

# Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 09/05/2011

Reviewed on 03/21/2011

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

· **Product identifier**

· **Trade name:** **Key# 9114 MMA Crack sealer**

· **Application of the substance / the preparation** Coating material

· **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:** Resin mixture.

· **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: 868-77-9 EINECS: 212-782-2	2-hydroxyethyl methacrylate  Xi R36/38-43  H315; H319; H317	2.5-10%
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: 150-76-5 EINECS: 205-769-8	mequinol  Xn R22;  Xi R36-43  H302; H319; H317	< 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.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H313 May be harmful in contact with skin.

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

2-hydroxyethyl methacrylate

· **Risk phrases:**

11 Highly flammable.

37/38 Irritating to respiratory system and skin.

43 May cause sensitization by skin contact.

· **Safety phrases:**

9 Keep container in a well-ventilated place.

16 Keep away from sources of ignition - No smoking.

23 Do not breathe fumes

24 Avoid contact with skin.

28 After contact with skin, wash immediately with plenty of soap and water

33 Take precautionary measures against static discharges.

37 Wear suitable gloves.

43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

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** Take affected persons out into the fresh air.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** 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** Rinse out mouth and then drink plenty of water.
- **Information for doctor** No particular measures are known - treat according to symptoms.
- **Danger** Condition may deteriorate with alcohol consumption.

## 5 Firefighting measures

· **Suitable extinguishing agents**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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- **For safety reasons unsuitable extinguishing agents** Water with full jet.
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.
- **Protective equipment:** Wear self-contained respiratory protective device.
- **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**  
Keep people at a distance and stay upwind.  
Wear protective equipment. Keep unprotected persons away.  
Keep away from ignition sources
- **Environmental precautions:**  
Do not allow to penetrate the ground/soil.  
Prevent seepage into sewage system, workpits and cellars.
- **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**  
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).  
Keep receptacles tightly sealed.  
Store in cool, dry place in tightly closed receptacles.  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
Fumes can combine with air to form an explosive mixture.  
Flammable gas-air mixtures may be formed in empty receptacles.  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Suitable material for receptacles and pipes: glass.  
Suitable material for receptacles and pipes: Aluminium.  
Suitable material for receptacles and pipes: steel or stainless steel.  
Store only in the original receptacle.  
Provide solvent resistant, sealed floor.  
Store in a cool location.
- **Information about storage in one common storage facility:**  
Do not store together with oxidizing or spontaneously flammable materials.  
Store away from foodstuffs.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.
- **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.

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<b>Components with limit values that require monitoring at the workplace:</b>	
<b>80-62-6 methyl methacrylate (50-100%)</b>	
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
<b>Paraffine (&lt; 2.5%)</b>	
REL	2 mg/m <sup>3</sup>
TLV	2 mg/m <sup>3</sup>

· **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.

Do not inhale gases / fumes / aerosols.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Recommended filter device for short term use:**



Filter AX

· **Protection of hands:**



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

Protective gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

Butyl rubber, BR

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.

· **As protection from splashes gloves made of the following materials are suitable: PVC gloves**

· **Not suitable are gloves made of the following materials:**

Strong gloves

Leather gloves

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· **Eye protection:**



Goggles recommended during refilling.

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

## 9 Physical and chemical properties

· **General Information**

· **Appearance:**

· <b>Form:</b>	Fluid
· <b>Color:</b>	Colorless
· <b>Odor:</b>	Ester-like

· **Change in condition**

· <b>Melting point/Melting range:</b>	undetermined
· <b>Boiling point/Boiling range:</b>	101°C (214 °F)

· **Flash point:** 10°C (50 °F) (DIN 53213)

· **Ignition temperature:** 430°C (806 °F)

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

· <b>Lower:</b>	2.1 Vol %
· <b>Upper:</b>	12.5 Vol %

· **Vapor pressure at 20°C (68 °F):** 47 hPa (35 mm Hg)

· **Density at 20°C (68 °F):** 1 g/cm<sup>3</sup> (8.345 lbs/gal) (ISO 2811-2)

· **Solvent content:**

· **Organic solvents:** 0.0 %

· **Other information** No further relevant information available.

## 10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Incompatible materials:**

strong oxidizing agents  
strong acids

· **Hazardous decomposition products:** Flammable gases/vapors

## 11 Toxicological information

· **Acute toxicity:**

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

**80-62-6 methyl methacrylate**

Dermal	LD50	> 5000 mg/kg (rab)
Inhalative	LC50/4 h	7093 mg/l (rat)

**868-77-9 2-hydroxyethyl methacrylate**

Dermal	LD50	> 5000 mg/kg (rab)
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- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** slight irritative effect possible
- **Sensitization:** Sensitization possible through skin contact.
- **Subacute to chronic toxicity:**  
no carcinogenic effect admits  
no mutagenic effect admits  
no reproduction-toxic effect admits
- **Additional toxicological information:**  
Inhalation of concentrated vapors as well as oral intake will lead to anaesthesia-like conditions and headache, dizziness, etc.  
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

- **Acquatic toxicity:**

**80-62-6 methyl methacrylate**

BSB5-Wert	0.14 g/g (-)
EC0	100 mg/l ( <i>Pseudomonas putida</i> )
EC3	(192h) 37 mg/l ( <i>Scenedesmus quadricauda</i> )
EC50	(96h) 170 mg/l ( <i>Selenastrum capricornutum</i> ) (48h) 69 mg/l ( <i>daphnia</i> )
LC50	350 mg/l ( <i>Leuciscus idus</i> )
LC50 (96h)	>79 mg/l ( <i>Onchorhynchus mykiss</i> ) 232 mg/l ( <i>Lepomis macrochirus (bluegill)</i> ) 277 mg/l ( <i>Carassius auratus (Goldfisch)</i> )

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

BSB-5	11 mg O <sub>2</sub> /g (-)
CSB	2360 mg O <sub>2</sub> /g (-)
EC50	(48h) 28.8 mg/l ( <i>Daphnia magna</i> )

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

## 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.

USA

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### 14 Transport information

· UN-Number	UN1866
· DOT	1866
· ADR, IMDG, IATA	
· UN proper shipping name	RESIN SOLUTION
· DOT, IATA	1866 RESIN SOLUTION
· ADR	RESIN SOLUTION (METHYL METHACRYLATE MONOMER, STABILIZED)
· IMDG	
· Transport hazard class(es)	
· DOT, IMDG, IATA	
	
· Class	3 Flammable liquids.
· Label	3
· ADR	
	
· Class	3 (F1) Flammable liquids
· Label	3
· Packing group	II
· DOT, ADR, IMDG, IATA	
· 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.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	UN1866, RESIN SOLUTION, 3, II

### 15 Regulatory information

· **Carcinogenity categories**

· **EPA (Environmental Protection Agency)**

80-62-6	methyl methacrylate	NL
111-76-2	2-butoxyethanol	CBD

· **IARC (International Agency for Research on Cancer)**

80-62-6	methyl methacrylate	3
128-37-0	2,6-di-tert-butyl-p-cresol	3
111-76-2	2-butoxyethanol	3

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· **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
111-76-2	2-butoxyethanol	A3

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

128-37-0	2,6-di-tert-butyl-p-cresol	4
111-76-2	2-butoxyethanol	4

· **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  
2-hydroxyethyl methacrylate

· **Risk phrases:**

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

· **Safety phrases:**

9 Keep container in a well-ventilated place.  
16 Keep away from sources of ignition - No smoking.  
23 Do not breathe fumes  
24 Avoid contact with skin.  
28 After contact with skin, wash immediately with plenty of soap and water  
33 Take precautionary measures against static discharges.  
37 Wear suitable gloves.  
43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.  
60 This material and its container must be disposed of as hazardous waste.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
I	< 2,5
NK	50-100

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **Sara**

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

None of the ingredients is listed.

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

80-62-6	methyl methacrylate
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· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.
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· **Chemicals known to cause cancer:**

None of the ingredients is listed.
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### 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.*

· **Relevant phrases**

H225 Highly flammable liquid and vapour.  
 H301 Toxic if swallowed.  
 H302 Harmful if swallowed.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H319 Causes serious eye irritation.  
 H335 May cause respiratory irritation.  
 H402 Harmful to aquatic life.  
 H412 Harmful to aquatic life with long lasting effects.

R11 Highly flammable.  
 R22 Harmful if swallowed.  
 R25 Toxic if swallowed.  
 R36 Irritating to eyes.  
 R36/38 Irritating to eyes and skin.  
 R37/38 Irritating to respiratory system and skin.  
 R41 Risk of serious damage to eyes.  
 R43 May cause sensitization by skin contact.  
 R52/53 Harmful to aquatic organisms, 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)

· **Contact:**

Dr. U. Prinz ([u.prinz@igg-ad.de](mailto:u.prinz@igg-ad.de))  
 Dipl.-Chem. H. Hinse ([heidrun.hinse@igg-ad.de](mailto:heidrun.hinse@igg-ad.de))

· **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.**