

# Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 09/05/2011

Reviewed on 08/22/2011

## 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**

- **Trade name:** **Key# 9522 MMA LV/CR Sealer Resin**

- **Application of the substance / the preparation** Coating

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

Key Resin Company  
4050 Clough Woods Drive  
OH-45103 Batavia /Ohio  
Tel.: +1 513 943-4225  
Fax.: +1 513 943-4255

- **Information department:**

Mr Eric Borglum, Tel.: +1 513 943-4225  
email: eborglum@keyresin.com

- **Emergency telephone number:** Mr. Robert Cain, Tel.: +1 513 943-4225

## 2 Composition/information on ingredients

- **Chemical characterization:** Mixtures

- **Description:** methyl methacrylate resin

- **Dangerous components:**

CAS: 80-62-6 EINECS: 201-297-1	methyl methacrylate Xi R37/38-43; F R11 H225; H315; H317; H335	50-100%
CAS: 38668-48-3 EINECS: 254-075-1	1,1'-(p-tolylimino)dipropan-2-ol T R25; Xi R41 R52/53 H301; H318; H402; H412	< 2.5%
CAS: 2440-22-4 EINECS: 219-470-5	2-(2H-Benotriazol-2-yl)-p-kresol Xi R43 R53 H317; H413	< 2.5%
CAS: 123-81-9 EINECS: 204-653-4	ethylene di(S-thioacetate) Xn R20/21/22; Xi R36; N R51/53 H331; H411; H302; H312; H319; H401	< 2.5%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

## 3 Hazards identification

- **Classification of the substance or mixture**



GHS02 Flame

H225 Highly flammable liquid and vapour.



GHS07

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H333 May be harmful if inhaled.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R37/38-43: Irritating to respiratory system and skin. May cause sensitization by skin contact.

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F; Highly flammable

R11: Highly flammable.

· **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

· **Label elements**

· **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**



Xi Irritant

F Highly flammable

· **Hazard-determining components of labelling:**

methyl methacrylate

· **Risk phrases:**

11 Highly flammable.

37/38 Irritating to respiratory system and skin.

43 May cause sensitization by skin contact.

· **Safety phrases:**

16 Keep away from sources of ignition - No smoking.

23 Do not breathe fumes

24 Avoid contact with skin.

33 Take precautionary measures against static discharges.

37 Wear suitable gloves.

60 This material and its container must be disposed of as hazardous waste.

· **Classification system**

· **NFPA ratings (scale 0-4)**



Health = 1

Fire = 3

Reactivity = 0

## 4 First aid measures

· **General information**

Immediately remove any clothing soiled by the product.

Take affected persons out into the fresh air.

· **After inhalation**

Take affected persons into fresh air and keep quiet.

Seek medical treatment in case of complaints.

· **After skin contact**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing** Seek immediate medical advice.

· **Information for doctor** No particular measures are known - treat according to symptoms.

## 5 Firefighting measures

· **Suitable extinguishing agents** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.

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- **For safety reasons unsuitable extinguishing agents** Water.
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.
- **Protective equipment:** Do not inhale explosion gases or combustion gases.
- **Additional information**  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Ensure adequate ventilation  
Wear protective clothing.
- **Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Do not allow to penetrate the ground/soil.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents
- **Reference to other sections** Clean the accident area carefully.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling**  
Keep receptacles tightly sealed.  
Store in cool, dry place in tightly closed receptacles.  
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Fumes can combine with air to form an explosive mixture.  
Flammable gas-air mixtures may be formed in empty receptacles.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Store in a cool location.  
Keep containers securely closed and dry, store at 5 - 25°C.  
Store only in the original receptacle.  
Provide floor trough without outlet.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Store only outside or in explosion proof rooms.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**  
80-62-6 methyl methacrylate (50-100%)

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PEL	410 mg/m <sup>3</sup> , 100 ppm
REL	410 mg/m <sup>3</sup> , 100 ppm
TLV	Short-term value: 410 mg/m <sup>3</sup> , 100 ppm Long-term value: 205 mg/m <sup>3</sup> , 50 ppm
SEN	

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.  
Immediately remove all soiled and contaminated clothing  
Store protective clothing separately.
- **Breathing equipment:** Use suitable respiratory protective device in case of insufficient ventilation.
- **Recommended filter device for short term use:**



Combination filter A-P2

- **Protection of hands:**



Only use chemical-protective gloves with CE-labelling of category III.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**  
Butyl rubber, BR  
Nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.5$  mm  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Not suitable are gloves made of the following materials:**  
Leather gloves  
Strong gloves
- **Eye protection:**



Tightly sealed goggles.

- **Body protection:** Protective work clothing.

## 9 Physical and chemical properties

- **General Information**

- **Appearance:**

<b>Form:</b>	Fluid
<b>Color:</b>	bluish Cloudy

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· <b>Odor:</b>	Ester-like
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	undetermined
<b>Boiling point/Boiling range:</b>	101°C (214 °F)
· <b>Flash point:</b>	10°C (50 °F) (MMA, DIN 51755)
· <b>Ignition temperature:</b>	430°C (806 °F)
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Explosion limits:</b>	
<b>Lower:</b>	2.1 Vol %
<b>Upper:</b>	12.5 Vol %
· <b>Vapor pressure at 20°C (68 °F):</b>	38.7 hPa (29 mm Hg)
· <b>Density at 20°C (68 °F):</b>	1 g/cm <sup>3</sup>
· <b>Solubility in / Miscibility with</b>	
<b>Water at 20°C (68 °F):</b>	max 16 g/l
· <b>Organic solvents:</b>	Soluble in many organic solvents
· <b>Viscosity:</b>	
<b>dynamic at 23°C (73 °F):</b>	90-150 mPas (Brookfield*)
<b>kinematic at 23°C (73 °F):</b>	27-33 s (DIN 53211/4)
· <b>Other information</b>	* Spindel II, 12 U/min

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:**
  - acids
  - strong oxidizing agents
- **Hazardous decomposition products:**
  - in the event of fire:
  - toxic gases and vapours
  - Flammable gases/vapors

## 11 Toxicological information

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

### 80-62-6 methyl methacrylate

Oral	LD50	> 5000 mg/kg (rat)
Dermal	DNEL Langzeit	74.3 mg/m <sup>3</sup> (-)
	LD50	> 5000 mg/kg (rab)
Inhalative	DNEL Langzeit	210 mg/m <sup>3</sup> (-)
	LC50/4 h	29.8 mg/l (rat)

### 38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol

Oral	LD50	100 mg/kg (rat)
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- **Primary irritant effect:**
  - **on the skin:** Irritant to skin and mucous membranes.
  - **on the eye:** No irritating effect.
- **Sensitization:** Sensitization possible through skin contact.

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**· Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:  
Irritant

## 12 Ecological information

**· Aquatic toxicity:**

**80-62-6 methyl methacrylate**

Algentoxizität	> 110 mg/l (Selenastrum capricornutum) (EC50/72h), OECD 201)
BSB5-Wert	0.14 g/g (-)
Bakterientoxizität	100 mg/l (Pseudomonas putida) (EC3(16h))
Daphnientoxizität	69 mg/l (Daphnia magna) (EC50(48h), OECD 202)
Fischttoxizität	> 79 mg/l (Onchorhynchus mykiss) (LC50 (96h) OECD 203)
NOEC	9.4 mg/l (Danio rerio (Zebrabärbling)) (OECD 210 fish early life stage test)
	37 mg/l (Daphnia magna) (OECD 202 Part 2 , 21d)
PNEC Langzeit Wasser	0.94 mg/l (-)

**38668-48-3 1,1'-(p-tolylimino)dipropan-2-ol**

BSB-5	11 mg O2/g (-)
CSB	2360 mg O2/g (-)
Daphnientoxizität	28.8 mg/l (Daphnia magna) (EC50 (48h))
Fischttoxizität	17 mg/l (Danio rerio (Zebrabärbling)) (LC50 (96h))

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Ecotoxicological effects:**

80-62-6 Methylmethacrylat  
(Literatur)

LC50 Oncorhynchus mykiss >79 mg/l/96h OECD 203/ISO7346/EEC84/449/V,C1

EC50 Daphnia magna 69 mg/l/48h OECD 202/ISO6341/EEC84/449/V,C2

EC3 Scenedesmus quadricauda 37 mg/l/8d DIN 38412 T.9

EC0 Pseudomonas putida 100 mg/l

Not determined

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

## 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation** Must be specially treated adhering to official regulations.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

· **UN-Number**

· **DOT, ADR, IMDG, IATA**

UN1866

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· **UN proper shipping name**  
· **DOT, IATA** RESIN SOLUTION  
· **ADR** 1866 RESIN SOLUTION  
· **IMDG** RESIN SOLUTION (METHYL METHACRYLATE MONOMER, STABILIZED)

· **Transport hazard class(es)**  
· **DOT, IMDG, IATA**



· **Class** 3 Flammable liquids.  
· **Label** 3

· **ADR**



· **Class** 3 (F1) Flammable liquids  
· **Label** 3

· **Packing group**  
· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards:**  
· **Marine pollutant:** No

· **Special precautions for user** Warning: Flammable liquids  
· **Danger code (Kemler):** 33  
· **EMS Number:** F-E,S-E

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **UN "Model Regulation":** UN1866, RESIN SOLUTION, 3, II

### 15 Regulatory information

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

80-62-6	methyl methacrylate	E;NL
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· **IARC (International Agency for Research on Cancer)**

80-62-6	methyl methacrylate	3
128-37-0	2,6-di-tert-butyl-p-cresol	3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

80-62-6	methyl methacrylate	A4
128-37-0	2,6-di-tert-butyl-p-cresol	A4

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

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· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Markings according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**



*Xi Irritant*  
*F Highly flammable*

· **Hazard-determining components of labelling:**

methyl methacrylate

· **Risk phrases:**

- 11 Highly flammable.
- 37/38 Irritating to respiratory system and skin.
- 43 May cause sensitization by skin contact.

· **Safety phrases:**

- 16 Keep away from sources of ignition - No smoking.
- 23 Do not breathe fumes
- 24 Avoid contact with skin.
- 33 Take precautionary measures against static discharges.
- 37 Wear suitable gloves.
- 60 This material and its container must be disposed of as hazardous waste.

· **National regulations**

· **Technical instructions (air):**

· **VOC USA % 0.1 g/l / 0.00 lb/gl**

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

· **Sara**

· **Section 355 (Extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

80-62-6 | methyl methacrylate

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Changes made since last issue dated 24.04.2010 at the following points: \*

· **Relevant phrases**

- H225 Highly flammable liquid and vapour.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.

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- H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H319 Causes serious eye irritation.  
 H331 Toxic if inhaled.  
 H335 May cause respiratory irritation.  
 H401 Toxic to aquatic life.  
 H402 Harmful to aquatic life.  
 H411 Toxic to aquatic life with long lasting effects.  
 H412 Harmful to aquatic life with long lasting effects.  
 H413 May cause long lasting harmful effects to aquatic life.
- R11 Highly flammable.  
 R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
 R25 Toxic if swallowed.  
 R36 Irritating to eyes.  
 R37/38 Irritating to respiratory system and skin.  
 R41 Risk of serious damage to eyes.  
 R43 May cause sensitization by skin contact.  
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment  
 R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment  
 R53 May cause long-term adverse effects in the aquatic environment.

· **Department issuing MSDS:**

IGG-AD Ingenieurbüro für Gefahrstoff- und Gefahrgutberatung  
 Bismarckstraße 10  
 D-68623 Lampertheim  
 Fax: 0049-(0)6206-58422      <http://www.igg-ad.de>      [info@igg-ad.de](mailto:info@igg-ad.de)

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· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 ICAO: International Civil Aviation Organization  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 NFPA: National Fire Protection Association (USA)  
 MAL-Code: Måleteknisk Arbejdshygiejnisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent

· **\* Data compared to the previous version altered.**