aqueous cleaning agents.

Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

## 7. HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Do not get in eyes, on skin, on clothing.

Do not take internally.

Use with adequate ventilation.

Do not breathe vapors/gases/dust.

In case of inadequate ventilation wear respiratory protection.

Keep the containers closed when not in use.

Use non-sparking type tools and equipment, including explosion proof equipment.

Use connections properly earthed to prevent generation of electrostatic charges.

Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back.

Have emergency equipment (for fires, spills, leaks, etc.) readily available.

Ensure all containers are labelled.

Do not use, store, spill or pour near heat, sparks or open flame.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in suitable labelled containers.

Store the containers tightly closed.

Store away from heat and sources of ignition.

Protect from direct sunlight.

Keep containers placed in cool, well-ventilated areas at temperature not exceeding 30 °C.

Have appropriate fire extinguishers available in and near the storage area.

Store separately from incompatibles.

Connections must be grounded to avoid electrical charges.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Occupational exposure limits of methyl methacrylate

No data available

### 8.2 Exposure control - Appropriate engineering controls

General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

Provide mechanical ventilation of confined spaces.

### 8.3 Individual protection measures, such as personal protective equipment

#### General advice

The use and choice of personal protection equipment is related to the hazard of the product, the workplace and the way the product is handled. In general, we recommend as a minimum precaution that safety glasses with side-shields and work clothes protecting arms, legs and body be used. In addition any person visiting an area where this product is handled should at least wear safety glasses with side-shields.

#### Respiratory protection

Where concentrations in air may exceed the limits given in this section, the use of a half face filter mask or air supplied breathing apparatus is recommended. If significant mists, vapors or aerosols are generated an approved respirator is recommended. A suitable filter material depends on the amount and type of chemicals being handled.

#### Eye protection

When handling this product, the use of splash chemical goggles is recommended. Keep an eye wash fountain available.

#### Hand protection

Polyethylene gloves give the best protection against MMA diffusion. Replace gloves regularly.

#### Skin protection

When handling this product, the use of a chemical resistant suit is recommended. Keep a safety shower available.

## 9. Physical and chemical properties

9.1 Appearance	
- Physical state	Liquid
- Form	Paste
- Color	Colorless
9.2 Odor	Ester
9.3 Odor Threshold	No data available
9.4 pH	No data available
9.5 Boiling /Freezing point	No data available
9.6 Boiling point/boiling range	340 °C
9.7 Flash point	224.4 °C (Cleveland open cap)
9.8 Evaporation rate	No data available
9.9 Flammability (solid, gas)	No data available
9.10 Upper/lower flammability or explosive limits	No data available
9.11 Vapour pressure	0.00005 mmHg at 69 °C
9.12 Water Solubility	< 0.01%
9.13 Vapour density	9.38
9.14 Relative density	1.17 ~ 1.20 at 25 °C
9.15 Partition coefficient	No data available
9.16 Autoignition Temperature	No data available
9.17 Decomposition	No data available
9.18 Viscosity	300 cps at 25 °C
9.18 Molecular Weight	No data available

## 10. STABILITY AND REACTIVITY

### 10.1 Chemical stability

Benzoyl peroxide is chemically unstable and should only be handled under specified conditions. But this product is stable because of liquid mixtures with diluents having a boiling point of 340 °C

### 10.2 Possibility of hazardous reactions

Hazardous polymerization does not occur.

### 10.3 Conditions to avoid

Incompatibles, heat, flame and ignition sources.

### 10.4 Incompatible materials

Strong oxidizing agents, reducing agents, amines, strong acids, strong bases.

### 10.5 Hazardous decomposition products

Carbon dioxide, Carbon monoxide, Benzoic acid, Benzene, Phenyl benzoate, Diphenyl.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on likely routes of exposure

**Inhalation: None known**

**Ingestion: None known**

**Skin contact: None known**

**Eye contact: None known**

### 11.2. Information on toxicological effects

#### ○ Acute toxicity

##### Oral:

diethylene glycol dibenzoate: LD50 (Rat): 4190 mg/kg

dipropylene glycol dibenzoate: LD50 (Rat): 3914 mg/kg

benzoyl peroxide: LD50 (Rat): >5000 mg/kg

##### Dermal:

diethylene glycol dibenzoate: LD50 (Rat): > 2000 mg/kg

dipropylene glycol dibenzoate: LD50 (Rat): > 2000 mg/kg

benzoyl peroxide: No data available.

##### Inhalation:

diethylene glycol dibenzoate: No data available.

dipropylene glycol dibenzoate: LC50 (Rat, 4 h): > 200 mg/l

benzoyl peroxide: LC50 (Rat, 4h): >24.3 mg/l

#### ○ Repeated dose toxicity

diethylene glycol dibenzoate: NOEL (Rat, in feed, 90 d): 1000 mg/kg

dipropylene glycol dibenzoate: NOAEL (Rat, in feed, 90 d): 1000 mg/kg

benzoyl peroxide: Chronic dietary administration to rat/ affected organ(s):test/ signs: atrophy

#### ○ Skin corrosion/irritation

diethylene glycol dibenzoate (Rabbit, 4 h): None

dipropylene glycol dibenzoate (Rabbit, 4 h): None

benzoyl peroxide (Rabbit, 4 h): None

#### ○ Serious eye damage/eye irritation

diethylene glycol dibenzoate (Rabbit): Slight

dipropylene glycol dibenzoate (Rabbit): Slight

benzoyl peroxide (Rabbit): Severely irritation

#### ○ Respiratory or skin sensitization

diethylene glycol dibenzoate Skin Sensitization(Guinea Pig): Non-sensitizing

dipropylene glycol dibenzoate Skin Sensitization(Guinea Pig): Non-sensitizing

benzoyl peroxide Skin Sensitization(Guinea Pig): Skin allergy was observed

#### ○ Carcinogenicity

diethylene glycol dibenzoate: No data available.

dipropylene glycol dibenzoate: No data available.

benzoyl peroxide : Classified by the International Agency for Research on Cancer as: Group 3

#### ○ Germ cell mutagenicity

##### In vitro:

diethylene glycol dibenzoate : Mutagenicity - Mammalian, : negative +/- activation

Mutagenicity - Bacterial, : negative +/- activation

Chromosomal aberration, : negative +/- activation

dipropylene glycol dibenzoate: Mutagenicity - Mammalian, : negative +/- activation

Chromosomal aberration, : negative +/- activation

Mutagenicity - Bacterial, : negative +/- activation

benzoyl peroxide : Mutagenicity - Bacterial, : negative +/- activation

#### ○ Reproductive toxicity

diethylene glycol dibenzoate: No data available.

- dipropylene glycol dibenzoate: No data available.  
 benzoyl peroxide: Repeated administration. Oral (rat)/ No toxicity to reproduction  
 **Specific target organ toxicity - single exposure: No data available.**  
 **Specific target organ toxicity - repeated exposure: No data available.**  
 **Aspiration hazard: No data available.**  
 **Other adverse effects: No data available.**

## 12. ECOLOGICAL INFORMATION

### 12.1. Ecotoxicity

#### Acute toxicity

##### **Fish**

- diethylene glycol dibenzoate: LL50 (Fish, 96 h): 2.9 mg/l  
 dipropylene glycol dibenzoate: LC50 (Fish, 96 h): 3.7 mg/l  
 benzoyl peroxide: LC50 (Oncorhynchus mykiss, 96 h): 0.0602 mg/l  
 LC50 (Oryzias latipes, 96 h): 0.24 mg/l

##### **Aquatic invertebrates**

- diethylene glycol dibenzoate: LL50 (daphnia, 48 h): 6.7 mg/l  
 dipropylene glycol dibenzoate: LL50 (daphnia, 48 h): 19.3 mg/l  
 benzoyl peroxide: EC50 (daphnia, 48 h): 0.07 mg/l

##### **Toxicity to Aquatic Plant**

- diethylene glycol dibenzoate: No data available  
 dipropylene glycol dibenzoate: No data available  
 benzoyl peroxide: EC50 (Algae, 72 h): 0.07 mg/l (biomass), 0.44 mg/l (growth rate)

#### Chronic toxicity

##### **Fish: : No data available**

##### **Aquatic invertebrates: No data available**

##### **Toxicity to Aquatic Plants: No data available**

- diethylene glycol dibenzoate: LL50 (Alga, 72 h): 10.94 mg/l  
 dipropylene glycol dibenzoate: LL50 (Alga, 72 h): 4.9 mg/l  
 benzoyl peroxide : No data available

### 12.2 Persistence/degradability

#### Persistence

- diethylene glycol dibenzoate: log kow 3.04  
 dipropylene glycol dibenzoate: log kow 3.88  
 benzoyl peroxide: log kow 3.46

#### Biodegradation

- diethylene glycol dibenzoate 93 % (28d, Ready Biodegradability: CO2 Evolution Test) Readily biodegradable  
 dipropylene glycol dibenzoate 87 % (28d, Ready Biodegradability: CO2 Evolution Test) Readily biodegradable  
 benzoyl peroxide Readily biodegradable. (aerobic, 21d) 83%

#### Biological Oxygen Demand

- diethylene glycol dibenzoate: No data available.  
 dipropylene glycol dibenzoate: BOD-5: 650 mg/g

#### Chemical Oxygen Demand

- diethylene glycol dibenzoate: No data available.  
 dipropylene glycol dibenzoate: 2230 mg/g

#### BOD/COD ratio

- diethylene glycol dibenzoate: No data available.  
 dipropylene glycol dibenzoate: No data available.

### 12.3 Bioaccumulative potential

- diethylene glycol dibenzoate BCF 120.  
 dipropylene glycol dibenzoate BCF 192.5

### 12.4. Mobility in soil

Known or predicted distribution to environmental compartments

- diethylene glycol dibenzoate: 3.2 (Measured)  
 dipropylene glycol dibenzoate: 3.6 (Measured)



**12.5 Other adverse effects: No data available****13. DISPOSAL CONSIDERATIONS****13.1 Disposal methods**

Must be disposed of as a special waste in accordance with regulations for special waste.

Small quantities may be incinerated under controlled conditions in incinerators.

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility.

Consult local, state, and federal regulations for specific requirements.

**13.2 Precautions (On disposal of contaminated containers and packages)**

Do not dispose of wastes in local sewer or with normal garbage. Combustion products are carbon monoxide, carbon dioxide and water.

**14. TRANSPORTATION INFORMATION****14.1 UN number : 1133****14.2 UN proper shipping name**

- ADHESIVES containing flammable liquid

**14.3 Transport hazard class(es): 3****14.4 UN Packing group: II****14.5. Environmental hazards**

- Not regulated.

**14.6 Special precautions for user**

Fire emergency: F-E  
Release emergency: S-D

**15. REGULATORY INFORMATION****15.1 Safety, health and environmental regulations for the methyl methacrylate****EUROPE**

WHMIS (Canada) Status : noncontrolled  
US EPCRA (SARA Title III) Section 313 - Toxic Chemical List: None  
OSHA: nonhazardous

**15.2. International chemical control laws****TSCA (US Toxic Substances Control Act):**

All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

**DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act):**

All components of this product are listed on the DSL. Any impurities present in this product are exempt from listing.

**AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme):**

All components of this product are listed on AICS or otherwise comply with NICNAS.

**ECL (Korean Toxic Substances Control Act):**

All components of this product are listed on the Korean inventory or otherwise comply with the Korean Toxic Substances Control Act.

**Inventory of Existing Chemical Substances in China:**

All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

**16. OTHER INFORMATION****16.1 Sources of Data**

Guideline for Globally Harmonized System of Classification and Labelling of Chemicals (GHS)  
WHO/IPCS : International Chemical Safety Cards (ICSC)  
EU European Chemicals Bureau (ECB): International Uniform Chemical Information Database (IUCLID)  
Registry of Toxic Effects of Chemical Substances (NIOSH)  
Registry of Toxic Effects of Chemical Substances (RTECS)

Joint Assessment of Commodity Chemicals, Methyl methacrylate No. 30, European Centre for Ecotoxicology and Toxicology of Chemicals, Brussels  
European Union Risk Assessment Report (European Commission) (EU-RAR).

#### 16.2 Creation Date

- 2012-01-20

#### 16.3 Number of Revision and Latest Revision Date

-5th : 2018.04.16

#### 16.4 Others

This information is provided without warranty. The information is believed to be correct.

This information should be used to make an independent determination of safeguard workers and the environment.

**AUSTARON**  
SURFACES

17/30 Heathcote Road, Moorebank NSW 2218  
Phone: 02 9822 7055 Mobile: 0428 267 685