# Poly(maleic acid) 50% aqueous solution
## Safety Data Sheet

**Date of issue:** 01/16/2018  
**Revision date:** 01/16/2018  
**Version:** 1.1

### SECTION 1: Identification

**1.1. Identification**

<table>
<thead>
<tr>
<th>Product form</th>
<th>Mixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>Poly(maleic acid) 50% aqueous solution</td>
</tr>
<tr>
<td><strong>CAS-No.</strong></td>
<td>26099-09-2</td>
</tr>
<tr>
<td><strong>Product code</strong></td>
<td>09732</td>
</tr>
</tbody>
</table>

**1.2. Recommended use and restrictions on use**

- **Recommended use**
  - Use as laboratory reagent, Manufacture of substances

**1.3. Supplier**

**Polysciences**

400 Valley Road  
Warrington, PA 18976 - United States  
T +1 215 343 6484 - F +1 215 343 0214  
info@polysciences.com - www.polysciences.com

**1.4. Emergency telephone number**

- **Emergency number**
  - +1 215 378 4526

### SECTION 2: Hazard(s) identification

**2.1. Classification of the substance or mixture**

**GHS-US classification**

- **Corrosive to metals**
  - Category 1
  - **H290** - May be corrosive to metals
- **Serious eye damage/eye irritation**
  - Category 2A
  - **H319** - Causes serious eye irritation

**Full text of H statements : see section 16**

**2.2. GHS Label elements, including precautionary statements**

**GHS-US labeling**

- **Hazard pictograms (GHS-US):**
  - ![GHS05](image)

<table>
<thead>
<tr>
<th><strong>Signal word (GHS-US):</strong></th>
<th>Warning</th>
</tr>
</thead>
</table>
| **Hazard statements (GHS-US):** | H290 - May be corrosive to metals  
H319 - Causes serious eye irritation |
| **Precautionary statements (GHS-US):** | P234 - Keep only in original container  
P264 - Wash hands, forearms and face thoroughly after handling  
P280 - Wear eye protection, face protection, face shield, protective gloves, protective clothing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P390 - Absorb spillage to prevent material damage  
P406 - Store in corrosive resistant container with a resistant inner liner. |

**2.3. Other hazards which do not result in classification**

No additional information available

**2.4. Unknown acute toxicity (GHS US)**

Not applicable

### SECTION 3: Composition/Information on ingredients

**3.1. Substances**

Not applicable
3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
</table>
| Polymaleic acid | (CAS-No.) 26099-09-2 | 30 - 60 | Met. Corr. 1, H290  
                        |                    |      | Eye Irrit. 2A, H319                  |
| maleic acid   | (CAS-No.) 110-16-7  | 1 - 5 | Acute Tox. 4 (Oral), H302  
                        |                    |      | Skin Irrit. 2, H315                   
                        |                    |      | Eye Irrit. 2, H319                   
                        |                    |      | Skin Sens. 1, H317                    
                        |                    |      | STOT SE 3, H335                       |

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after eye contact : Eye irritation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Do not expose to temperatures exceeding 50 °C/ 122 °F. Protect from sunlight. Store in original container or corrosive resistant and/or lined container. Store in corrosive resistant container with a resistant inner liner. Keep only in original container. Store in a well-ventilated place. Keep cool.

Incompatible materials: Metals.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Control parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>maleic acid (110-16-7)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Polymaleic acid (26099-09-2)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection: nitrile rubber gloves. Protective gloves made of PVC

Eye protection: Chemical goggles or face shield. Safety glasses

Skin and body protection: Chemical resistant apron. Chemical resistant safety shoes

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>amber</td>
</tr>
<tr>
<td>Odor</td>
<td>slight</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>&lt; 2</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>100 - 102 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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Solubility : No data available
Log Pow : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosion limits : No data available
Explosive properties : No data available
Oxidizing properties : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
Strong bases. Oxidizing agent. May be corrosive to metals. Metals.

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

<table>
<thead>
<tr>
<th>Poly(maleic acid) 50% aqueous solution (26099-09-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>maleic acid (110-16-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
pH: < 2

Serious eye damage/irritation : Causes serious eye irritation.
pH: < 2

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified
Symptoms/effects after eye contact : Eye irritation.
**SECTION 12: Ecological information**

**12.1. Toxicity**

Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

**12.2. Persistence and degradability**

No additional information available.

**12.3. Bioaccumulative potential**

No additional information available.

**12.4. Mobility in soil**

No additional information available.

**12.5. Other adverse effects**

Effect on the global warming: No known effects from this product.

GWPmix comment: No known effects from this product.

**SECTION 13: Disposal considerations**

**13.1. Disposal methods**

Waste treatment methods: Dispose of contents/container in accordance with licensed collector’s sorting instructions.

**SECTION 14: Transport information**

**Department of Transportation (DOT)**

In accordance with DOT

Transport document description: UN3265 Corrosive liquid, acidic, organic, n.o.s., 8, III

UN-No.(DOT): UN3265

Proper Shipping Name (DOT): Corrosive liquid, acidic, organic, n.o.s.

Class (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT): III - Minor Danger

Hazard labels (DOT): 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx): 203

DOT Packaging Bulk (49 CFR 173.xxx): 241

DOT Symbols: G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102): IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31H21 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx): 154

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 60 L
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DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”
Emergency Response Guide (ERG) Number: 153
Other information: No supplementary information available.

Transportation of Dangerous Goods
Not applicable

Transport by sea
Transport document description (IMDG): UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., 8, III
UN-No. (IMDG): 3265
Proper Shipping Name (IMDG): CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Class (IMDG): 8 - Corrosive substances
Packing group (IMDG): III - substances presenting low danger
Limited quantities (IMDG): 5 L

Air transport
Transport document description (IATA): UN 3265 Corrosive liquid, acidic, organic, n.o.s., 8, III
UN-No. (IATA): 3265
Proper Shipping Name (IATA): Corrosive liquid, acidic, organic, n.o.s.
Class (IATA): 8 - Corrosives
Packing group (IATA): III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

maleic acid (110-16-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporting requirements of the United States SARA Section 313
CERCLA RQ: 5000 lb

Polymaleic acid (26099-09-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).

15.2. International regulations

CANADA

maleic acid (110-16-7)
Listed on the Canadian DSL (Domestic Substances List)

Polymaleic acid (26099-09-2)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
No additional information available

National regulations
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Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

maleic acid (110-16-7)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Revision date : 01/16/2018

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H290</th>
<th>May be corrosive to metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should therefore be construed as guaranteeing any specific property of the product.