

**SAFETY DATA SHEET**
**Product:** Methyl methacrylate - MMA

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**SECTION 1: IDENTIFICATION**

Identification of the product	Methyl methacrylate – MMA.
Recommended use of the chemical and restrictions on use	Industrial use.
Company	PROQUIGEL QUÍMICA S/A.
Address	Fazenda Caroba s/n, Candeias - BA - CEP: 43.813-300, Brazil.
Phone number(s)	55 (71) 3878-6633.
Emergency phone number	0800 110 8270 Pró-Química.

**SECTION 2: HAZARD IDENTIFICATION**

Classification of the substance or mixture	Flammable liquids – Category 2 Skin corrosion/irritation – Category 2 Sensitization – skin – Category 1 Specific target organ toxicity – single exposure – Category 3 Hazardous to the aquatic environment – Acute – Category 3
Classification system adopted	Globally Harmonized System of Classification and Labelling of Chemicals (GHS), United Nations.
Other hazards which do not result in classification	The product does not have other hazards.
Adequate labeling elements	
Pictograms	
Signal word	DANGER

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Hazard statement(s):

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H402 Harmful to aquatic life

**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 and lighting equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P261 Avoid breathing mist, vapours and spray.

P264 Wash hands thoroughly after handling.

Precautionary statement(s):

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 and face protection.

**RESPONSE:**

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

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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P312 Call a POISON CENTER or a doctor, 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.

P362 + P364 Take off contaminated clothing and wash it before reuse.

P370 + P378 In case of fire: Use carbon dioxide, water spray, alcohol resistant foam or chemical powder to extinguish.

**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.

**DISPOSAL:**

P501 Dispose of contents and container in accordance with local regulations.

**SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS**

## SUBSTANCE

Common chemical name Methyl methacrylate.

Common name(s), synonym(s) of the substance 2-Propenoic acid, 2-methyl-, methyl ester; Methacrylic acid, methyl ester.

CAS number 80-62-6.

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Ingredients or impurities The product does not have impurities which contribute to contributing to the hazard hazards.

**SECTION 4: FIRST- AID MEASURES****Routes of exposure**

Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse the victim's mouth with water. Call a POISON CENTER or doctor/physician if you feel unwell. Take this SDS.
Skin	Wash exposed skin with enough water to remove the material. In case of irritation: Consult a doctor. Take this SDS.
Eye	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. If eye irritation persists: Get medical advice/attention. Take this SDS.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Take this SDS.
Most important symptoms/effects, acute and delayed	Causes skin irritation with redness, pain and dryness, and slight eye irritation with tearing and redness. May cause pruritus, dermatitis, coughing and sneezing.
Indication of immediate medical attention and special treatment needed, if necessary	Avoid contact with the product to help the victim. Keep victim warm and quiet. Symptomatic treatment should comprise mainly supportive measures such as correction of electrolyte disturbances, metabolic, and respiratory support. In case of skin contact do not rub the affected site.

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**SECTION 5: FIRE-FIGHTING MEASURES**

Suitable extinguishing media	Suitable: Compatible with carbon dioxide (CO <sub>2</sub> ), water spray, foam and chemical powder. Not recommended: Water directly on the burning liquid.
Specific hazards arising from the chemical	Very dangerous when exposed to excessive heat or other sources of ignition such as sparks, open flames or flames of matches and cigarettes, welding operations, pilot lights and electric motors. Can accumulate static charge by flow or agitation. Vapors from heated liquid can be ignited by static discharge. Vapors are heavier than air and tend to accumulate in low or confined areas, such as sewers and basements. Can travel great distances causing retrogression of the flame or new fires both in open environments in as confined ones. Containers may explode if heated. The combustion of the chemical products or containers may form toxic and irritant gases such as methanol, carbon monoxide and carbon dioxide.
Special protective actions for fire-fighters	Self-contained breathing apparatus (SCBA) with positive pressure and full protective clothing. Containers and tanks involved in the fire can be cooled by water fog.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment, and emergency procedures	
For non-emergency personnel	As an immediate precautionary measure, isolate spill or leak area for at least 50 meters in all directions. Keep unauthorized personnel away. Prevent sparks or flames. Stop leak if this can be done without risk. Do not smoke. Do not touch damaged

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	containers or spilled material without the use of appropriate clothing. Avoid exposure to the product. Stay upwind, uphill and/or upstream. Use personal protective equipment as described in Section 8.
For emergency responders	Wear full PPE with safety goggles and face shield, appropriate protective clothing, boots, neoprene, butyl rubber or polyethylene gloves to prevent skin contact. Respiratory protection masks with organic gas filter or autonomous mask.
Environmental precautions	Avoid that the spilled material reaches waterways or sewage system.
Methods and materials for containment and cleaning up	Use water mist or vapor suppressing foam to reduce the dispersion of vapors. Use natural barriers or spill containment. Collect spilled material and put it into containers. Adsorb the remaining product with dried sand, vermiculite or any other inert material. Put the adsorbed material in appropriate containers and remove them to a safe place. Use tools that do not cause sparks to collect absorbed material. For final destination, proceed pursuant to Section 13 of this SDS.

**SECTION 7: HANDLING AND STORAGE**

Precautions for safe handling	
Safe handling of the substance or mixture	Handle in a well ventilated area or with general system of ventilation/local exhaust. Avoid vapors and mists formation. Avoid contact with incompatible materials. Use personal protective equipment as described in Section 8.
General hygiene:	Wash hands and face thoroughly after handling and before eating, drinking, smoking or going to the bathroom.

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Contaminated clothing should be changed and washed before reuse. Remove clothing and protective equipment contaminated before entering eating areas.

Conditions for safe storage, including any incompatibilities

Technical measures for prevention of fire and explosion

Keep away from heat, sparks, open flames and hot surfaces. - Do not smoke. Keep container tightly closed. Ground the container vessel and the receiver of the product during transfers. Only use anti-sparking tools. Avoid the accumulation of electrostatic charges. Use electrical equipment, ventilation and lighting explosion proof.

Adequate conditions

Must be stored only if inhibited. Store the product in a cool, ventilated place. Store away from sources of ignition. Addition of stabilizers such as hydroquinone monomethyl ether is required to ensure the product's durability. Store at room temperature. Do not store for prolonged periods. This product may react dangerously with some incompatible materials as highlighted in Section 10.

Packaging compatibilities

Stainless steel or aluminum.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control parameters

Occupational exposure limit	Common chemical name or technical name	TWA-TLV (ACGIH, 2020)	TWA-STEL (ACGIH, 2020)
	Methyl methacrylate	50 ppm	100 ppm

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Biological limit:	Not established.
Other limits and values	<b>IDLH (NIOSH, 2017):</b> 1000 ppm
Appropriate engineering controls	Promote direct mechanical ventilation and exhaust system to the outside environment. These measures help reduce exposure to product. Maintain atmospheric concentrations of the constituents of the product below occupational exposure limits indicated.
Individual protection measures, such as personal protective equipment (PPE)	
Eye/face protection	Safety glasses and face shield.
Skin protection	Appropriate protective clothing, boots, neoprene, butyl rubber or polyethylene gloves to prevent skin contact.
Respiratory protection	Respiratory protection masks with organic gas filter or autonomous mask. Based on the inhalation hazard of the product, a risk assessment must be carried out to adequately define respiratory protection in view of the conditions of use of the product.
Thermal hazards	It is not necessary to use specific EPIs, since the product does not present thermal hazards.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	Liquid.
Colour	Transparent colorless.
Odour	Irritant, characteristic.
Melting point/freezing point	-48°C
Boiling point or initial boiling point and boiling range	101°C
Flammability	Not available.
Lower and upper explosion limit	Lower: 2.1%vol.



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/flammability limit	Upper: 12.5%vol.
Flash point	10°C.
Auto-ignition temperature	421°C.
Decomposition temperature	Not available.
pH	7.0 (Aqueous solution 5%).
Kinematic viscosity	0.5 cP
Solubility	Partially soluble in water (1.6 g/L at 20°C). Completely soluble in alcohol.
Partition coefficient n-octanol/water (log value)	log kow: 1.38.
Vapour pressure	46.7 mmHg at 20°C.
Density and/or relative density	0.94 g/cm <sup>3</sup> at 20°C.
Relative vapour density	1.83 (air = 1.0).
Particle characteristics	Not available.
Other information	Specific heat: 0.45 cal/g °C Refractive index: 1.412 a 25°C SAPT: greater than 55° C

**SECTION 10: STABILITY AND REACTIVITY**

Reactivity and chemical stability	Product not reactive. Unstable. Stable if hydroquinone monomethyl ether is added as an inhibitor.
Possibility of hazardous reactions	Violent polymerization may occur if exposed to light and

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	excessive heat, contact with organic peroxides, sulfuric radicals, hydroxides, amines, heavy metal salts and other initiators.
Conditions to avoid	High temperatures, sources of ignition and contact with incompatible materials.
Incompatible material	Organic peroxides, sulfuric radicals, hydroxides, amines, heavy metal salts and other initiators.
Hazardous decomposition products	Combustion of the product may form oxides of carbon and methanol.

**SECTION 11: TOXICOLOGICAL INFORMATION**

Acute toxicity	<p>Product not classified as acute toxic by inhalation and dermal route. Based on available acute oral toxicity information, the classification criteria were not met.</p> <p>LD50 (dermal, rabbits): &gt;5000 mg/kg</p> <p>LC50 (Inhalation, rats, 4h): &gt;20 mg/L (vapours)</p>
Skin corrosion/irritation	<p>Causes skin irritation with redness, pain and dryness.</p> <p>Mean score of <math>\geq 2.3</math> and <math>\leq 4.0</math> for erythema/eschar or for oedema in at least 2 of 3 tested animals from gradings at 24, 48 and 72 hours after patch removal or, if reactions are delayed, from grades on 3 consecutive days after the onset of skin reactions.</p> <p>Animal studies showed severe irritation to the skin with persistent inflammation for 7 days.</p>
Serious eye damage/irritation	May cause slight eye irritation with tearing and redness.
Respiratory or skin sensitization	<p>May cause an allergic skin reaction with pruritus and dermatitis.</p> <p>Based on available respiratory sensitization information, the</p>

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	classification criteria were not met.
Germ cell mutagenicity	Not classified as mutagenic. Mutagenicity study performed in vitro presented negative results.
Carcinogenicity	Based on available information, the classification criteria have not been met.
Reproductive toxicity	Based on available information, the classification criteria have not been met.
STOT - Single exposure	May cause respiratory irritation with coughing and sneezing.
STOT - Repeated exposure	Based on available information, the classification criteria have not been met.
Aspiration hazard	Based on available information, the classification criteria have not been met.

**SECTION 12: ECOLOGICAL INFORMATION**

Ecotoxicity	Harmful to aquatic life. LC50 (Oncorhynchus mykiss, 96h): >79 mg/L EC50 (Daphnia magna, 48h): 69 mg/L EC50 (Pseudokirchneriella subcapitata, 72h): >100 mg/L NOEC (Daphnia magna, 21d): 37 mg/L
Persistence and degradability	The product has no persistence and is considered to be rapidly degradable. Biodegradability rate: 94.3% in 14 days.
Bioaccumulative potential	It has low bioaccumulative potential in aquatic organisms. log kow: 1.38
Mobility in soil	No data available.

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Other adverse effects	There are not known adverse environmental effects of the product.
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**SECTION 13: DISPOSAL CONSIDERATIONS**

## Disposal methods

Product	It must be disposed of as hazardous waste according to local regulations. The treatment and disposal should be evaluated for each specific product. Keep the product remains in its original and properly closed. Disposal should be performed as established for the product. Do not reuse empty containers. These may contain product residues and should be kept closed and sent for proper disposal as established for the product.
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**SECTION 14: Transport information**

Road	UN - "United Nations". Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations.
UN Number	1247
UN Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED
Transport hazard class(es):	3
Packing group:	II
Rail	Convention concerning International Carriage by Rail (COTIF) Appendix C - Regulations concerning the International Carriage of Dangerous Goods by Rail - RID
UN Number	1247
UN Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED
Transport hazard class(es)	3

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Packing group	II
Sea:	IMO – International Maritime Organization International Maritime Dangerous Goods Code (IMDG Code)
UN Number	1247
UN Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED
Transport hazard class(es)	3
Packing group	II
EmS	F-E, S-D
Marine pollutant	The product is not considered a marine pollutant.
Air	IATA - International Air Transport Association Dangerous Goods Regulation (DGR)
UN Number	1247
UN Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED
Transport hazard class(es)	3
Packing group	II
Hazardous to the environment	The product is not considered environmentally hazardous
Special precautions for user	There is no need of special precautions.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Consult regulations: - International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006. - International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.

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**SECTION 15: REGULATORY INFORMATION**

Regulations for chemical products      Convention concerning Safety in the use of Chemicals at Work  
(Convention 170) - International Labour Organization, 1990.

**SECTION 16: OTHER INFORMATION**

This SDS was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other materials, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

Revised and adequate in março 2021.

Subtitles and abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists

BEI – Biological Exposure Index

CAS – Chemical Abstracts Service

EC<sub>50</sub> – Effective concentration 50%

LC<sub>50</sub> – Lethal concentration 50%

LD<sub>50</sub> – Lethal dose 50%

IARC – International Agency for Research on Cancer

IDLH – Immediately Dangerous to Life or Health

kow – Octanol/Water Partition Coefficient

NOEC – No Observed Effect Concentration

STEL – Short Term Exposure Limit

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TLV – Threshold Limit Value

TWA – Time Weighted Average

References:

ACGIH. AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on the Documentation of the Threshold Limit Values (TLVs®) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEIs®). Cincinnati-USA, 2020.

GHS. Globally Harmonized System of Classification and Labelling of Chemicals. 8. rev. ed. New York: United Nations, 2015.

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