LX MMA	**Safety Data Sheet** **According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No 2020/878)**	Crea. date	2016.05.12
		( )th	3th
	Product Name : I-BMA **CAS No : 97-86-9**	Rev. date	2024.06.01

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Substance name	: Isobutyl methacrylate
EC No.	: 202-613-0
REACH Registration No.	: 01-2119488331-38-0008
CAS No.	: 97-86-9

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

- Paint, adhesive, etc.

1.2.2. Uses advised against

- Not available

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	: LX MMA Corporation
Address	: YeosuSandan 4-ro, Yeosu-si, Jeollanam-do, Korea
Telephone	: +82-2-6930-3847

1.4. Emergency telephone number

EU-wide emergency number : 112

See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance/mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP]

- Flammable liquids : Category3, H226
- Skin corrosion/irritation : Category2, H315
- Skin sensitization : Category1A, H317
- Serious eye damage/irritation : Category 2A, H319
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation), H335

2.2. Label elements

2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]

*** Hazard Pictogram(s)**

*** Signal word** : Warning

*** Hazard statement(s)**

- H226 Flammable liquid and vapour
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H319 Cause serious eye irritation
- H335 May cause respiratory irritation.

*** Precautionary statement(s)**

1) Prevention

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

2) Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P321 Specific treatment
- 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.
- P362 Take off contaminated clothing.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).

3) Storage

- 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.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

Notes:

Note D [Certain substances which are susceptible to spontaneous polymerisation or decomposition are generally placed on the market in a stabilised form. It is in this form that they are listed in Part 3. However, such substances are sometimes placed on the market in a non-stabilised form. In this case, the supplier must state on the label the name of the substance followed by the words “non-stabilised”.]

2.3. Other hazards

The substance is not PBT/vPvB

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Name	EC No.	CAS No.	REACH registration No.	% [weight]	Classification [1272/2008/EC]	SCL / M-factor / ATE
Isobutyl methacrylate	202-613-0	97-86-9	01-2119488331-38-0008	100	Flam. Liq. 3 H226 Skin Irrit. 2 H315 Skin Sens. 1 H317 Eye Irrit. 2 H319 STOT SE 3 H335	-

3.2. Mixtures

- Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General

Take off all contaminated clothing immediately. Medical treatment is necessary if symptoms occur which are obviously caused by skin or eye contact with the product or by inhalation of its vapours

Inhalation

Move subject to fresh air and keep him calm. See a physician.

Skin contact

If skin irritation occurs consult a physician. Wash off immediately with soap and water.

Eye contact

Flush eyes thoroughly with a large amount of water and consult a physician.

Ingestion

Do not induce vomiting. Consult a physician immediately.

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

Causes skin and eye irritation. Headache. confusion Skin sensitizer

4.3. Indication of any immediate medical attention and special treatment needed

Notify medical personnel of contaminated situations and have them take appropriate protective measures.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Dry chemical, carbon dioxide, foam

Unsuitable extinguishing media

Avoid use of water jet for extinguishing

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

May be released in case of fire: carbon monoxide, carbon dioxide, organic products of decomposition.

5.3. Advice for firefighters

Cool containers with water until well after fire is out.

Keep unauthorized personnel out.

Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

Wear appropriate protective equipment.

Keep containers cool with water spray.

Use fire fighting procedures suitable for surrounding area.

Vapor or gas is burned at distant ignition sources can be spread quickly.

Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.

6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.

- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise emergency services.

6.3. Methods and material for containment and cleaning up

6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Avoid entering to sewers or water system.
- Do not use plastic containers.
- Prevent the influx to waterways, sewers, basements or confined spaces.

6.3.3. Other information

- Slippery when spilt.

6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.
- Avoid contact with heat, sparks, flame or other ignition sources.

7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.
- Collected them in sealed containers.
- Store away from water and sewer.

7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational exposure limits

European Union (EU) Commission Directive 2006/15/EC (IOELVs)

- Estinia : TWA 50ppm (300mg/m3), STEL 75ppm (450mg/m3); Denmark : TLV 25ppm (145mg/m3); Sweden : NGV 50ppm (300mg/m3), KTV 75ppm (450mg/m3), Norway : 50ppm (300mg/m3); Austria : TMW 50ppm (300mg/m3), KZW 75ppm (450mg/m3); Iceland : TWA 50ppm (290mg/m3)

European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Skin

- Estinia : TWA 50ppm (300mg/m3), STEL 75ppm (450mg/m3); Denmark : TLV 25ppm (145mg/m3); Sweden : NGV 50ppm (300mg/m3), KTV 75ppm (450mg/m3), Norway : 50ppm (300mg/m3); Austria : TMW 50ppm (300mg/m3), KZW 75ppm (450mg/m3); Iceland : TWA 50ppm (290mg/m3)

8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

8.1.3. DNEL/PNEC - Values

Route	Type of effect	Hazard conclusion	Most sensitive endpoint
Inhalation	Systemic effects - Long term	DNEL: 415.9 mg/m3	repeated dose toxicity
Inhalation	Local effects - Long term	DNEL: 409 mg/m3	irritation(repiratory tract)
Dermal	Systemic effects - Long term	DNEL: 5 mg/kg bw/day	repeated dose toxicity
Dermal	Local effects - Long term	DNEL: 1% in mixture(weight basis)	sensitization(skin)
Dermal	Local effects - Acute	DNEL: 1% in mixture(weight basis)	sensitization(skin)

Compartment	PNEC
Freshwater	0.021 mg/L
Marine water	0.002 mg/L
Sediments (freshwater)	5.89 mg/kg sediment dw
Sediments (marine water)	0.589 mg/kg sediment dw
Sewage treatment plant	STP: 10 mg/L

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate chemical resistant glove.

Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

Respiratory Protection

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

Skin protection

- Wear appropriate chemical resistant protective clothing.

Others

- It is necessary to wear protective clothes and other protection equipment. Cover your face, head and neck.
- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.

Thermal hazards

- Not available

8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Color	Colorless
Odor	Characteristic odor
pH	Not available
Melting point/Freezing point	-35℃
Initial boiling point and boiling range	155 ℃
Flash point	49 ℃
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive limits	8-1%
Vapour pressure	3.63 mmHg (20℃)
Vapour density	4.9
Relative density	0.9 (at 20℃)
Solubility	0.4 g/L (20℃)
Partition coefficient of n-octanol/water	2.95 (at 20℃)
Autoignition temperature	390℃
Decomposition temperature	Not available
Viscosity	1.01 mm2/s (static) at 20℃
Explosive properties	Not available
Oxidising properties	Not available

9.2. Other information

- Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

- Product is stable or unstable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces - No smoking
- Avoid contact with heat, sparks, flame or other ignition sources.

10.5. Incompatible materials

- Not available

10.6. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

(a) Acute toxicity

- **Oral**

  LD50 > 2,000 mg/kg Rat (SIDS)

- **Dermal**

  Dermal - LD50 > 17,760 mg/kg Guinea pig (IUCLID)

- **Inhalation**

  LC50 32.6 mg/L 4hr (SIDS)

(b) Skin corrosion/irritation

- Rabbit(New Zealnad White) erythema score mean 2.08 of max. 4 (Time point: mean 24+72 h) Reversibility: not fully reversible within: 72 h (24 h exposure, intact skin; No data in respect to reversibility after > 72h exposure. Reevaluation acc. DSD (overall mean).)

- edema score mean 1.83 of max. 4 (Time point: mean 24+72 h) Reversibility: not fully reversible within: 72 h (24 h exposure, intact skin; No data in respect to reversibility after > 72h exposure. Reevaluation acc. DSD (overall mean).)

(c) Serious eye damage/irritation

- Irritating (SIDS)

(d) Respiratory sensitization

- Not available

(e) Skin sensitization

- May cause an allergic skin reaction

(f) Germ cell mutagenicity

- Not available

(g) Carcinogenicity

- **IARC**

  Not available

- **OSHA**

  Not available

- **ACGIH**

  Not available

- **NTP**

  Not available

- **EU CLP**

  Not available

(h) Reproductive toxicity

- ' Not available

(i) Specific target organ toxicity(single exposure):

- May cause respiratory irritation.

(j) Specific target organ toxicity(repeated exposure):

- Not available

[k) Aspiration hazard

- Not available

11.2. Information on other hazards

- Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.1. Fish

LC50 20 mg/l 96 hr (Oncorhynchus mykiss)(OECD 203)

12.1.2. Invertebrate

EC50 23mg/l 48hr (Daphnia magna) (IUCLID)

12.1.3. Algae

EC50 44 mg/l 96hr, NOECr = 9.5 mg/L (Smyth and Long, 1999) ECr50-72h = 16 mg/L, NOECr = 5.8 mg/L (Hoberg, 2002)

12.2. Persistence and degradability

12.2.1. Persistence

Log Kow 2.95 (SIDS)

12.2.2. Degradability

Not available

12.3. Bioaccumulative potential

12.3.1. Bioaccumulation

Bioaccumulative potential : BCF = 39.2 (IUCLID)

12.3.2. Biodegradability

Readily biodegradable (74.3% after 28d)(O2 consumption)(passes 10d window)

12.4. Mobility in soil

Not available

12.5. Results of PBT and vPvB assessment

The substance is not PBT/vPvB

12.6. Endocrine disrupting properties

- Not available

12.7. Other adverse effects

- Not available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.

If water separation is possible, preprocess with Water separation process.

Dispose by incineration.

The user of this product must disposal by oneself or entrust to waste disposer or person who other’s waste recycle and dispose, person who establish and operate waste disposal facilities.

Dispose of waste in accordance with all applicable laws and regulations.

SECTION 14: TRANSPORT INFORMATION

14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN)

2283

14.1.2. UN No. (IMDG)

2283

14.1.3. UN No. (ICAO)

2283

14.2. UN proper shipping name

ISOBUTYL METHACRYLATE, STABILIZED

14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class

3

14.3.2. ADR/RID/ADN Class

Class : 3, ISOBUTYL METHACRYLATE, STABILIZED

14.3.3. ADR Label No.

3

14.3.4. IMDG Class

3

14.3.5. ICAO Class/Division

3

14.3.6. Transport Labels

14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

III

14.4.2. IMDG Packing group

III

14.4.3. ICAO Packing group

III

14.5. Environmental hazards

Not Applicable

14.6. Special precautions for user

Local transport follows in accordance with Dangerous goods Safety Management Law.

Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

EmS FIRE SCHEDULE : FE (Nonwaterreactive flammable liquids)

EmS SPILLAGE SCHEDULE : SD (Flammable liquids)

Emergency Action Code : 3W

Hazard No.(ADR) : 39

Tunnel Restriction Code : 3 (D/E)

14.7. Maritime transport in bulk according to IMO instruments

Not available

SECTION 15: REGULATORY INFORMATION

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

15.1.1. Europe regulatory

REACH Restricted substance under REACH

Not applicable

REACH Substances subject to authorization under REACH

Not applicable

REACH SVHC

Not applicable

Europe PBT

Not applicable

European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List

Not applicable

15.2. Chemical Safety Assessment

A chemical safety assessment has been performed

SECTION 16: OTHER INFORMATION

16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EU) No. 878/2020

16.2. Abbreviations and acronyms

1272/2008 CLP : Classification, Labelling and Packaging regulation.

REACH : Registration, Evaluation and authorisation of chemical substances.

DNEL : Derive no effects level

PNEC : Predicted no effect concentration

LD50 : The amount of a chemical, given all at once, which causes the death of 50% (one half) of a group of test animals.

EC50 : The effective concentration of substances that causes 50% of the maximum response.

LC50 : The concentration of a chemical in air or of a chemical in water which causes the death of 50% (one half) of a group of test animals.

STP : Sewage Treatment Plant

vPvB : Very Persistent and Very Bioaccumulative

16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5. Training advice

- Not applicable

16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.
- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).