

SAFETY DATA SHEET

1. Identification

Product identifier: Bond Promoter HP / Haftvermittler HP

Other means of identification

Recommended use: auxiliary agent for road markings and floor coatings Roller application or brushing Hand-mixing with intimate contact and only PPE available Wide dispersive indoor use resulting in inclusion into or onto a matrix Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Recommended restrictions: None known.

Manufacturer/Importer/Distributor Information

Company Name : Röhm GmbH
Product Stewardship
Kirschenallee
64293 Darmstadt

Telephone : +49 6151 18 4076

E-mail : sds-info@roehm.com

Emergency telephone number:

24-Hour Health : +49 6241 402 5280 (24h)

Emergency : +49 6131 19 240 (24h)

2. Hazard(s) identification

According to Hazardous Product Regulations

Physical Hazards

Flammable liquids Category 2

Health Hazards

Acute toxicity (Oral) Category 5

Skin corrosion Sub-category 1A

Serious Eye Damage/Eye Irritation Category 1

Skin sensitizer Category 1

Specific Target Organ Toxicity - Category 3¹

Single Exposure

Target Organs

1. Respiratory system

Environmental Hazards

Acute hazards to the aquatic environment Category 3

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Highly flammable liquid and vapor.
May be harmful if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.
Harmful to aquatic life.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting/...] equipment. Use non-sparking tools. Take action to prevent static discharges. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.

Disposal: Dispose of contents/ container to an approved waste disposal plant.

Other hazards: Take precautionary measures against static discharges. The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is exceeded, the product may polymerize with heat evolution.

3. Composition/information on ingredients

Mixtures

Monomer mixture on the basis of methacrylic acid esters

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
methacryloyloxyethyl phosphate		52628-03-2	67,5%
Methyl methacrylate		80-62-6	29%
methacrylic acid		79-41-4	0,5%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Description of necessary first-aid measures

General information: 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. If feeling unwell seek medical advice.

Skin Contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Take off all contaminated clothing immediately. Wash clothing before reuse.

Eye contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

Ingestion: Call a physician immediately. Have the mouth rinsed with water. Never give anything by mouth to an unconscious person.

Personal Protection for First-aid Responders: Wear self-contained breathing apparatus.

Most important symptoms/effects, acute and delayed

Symptoms: Skin sensitizer corrosive effects Excessive or prolonged exposure can cause the following: Headache. confusion

Hazards: No data available.

Indication of immediate medical attention and special treatment needed

Treatment: None known.

5. Fire-fighting measures

General Fire Hazards: Vapours are heavier than air and can form an explosive mixture with air. Flammable liquid. Vapors can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint. Remove sources of ignition. Also keep emptied containers away from sources of heat and ignition. Keep out unprotected persons. In case of fire, remove the endangered barrels and bring to a safe place, if this can be done safely. Containers exposed to heat (fire) may build up pressure. Cool by splashing with water. Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: foam Dry chemical. Carbon dioxide

Unsuitable extinguishing media: High volume water jet

Specific hazards arising from the chemical: May be released in case of fire: carbon monoxide, carbon dioxide, organic products of decomposition. Closed container may rupture if strongly heated. Vapours may form explosive mixtures with air. Combustible air-vapour mixtures are heavier than the air and spread along the floor. Ignition from a considerable distance is possible.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Keep away from sources of ignition - No smoking. Take action to prevent static discharges. In the event of fire, cool the endangered containers with water. When heated above the flash point and/or during spraying (atomizing), ignitable mixtures may form in air. Use explosion-proof equipment.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Assure sufficient ventilation. Use personal protective clothing. Avoid contact with eyes, skin, and clothing. Use breathing apparatus if exposed to vapours/dust/mist/aerosol. Keep away from open flames, hot surfaces and sources of ignition. Vapours can form explosive mixtures with air. Keep out unprotected persons. Avoid spark generation.

Methods and material for containment and cleaning up: Larger quantities: Remove mechanically (by pumping). Use explosion-proof equipment! Smaller quantities and/or residues: Contain with absorbent material (e.g. sand, diatomaceous earth, acid absorbent, universal absorbent or sawdust). Dispose of in accordance with regulations.

Environmental Precautions: Prevent product from getting into drains/surface water/groundwater.

7. Handling and storage

Precautions for safe handling:	Do not breathe vapors. Avoid contact with skin and eyes. Wash hands before breaks and immediately after handling the product. Safety shower and eye wash fountain should be available. Keep away from sources of ignition - No smoking. Take action to prevent static discharges. In the event of fire, cool the endangered containers with water. When heated above the flash point and/or during spraying (atomizing), ignitable mixtures may form in air. Use explosion-proof equipment. When using do not eat, drink or smoke. Avoid inhalation, ingestion and contact with skin and eyes. Provide sufficient ventilation and exhaust at the workplace. Provide good room ventilation even at ground level (vapours are heavier than air). Keep container tightly closed. Open drum carefully as content may be under pressure. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Wash thoroughly after handling. Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. Control staff entry to working area. Training for staff on good practice. Recording of any 'near miss' situations. Regular cleaning of equipment and work area. Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour)
Conditions for safe storage, including any incompatibilities:	Do not store together with strong oxidizing agents. Keep away from open flames, hot surfaces and sources of ignition. Keep away from heat. Protect from the action of light. Keep containers tightly closed in a cool, well-ventilated place. Fill the container by approximately 90 % only as oxygen (air) is required for stabilisation. With large storage containers make sure the oxygen (air) supply is sufficient to ensure stability. Keep locked up. Keep only in the original container at a temperature not exceeding 30 °C.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Methyl methacrylate	TWA	50 ppm	US. ACGIH Threshold Limit Values (03 2016)
	STEL	100 ppm	US. ACGIH Threshold Limit Values (03 2016)
methacrylic acid	TWA	20 ppm	US. ACGIH Threshold Limit Values (03 2016)

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

Appropriate Engineering Controls

For monitoring procedures refer for instance to "Empfohlene Analysenverfahren für Arbeitsplatzmessungen", Schriftenreihe der Bundesanstalt für Arbeitsschutz and "NIOSH Manual of Analytical Methods", National Institute for Occupational Safety and Health

Individual protection measures, such as personal protective equipment

General information: No data available.

Eye/face protection:	tightly fitting goggles
Skin Protection	
Hand Protection:	Material: butyl rubber gloves Break-through time: 300 min Guideline: EN 374 Additional Information: Gloves should be replaced regularly, especially after extended contact with the product., For each work-place a suitable glove type has to be selected.
Other:	On handling of larger quantities: face mask, chemical-resistant boots and apron
Respiratory Protection:	Breathing apparatus in case of high concentrations if the limit values like TLV are exceeded, when vapours or aerosols occur Respirator with filter for organic vapour
Hygiene measures:	Take off all contaminated clothing immediately. Store work clothing separately. Follow the usual good standards of occupational hygiene. Clean skin thoroughly after work; apply skin cream.

9. Physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	yellowish to brownish
Odor:	Characteristic
Odor Threshold:	No data available.
pH:	Not applicable
Freezing point:	< 0 °C
Boiling Point:	approx. 100 °C (1.013 hPa)
Flash Point:	10 °C (DIN 51 755) (methyl methacrylate)
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%):	12,5 %(V) (methyl methacrylate)
Flammability Limit - Lower (%):	2,1 %(V) (methyl methacrylate)
Vapor pressure:	approx. 40 hPa (20 °C)
Vapor density (air=1):	> 1 20 °C
Density:	1,21 g/cm ³ (20 °C)
Relative density:	No data available.
Solubility(ies)	
Solubility in Water:	approx. 40 g/l (20 °C)
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	No decomposition if used as directed.
Kinematic viscosity:	No data available.
Dynamic viscosity:	40 - 55 mPa.s (23 °C, Brookfield)
Explosive properties:	No data available.

Oxidizing properties: No data available.

Other information

Dust Explosion Limit, Upper: (methyl methacrylate)

Dust Explosion Limit, Lower: (methyl methacrylate)

Minimum ignition temperature: 430 °C (DIN 51794) (methyl methacrylate)

Self Ignition Temperature: No data available.

10. Stability and reactivity

Reactivity: No data available.

Chemical Stability: No decomposition if used as directed. The product is normally stabilized when delivered. However, it might polymerize producing heat and ignite spontaneously if maximum storage time and/or maximum storage temperature have been substantially exceeded.

Possibility of hazardous reactions: Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions.

Conditions to avoid: Heat and ignition sources, aging, contamination, oxygen free atmosphere.

Incompatible Materials: Peroxides, amines, sulfur compounds, heavy metal ions, alkalis, reducing agents and oxidizing agents.

Hazardous Decomposition Products: None when used as directed.

11. Toxicological information

Information on likely routes of exposure

Inhalation: Relevant route of exposure. Information on effects are given below.

Skin Contact: Relevant route of exposure. Information on effects are given below.

Eye contact: Relevant route of exposure. Information on effects are given below.

Ingestion: If handled correctly, not a relevant route of exposure. Information on effects are given below.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation: Headache. Dizziness.

Skin Contact: Causes skin irritation. May cause allergic skin reaction.

Eye contact: Causes serious eye irritation.

Ingestion: If handled correctly, not a relevant route of exposure. Information on effects are given below.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: Acute toxicity estimate: 3.704 mg/kg

Dermal

Product: Acute toxicity estimate: > 5.000 mg/kg

Inhalation

Product: No data is available on the product itself.

Repeated dose toxicity

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate	NOAEL (Rat(male and female), Oral): 100 mg/kg
Methyl methacrylate	NOAEL (Rat, Inhalation(Vapour)): 25 ppm NOAEL (Rat, Oral): 2000 ppm
methacrylic acid	NOAEL (Rat(male and female), Inhalation, 5 days/weeks, 6 hours/day): 100 ppm Findings: damage to the nasal mucosa

Skin Corrosion/Irritation

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate	OECD Test Guideline 404 (Rabbit): Corrosive , < 3 min Corrosive
Methyl methacrylate	(Rabbit): Irritating.
methacrylic acid	OECD Test Guideline 404 (Rabbit): Corrosive , < 3 min Corrosive

Serious Eye Damage/Eye Irritation

Product: No data available.

Respiratory or Skin Sensitization

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate
Methyl methacrylate

, OECD Test Guideline 429 (Mouse)Skin sensitizer
Not a respiratory sensitizer
Local Lymph Node Assay, OECD TG 429 (Mouse): May cause sensitization by skin contact.

methacrylic acid

, OECD Test Guideline 406 (Guinea Pig)Not a skin sensitizer.
Not a respiratory sensitizer

Carcinogenicity

Product: Contains no ingredient listed as a carcinogen (>0.1%).

Germ Cell Mutagenicity

In vitro

Product: No data available.

Specified substance(s):

methacrylic acid Bacterial reverse mutation assay (OECD TG 471): negative

In vivo

Product: No data available.

Specified substance(s):

methacrylic acid (OECD Test Guideline 478) Inhalation (Mouse)negative

Reproductive toxicity

Product: Contains no ingredient listed as toxic to reproduction (>0.1%).

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate Not classified

Methyl methacrylate Category 3 with respiratory tract irritation.

methacrylic acid Category 3 with respiratory tract irritation.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate Not classified

Methyl methacrylate Not classified

methacrylic acid Not classified

Target Organs

Specific Target Organ Toxicity - Single Exposure: Respiratory system

Aspiration Hazard

Product: No aspiration toxicity classification

Other effects:

There are no toxicological data available for the product as such. Carefully avoid contact with skin and eyes as well as inhalation of product vapours.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC 50 (Oncorhynchus mykiss (rainbow trout), 96 h): > 100 mg/l (own study)

Aquatic Invertebrates

Product: EC 50 (Daphnia magna, 48 h): > 100 mg/l (own study)

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

methacrylic acid NOEC (Danio rerio (zebra fish), 35 d): 10 mg/l

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

methacrylic acid NOEC (Daphnia magna (Water flea), 21 d): 53 mg/l

Toxicity to Aquatic Plants

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate EC 50 (Pseudokirchneriella subcapitata (green algae), 72 h): > 120 mg/l
NOEC (Pseudokirchneriella subcapitata (green algae), 72 h): 30 mg/l

Methyl methacrylate EC 50 (Selenastrum capricornutum (green algae), 72 h): > 100 mg/l
NOEC (Selenastrum capricornutum (green algae), 72 h): > 100 mg/l

methacrylic acid EC 50 (Selenastrum capricornutum (green algae), 72 h): 45 mg/l
NOEC (Selenastrum capricornutum (green algae), 72 h): 8,2 mg/l

Persistence and Degradability

Biodegradation

Product: Readily biodegradable

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: Accumulation in organisms is not expected due to the coefficient of distribution of n-octanol in water (log Pow).

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Specified substance(s):

methacryloyloxyethyl phosphate Log Kow: 1 - < 2,72 30 °C

Methyl methacrylate Log Kow: 1,38

methacrylic acid Log Kow: 0,93

Mobility in soil:

Binding to the solid soil phase, sediment or clarification sludge is not expected. The substance evaporates gradually into the atmosphere from the surface of the water. If the substance does get into the environment, it tends to remain in the compartment it was discharged into.

Other adverse effects:

Prevent substance from entering soil, natural bodies of water and sewer systems.

13. Disposal considerations

Disposal methods:

Waste is hazardous. It must be disposed of in accordance with the regulations after consultation of the competent local authorities and the disposal company in a suitable and licensed facility.

Contaminated Packaging:

Contaminated packaging should ideally be emptied; it can then be recycled after having been decontaminated. Packaging that cannot be cleaned should be disposed of professionally. Uncontaminated packaging may be taken for recycling.

14. Transport information

International Regulations

IATA-DGR

UN/ID No. : UN 2924
Proper shipping name : Flammable liquid, corrosive, n.o.s. STABILIZED
(methyl methacrylate, phosphoric acid esters)
Class : 3
Subsidiary risk : 8
Packing group : II
Labels : 3 (8)
Packing instruction (cargo aircraft) : 363
Packing instruction (passenger aircraft) : 352

IMDG-Code

UN number : UN 2924
Proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S. STABILIZED
(methyl methacrylate, phosphoric acid esters)
Class : 3
Subsidiary risk : 8
Packing group : II
Labels : 3 (8)
EmS Code : F-E, S-C
Marine pollutant : no
Remarks : IMDG Code segregation group 1 - Acids
Clear of living quarters.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. Regulatory information

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

Inventory Status:

Registration, Evaluation and Authorisation of Chemicals (REACH):	preregistered, registered or exempted
US TSCA Inventory:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
Canada NDSL Inventory:	Not on Inventory.
Australia AICS:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory

16. Other information, including date of preparation or last revision

Issue Date: 18.06.2019

Revision Date:	10.06.2019: ARGLO_SUBTYP10.06.2019: ARGLO_EXCOMP10.06.2019: ARGLO_REG
Version #:	1.1
Further Information:	The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is exceeded, the product may polymerize with heat evolution.
Revision Information:	Changes since the last version are highlighted in the margin. This version replaces all previous versions.
Disclaimer:	This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.