1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

ACRIFIX® 1R 0192

Solution of an acrylic polymer in methyl methacrylate

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

Recommended use(s): polymerising adhesive for PLEXIGLAS®

Non-recommended use(s): Applications where liquid monomer is intended to come into contact with skin or nails.

1.3. Details of the supplier of the safety data sheet

Evonik Performance Materials GmbH
Product Stewardship
Kirschenallee
64293 Darmstadt
Germany
+49 6151 18 01

E-Mail: sds-info-epm@evonik.com

Information provided by :
+49 6151 18 40 76

1.4. Emergency telephone number

+49 6151 18 43 42 (Interpreting service available)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

This mixture is classified as hazardous according to GHS

GHS-Classification *As per UN-GHS*

Flammable liquids	Hazard category 2	H225
Caustic burning / irritation of skin	Hazard category 2	H315
Skin Sensitisation	Hazard category 1 B	H317
Specific Target Organ Toxicity - Single exposure (inhalation)	Hazard category 3	H335
Hazardous to the aquatic environment - AcuteHazard	Hazard category 3	H402

2.2. Label elements *As per UN-GHS*

GHS-Labelling

Signal word **Danger**

GHS pictogram

hazard statement	Highly flammable liquid and vapour. (H225) Causes skin irritation. (H315) May cause an allergic skin reaction. (H317) May cause respiratory irritation. (H335) Harmful to aquatic life. (H402)
Precautionary Statement (Prevention)	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. (P210) Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. (P261) Wear protective gloves/protective clothing/eye protection/face protection. (P280)
Precautionary Statement (Response)	IF ON SKIN: Wash with plenty of water/ soap. (P302 + P352)
Precautionary Statement (Disposal)	Dispose of contents/container in accordance with local regulation. (P501)
Hazardous component(s) for labelling	contains: methyl methacrylate diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

2.3. Other hazards

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

3.2. Mixtures

Hazardous Ingredients As per UN-GHS

Component	CAS-No.	Content	Hazard class / Hazard category / Hazard statement
methyl methacrylate	80-62-6	60.0 - 100.0 %	Flam. Liq. 2 ; H225 Skin Irrit. 2 ; H315 Skin Sens. 1B ; H317 STOT SE 3 ; H335 Aquatic Acute 3 ; H402
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	0.1 - < 1.0 %	Skin Sens. 1B ; H317 Repr. 2 ; H361f Aquatic Acute 2 ; H402 Aquatic Chronic 2 ; H411

4. FIRST AID MEASURES

4.1. Description of first aid measures

General advice	First aider needs to protect himself. 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	Wash off immediately with soap and water. If skin irritation occurs consult a physician. Take off all contaminated clothing immediately. Wash clothing before reuse.
Eye contact	Keeping the eyelids apart flush thoroughly with water immediately. If irritation persists, contact a physician.

Ingestion	Do not induce vomiting and seek medical advice immediately. Never give anything by mouth to an unconscious person.

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

Headache, confusion, Causes skin and eye irritation., Skin Sensitisation

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

Symptomatic treatment.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	foam, dry chemical
Extinguishing media which must not be used for safety reasons	High volume water jet

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Assure sufficient ventilation. Use personal protective clothing. Avoid contact with skin, eyes and clothing. Keep away sources of ignition. Use breathing apparatus if exposed to vapours/dust/mist/aerosol. Do not breathe vapours or spray mist. Evacuate personnel to safe areas. Do not eat, drink or smoke when using this product. Wash hands thoroughly with soap and water after handling.

6.2. Environmental precautions

Prevent product from getting into drains/surface water/groundwater. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. 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.

6.4. Reference to other sections

For personal protection see section 8.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling advice	Keep container tightly closed. Provide sufficient ventilation and exhaust at the workplace. No eating, drinking, smoking, or snuffing tobacco at work. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Wash thoroughly after handling. Follow all SDS/label precautions even after container is emptied because it may retain product residues. Do not inhale exhaust fumes, vapors, sprays or aerosols. Keep locked up. The product should only be handled by trained personnel.
Advice on protection against fire and explosion	Keep away from sources of ignition --- No smoking. Take precautionary measures against static discharges. In the event of fire, cool the endangered containers with water. When heated above the flash point and/or during spraying (atomizing), ignitible mixtures may form in air. Use only explosion-proof equipment.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Keep only in the original container at a temperature not exceeding 30 °C. Protect from the action of light. 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. Can polymerize with intense heat release.

7.3. Specific end use(s)

no

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

see section 8.2.

8.2. Exposure 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

Protective measures	Do not breathe vapours. Absolutely avoid contact with the eyes and/or skin. No eating, drinking, smoking, or snuffing tobacco at work.
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. Remove and wash contaminated clothing before re-use.
Respiratory protection	Breathing apparatus in case of high concentrations
Hand protection	butyl rubber gloves (0.3 mm), Break through time ca. 60 min (EN 374) In practice, due to variable exposure conditions, this information can only be an aid to orientation for the selection of a suitable chemical protection glove. In particular, this information does not substitute suitability tests by the end user.
Splash protection	neoprene gloves
General 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.
Eye protection	Tightly fitting safety goggles
Skin and body protection	On handling of larger quantities: face mask, chemical-resistant boots and apron

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Form	viscous
Colour	slightly violet
Odour	ester-like
physical state	liquid
Melting point/range	no data available
Boiling point/range	ca.100 °C (1,013 hPa)
Flash point	8.5 °C (DIN 51 755)
Ignition temperature	430 °C (DIN 51794) (methyl methacrylate)
Impact sensitivity	no data available
Lower explosion limit	2.1 %(V) at 10,5°C / 33,8°F(methyl methacrylate)
Upper explosion limit	12.5 %(V) (methyl methacrylate)
Vapour pressure	ca. 40 hPa (20 °C)

Density	ca. 1.02 g/cm3 (20 °C)
Relative density	no data available
Relative vapour density (related to air)	> 1 (20 °C)
Solubility in water	ca. 16 g/l (20 °C)
Fat solubility	no data available
Solubility (quantitative)	no data available
Solubility (qualitative)	no data available
pH	not applicable
n-Octanol/water partition coefficient	no data available
Viscosity (dynamic)	1,600 - 2,000 mPa·s (20 °C), (Brookfield)
Viscosity (kinematic)	no data available

9.2. Other information

none

10. STABILITY AND REACTIVITY

10.1. Reactivity

see section 10.2.

10.2. Chemical stability

This material is considered stable under specified conditions of storage, shipment and/or use.

10.3. 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.
The same applies to the effect of light or UV-light respectively.

10.4. Conditions to avoid

Ultraviolet light.Solar radiation, heat, heat exposure, spark formation.

10.5. Incompatible materials

Peroxides, amines, sulfur compounds, heavy metal ions, alkalis, reducing agents and oxidizing agents.
Mineral acids.
Free radical initiators.

10.6. Hazardous decomposition products

None when used as directed.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

toxicokinetics, metabolism and distribution	no evidence for hazardous properties (structure-activity-relationships) (analogy)	
Acute Oral Toxicity	LD50 rat, OECD 401, Related to substance: methyl methacrylate	> 5,000 mg/kg
Acute Inhalational Toxicity	LC50 rat, Related to substance: methyl methacrylate	29.8 mg/l

Acute Dermal Toxicity	LD50 rabbit, Related to substance: methyl methacrylate	> 5,000 mg/kg
Caustic burning / irritation of skin	Contact with skin may cause irritations.Related to substance: product	
Serious eye damage/eye irritation	Contact with the eyes may cause irritation.Related to substance: product	
Respiratory/skin sensitization	In sensitization tests on guinea pigs with and without adjuvant, both positive and negative results were found. In humans various types of allergic reactions have been observed (symptoms: headache, eye irritations, skin affections). Related to substance: methyl methacrylate	
Aspiration hazard	not applicable	
Mutagenicity assessment	Positive as well as negative results in *in vitro* mutagenicity/ genotoxicity tests. No experimental indication of genotoxicity *in vivo* available. In summary not mutagenic according to internationally accepted criteria. Related to substance: methyl methacrylate	
Carcinogenicity	Non-carcinogenic in inhalation and feeding studies carried out on rats, mice and dogs. Related to substance: methyl methacrylate	
Reprotoxicity / teratogenicity	No indications of toxic effects were observed in reproduction studies in animals. Related to substance: methyl methacrylate	
Human health hazard assessment	CMR: no	
Specific Target Organ Toxicity - Single exposure	respiratory tract, (irritation)Specific target organ toxicity – single exposure Category 3 (UN-GHS)	
Toxicity on Repeated Administration	rat, inhalation, 2 Years Findings: Damage to mucous membranes in the nose at 400 ppm Related to substance: methyl methacrylate rat, in drinking water, 2 Years Findings: no toxic effects Related to substance: methyl methacrylate	
General information	There are no toxicological data available for the product as such. Avoid contact with the skin and eyes and inhalation of the product vapours.	

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Aquatoxicity, fish	LC50 Oncorhynchus mykiss, rainbow trout, OECD 203, flow through, GLP, 96 h Related to substance: methyl methacrylate	> 79 mg/l
Aquatoxicity, invertebrates	EC50 Daphnia magna, OECD 202, flow through, 48 h Related to substance: methyl methacrylate	69 mg/l
	NOEC Daphnia magna, OECD 202 part 2, flow through, 21 d Related to substance: methyl methacrylate	37 mg/l
Aquatoxicity, algae / aquatic plants	EC3 Scenedesmus quadricauda, DIN 38412 section 9, 8 d Related to substance: methyl methacrylate	37 mg/l
Toxicity in microorganisms	EC0 Pseudomonas putida Related to substance: methyl methacrylate	100 mg/l

12.2. Persistence and degradability

Biodegradability	readily biodegradable, OECD 301 C, 14 d Related to substance: methyl methacrylate	94 %

12.3. Bioaccumulative potential

Bioaccumulation	no evidence for hazardous properties

12.4. Mobility in soil

Mobility	no specific test data available no evidence for hazardous properties (structure-activity-relationships) (analogy)

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment	PBT: no vPvB: no

12.6. Other adverse effects

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

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product	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.
Uncleaned 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

14.1. UN number

see section 14.2.

14.2. UN proper shipping name

Transport on land ADR/GGVSEB
UN 1133 ADHESIVES, 3, II, (D/E)
Hazard no. 33

Transport on land RID/GGVSEB
UN 1133 ADHESIVES, 3, II
Hazard no. 33

Inland waterway transport ADN/GGVSEB (Germany)

UN 1133 ADHESIVES, 3, II

Shipment by sea IMDG/GGVSee

UN number	1133
Class	3
EmS	F-E, S-D
Marine pollutant	No
Packaging group	II
Proper Shipping Name	ADHESIVES

Air transport ICAO/IATA

UN number	1133
Class	3
Packaging group	II
Proper Shipping Name	ADHESIVES

Remarks

ADR	Special provision 640D
RID	Special provision 640D
ADNR	Special provision 640D

14.3. Transport hazard class(es)

see section 14.2.

14.4. Packing group

see section 14.2.

14.5. Environmental hazards

if not mentioned in Point 14.2 then it does not apply

14.6. Special precautions for user

see section 14.2.

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

for transportapproval see regulatory information

15. REGULATORY INFORMATION

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

Classification as per Directive 67/548/EC or Directive 1999/45/EC

Labelling in accordance with directive 1999/45/EC	requires labelling	
Hazardous component(s) for labelling	contains	methyl methacrylate diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide
hazard symbol(s)	F Xi	Highly flammable Irritant
R-phrase(s)	11 37/38 43	Highly flammable. Irritating to respiratory system and skin. May cause sensitisation by skin contact.

National legislation

Occupational restrictions: Note for juveniles. Note for pregnant woman and nursing mothers (EC Directive 92/85/EEC).

	Health	Flammability	Physical Hazard
HMIS-Ratings	2*	3	2
NFPA-Ratings	2	3	2

HMIS Hazard Ratings	NFPA Hazard Ratings
4 = severe	4 = extreme
3 = serious	3 = high
2 = moderate	2 = moderate
1 = slight	1 = slight
0 = minimal	0 = insignificant
N = no rating for powders	N = no rating for powders
* = chronic health hazard	

Status of Registration

REACH (EU)	preregistered, registered or exempted
TSCA (USA)	listed or exempted
DSL (CDN)	listed or exempted
AICS (AUS)	listed or exempted
METI (J)	listed or exempted

16. OTHER INFORMATION

Other 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.

Relevant H phrases from chapter 3

methyl methacrylate

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.

diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

H361f	Suspected of damaging fertility.
H317	May cause an allergic skin reaction.
H402	Harmful to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

References

relevant manuals and publications
own examinations
own toxicological and ecotoxicological studies
toxicological and ecotoxicological studies of other manufacturers
SIAR
OECD-SIDS
RTK public files

Places marked by || have been amended from the last version.

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