

**1 Identification of the substance/mixture and of the company**

- **Product identifier**
- **Trade name:** KMPR Series Resists
- **Product number:** Y211045, Y211055, Y211064, Y211066, Y211067, Y211029
- **Application of the substance / the preparation** Photoresist
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
MicroChem Corp.  
90 Oak Street  
P.O. Box 426  
Newton, MA 02464-0002 USA
- **Information department:**  
Product Safety  
Email: [productsafety@microchem.com](mailto:productsafety@microchem.com)
- **Emergency telephone number:**  
MicroChem Corp : 617-965-5511  
Chemtrec USA Emergency : 800-424-9300  
Chemtrec International Emergency : 703-527-3887

**2 Hazards identification**

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3      H226      Flammable liquid and vapor.



GHS08 Health hazard

Muta. 2      H341      Suspected of causing genetic defects.



GHS09 Environment

Aquatic Chronic 2 H411      Toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4      H312      Harmful in contact with skin.  
 Skin Irrit. 2      H315      Causes skin irritation.  
 Eye Irrit. 2A      H319      Causes serious eye irritation.  
 Skin Sens. 1      H317      May cause an allergic skin reaction.  
 STOT SE 3      H335-H336      May cause respiratory irritation. May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonized System (GHS).

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Trade name: **KMPR Series Resists**

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· **Hazard pictograms**

GHS02 GHS07 GHS08 GHS09

· **Signal word** Warning· **Hazard-determining components of labelling:**

Cyclopentanone

Epoxy Resin (CAS Proprietary)

Aromatic sulfonium hexafluoroantimonate salt

Bis-triarylsulfonium hexafluoroantimonate salt

· **Hazard statements**

H226 Flammable liquid and vapor.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H341 Suspected of causing genetic defects.

H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

65 percent of the mixture consists of ingredient(s) of unknown toxicity.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P233 Keep container tightly closed.

P273 Avoid release to the environment.

P201 Obtain special instructions before use.

P305+P351+P338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.P312 Call a **POISON CENTER** or doctor/physician if you feel unwell.

P363 Wash contaminated clothing before reuse.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P370+P378 In case of fire: Use for extinction: Alcohol resistant foam.

P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.

P370+P378 In case of fire: Use for extinction: Carbon dioxide.

P391 Collect spillage.

P403+P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**· **NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 3

Reactivity = 0

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· **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**3 Composition/information on ingredients**

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

	Epoxy Resin (CAS Proprietary)	40-70%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	
120-92-3	Cyclopentanone	20-55%
	⚠ Flam. Liq. 3, H226; ⚠ Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335-H336	
107-98-2	1-methoxy-2-propanol	2-8%
	⚠ Flam. Liq. 3, H226; ⚠ STOT RE 2, H373; ⚠ STOT SE 3, H335	
108-32-7	Propylene carbonate	1-6%
	⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	
71449-78-0	Aromatic sulfonium hexafluoroantimonate salt	1-5%
	⚠ Muta. 2, H341; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sens. 1, H317	
89452-37-9	Bis-triarylsulfonium hexafluoroantimonate salt	1-5%
	⚠ Muta. 2, H341; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sens. 1, H317	

**4 First aid measures**

- **Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.  
Immediately remove any clothing soiled by the product.
- **After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
Seek medical treatment.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
Do not induce vomiting unless instructed to do so by a physician. Wash out mouth with water and keep person at rest. Seek immediate medical attention.

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- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Alcohol resistant foam  
Fire-extinguishing powder  
Carbon dioxide
- **For safety reasons unsuitable extinguishing agents:**  
Water with full jet  
Water
- **Special hazards arising from the substance or mixture**  
Containers may explode due to pressure increase when container is exposed to extreme heat. Vapors may travel a considerable distance to a source of ignition and flash back along vapor trail.
- **Advice for firefighters**
- **Protective equipment:** Wear SCBA.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Keep away from ignition sources
- **Environmental precautions:**  
Do not allow product to reach sewage system or any drains.  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **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  
Dispose contaminated material as waste according to Section 13.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaust at the workplace.  
Store in cool, dry place in tightly closed containers.  
Keep away from heat and direct sunlight.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.

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Protect against electrostatic charges.

Use explosion-proof apparatus / fittings and spark-proof tools.

· **Conditions for safe storage, including any incompatibilities**· **Storage:**· **Requirements to be met by storerooms and containers:**

Store in a cool location.

Due to photo-sensitivity, store product in brown-glass or stainless steel receptacles.

· **Information about storage in one common storage facility:**

Do not store together with alkalis (caustic solutions).

Do not store together with oxidizing and acidic materials.

Do not store together with amines.

· **Further information about storage conditions:**

Protect from exposure to the light.

Keep container well-sealed in cool, dry location.

Protect from heat and direct sunlight.

Store under lock and key and with access restricted to technical experts or their assistants only.

· **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.· **Control parameters**· **Components with limit values that require monitoring at the workplace:****107-98-2 1-methoxy-2-propanol**

REL

Short-term value: 540 mg/m<sup>3</sup>, 150 ppmLong-term value: 360 mg/m<sup>3</sup>, 100 ppm

TLV

Short-term value: (553) NIC-369 mg/m<sup>3</sup>, (150) NIC-100 ppmLong-term value: (369) NIC-184 mg/m<sup>3</sup>, (100) NIC-50 ppm

NIC-A4

**71449-78-0 Aromatic sulfonium hexafluoroantimonate salt**

NIOSH IDLH

ACGIH TLV TWA: 0.5 mg/m<sup>3</sup>50 mg/m<sup>3</sup>

OSHA PEL

0.5 mg/m<sup>3</sup>**89452-37-9 Bis-triarylsulfonium hexafluoroantimonate salt**

ACGIH TLV TWA

0.5 mg/m<sup>3</sup>

NIOSH IDLH

50 mg/m<sup>3</sup>

OSHA PEL

0.5 mg/m<sup>3</sup>· **Additional information:** The lists that were valid during the creation were used as basis.· **Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

Keep away from food and beverages.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Do not inhale gases / fumes / aerosols.

Do not eat or drink while working.

· **Respiratory equipment:**

In case of low exposure, use cartridge respirator. In case of intensive or longer exposure, use SCBA.

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· **Protection of hands:**

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.

Contact glove manufacturer for break-through time.

· **Material of gloves**

Nitrile rubber, NBR

Nitrile rubber, NBR

· **Penetration time of glove material** Contact glove manufacture for break-through time.

· **Eye protection:**

Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	Clear to light yellow
· <b>Odor:</b>	Slightly sweet
· <b>Odour threshold:</b>	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· <b>Melting point/Melting range:</b>	Undetermined.
· <b>Boiling point/Boiling range:</b>	130 °C (266 °F)

· **Flash point:** 30 °C (86 °F)

· **Flammability (solid, gaseous):** Not applicable.

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

· **Decomposition temperature:** Not determined.

· **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>	Not determined.
· <b>Upper:</b>	Not determined.

· **Vapor pressure:** Not determined.

· <b>Density:</b>	Not determined.
· <b>Relative density</b>	See Table 1 Other Information
· <b>Vapour density</b>	Not determined.

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· **Evaporation rate** Not determined.· **Solubility in / Miscibility with Water:** Water miscible No· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:**· **Dynamic:** Not determined.· **Kinematic:** Not determined.· **Other information** Table 1. Product specific gravity and VOC data.

Name	Number	Sp. Grav.	Vol.(%by wt.)	VOC (g/L)
KMPR 1002	Y211029	1.02	69-72	710
KMPR 1005	Y211045	1.07	54-56	550
KMPR 1010	Y211055	1.10	44-46	450
KMPR 1025	Y211064	1.20	35-37	360
KMPR 1035	Y211066	1.21	33-35	340
KMPR 1050	Y211067	1.22	32-35	340

**10 Stability and reactivity**· **Reactivity**· **Chemical stability** Stable under normal use conditions· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.· **Possibility of hazardous reactions** Exothermic polymerization.· **Conditions to avoid** Heat, flames and sparks. Extremes of temperature and direct sunlight.· **Incompatible materials:**

Strong Oxidizing Agents, Strong Bases, Strong Acids, Strong Reducing Agents, Iron, Hydrazine

· **Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Corrosive gases/vapors

Danger of toxic pyrolysis products.

Antimony oxide

**11 Toxicological information**· **Information on toxicological effects**· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:****120-92-3 Cyclopentanone**

Oral	LD50	1180 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rabbit)
Inhalative	LC50/4 h	>19.5 mg/l (rat)

**107-98-2 1-methoxy-2-propanol**

Oral	LD50	5660 mg/kg (rat)
Dermal	LD50	13000 mg/kg (rabbit)
Inhalative	LC50/4 h	54.6 mg/l (rat)

**108-32-7 Propylene carbonate**

Oral	LD50	29000 mg/kg (rat)
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Trade name: **KMPR Series Resists**

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Dermal	LD50	>20.000 mg/kg (rabbit)
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- **Specific symptoms in biological assay:**

Mixture of triarylsulfonium/hexafluoroantimonate salts (CAS 71449-78-0 and 89452-37-9) in propylene carbonate (CAS 108-32-7):

This material was mutagenic in the Ames bacterial assay. It is inactive, however, in the in vivo mouse micronucleus test.

Propylene carbonate (CAS 108-32-7):

This substance had a negative Ames test with or without metabolic activation.

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritating effect.

- **Sensitization:** Sensitization possible through skin contact.

- **Experience with humans:** No further relevant information available.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant

- **Carcinogenic categories**

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

None of the ingredients are listed.

- **NTP (National Toxicology Program)**

None of the ingredients are listed.

## 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

**71449-78-0 Aromatic sulfonium hexafluoroantimonate salt**

EC50/17 h >10000 mg/l (*Pseudomonas putida*)

EC50/48 h >500 mg/l (*daphnia magna*)

EC50/72 h >500 mg/l (*scenedesmus subspicatus*)

**89452-37-9 Bis-triarylsulfonium hexafluoroantimonate salt**

EC50/17 h >10000 mg/l (*Pseudomonas putida*)

EC50/48 h >500 mg/l (*daphnia magna*)

EC50/72 h >500 mg/l (*scenedesmus subspicatus*)

**120-92-3 Cyclopentanone**

EC50/48 h 100 mg/l (*daphnia magna*)

EC50/72 h >100 mg/l (*scenedesmus subspicatus*)

LC50/96 h >100 mg/l (fish)

**107-98-2 1-methoxy-2-propanol**

EC50/96 hr 23300 mg/l (*daphnia magna*)

>1000 mg/l (green algae)

LC50/96 h 20800 mg/l (*Pimephales promelas*)

**108-32-7 Propylene carbonate**

EC50/17 h >10000 mg/l (*Pseudomonas putida*)

EC50/48 h >500 mg/l (*daphnia magna*)

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Trade name: **KMPR Series Resists**

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EC50/72 h >500 mg/l (*scenedesmus subspicatus*)LC50/96 h 2200 mg/l (*Leuciscus idus*)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:**
  - Toxic for fish
  - Harmful to fish
- **Additional ecological information:**
- **General notes:**
  - Water hazard class 1 (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.
  - Also poisonous for fish and plankton in water bodies.
  - Toxic for aquatic organisms
  - Harmful to aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:**
  - Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.
  - Disposal must be made in accordance with Federal, State, and Local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.

**14 Transport information**


- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>   | UN1866   |
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT, IATA</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG</b></li> </ul> | RESIN SOLUTION, mixture<br>1866 RESIN SOLUTION, mixture<br>RESIN SOLUTION, mixture, MARINE POLLUTANT |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>   |  |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> </ul>  | 3 Flammable liquids.   |



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· <b>Label</b>	3
· <b>ADR, IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids
· <b>Label</b>	3
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	III
· <b>Environmental hazards:</b>	Product contains environmentally hazardous substances: Aromatic sulfonium hexafluoroantimonate salt
· <b>Marine pollutant:</b>	Yes
· <b>Special precautions for user</b>	Warning: Flammable liquids
· <b>Danger code (Kemler):</b>	30
· <b>EMS Number:</b>	F-E,S-D
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	
Not applicable.	
· <b>UN "Model Regulation":</b>	UN1866, RESIN SOLUTION, mixture, 3, III

**15 Regulatory information**

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

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

None of the ingredients are listed.

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

71449-78-0 | Aromatic sulfonium hexafluoroantimonate salt

89452-37-9 | Bis-triarylsulfonium hexafluoroantimonate salt

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

All ingredients are listed or comply with TSCA regulations.

· **Proposition 65**· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

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· <b>TLV (Threshold Limit Value established by ACGIH)</b>	
None of the ingredients are listed.	
· <b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b>	
None of the ingredients are listed.	
· <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>	
None of the ingredients are listed.	
· <b>Massachusetts State Right To Know List</b>	
120-92-3	Cyclopentanone
107-98-2	1-methoxy-2-propanol
· <b>New Jersey State Right To Know List</b>	
120-92-3	Cyclopentanone
107-98-2	1-methoxy-2-propanol
· <b>Pennsylvania Hazardous Substances List</b>	
120-92-3	Cyclopentanone
107-98-2	1-methoxy-2-propanol

- **California SCAQMD Rule 443.1 VOC's:** See Table 1 - Section 9
- **GHS label elements** The product is classified and labelled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02   GHS07   GHS08   GHS09

- **Signal word** Warning
- **Hazard-determining components of labelling:**  
Cyclopentanone  
Epoxy Resin (CAS Proprietary)  
Aromatic sulfonium hexafluoroantimonate salt  
Bis-triarylsulfonium hexafluoroantimonate salt

- **Hazard statements**  
H226 Flammable liquid and vapor.  
H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H341 Suspected of causing genetic defects.  
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.  
H411 Toxic to aquatic life with long lasting effects.  
65 percent of the mixture consists of ingredient(s) of unknown toxicity.

- **Precautionary statements**  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P233 Keep container tightly closed.  
P273 Avoid release to the environment.  
P201 Obtain special instructions before use.  
P305+P351+P338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P312	Call a <b>POISON CENTER</b> or doctor/physician if you feel unwell.
P363	Wash contaminated clothing before reuse.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: Alcohol resistant foam.
P370+P378	In case of fire: Use for extinction: Fire-extinguishing powder.
P370+P378	In case of fire: Use for extinction: Carbon dioxide.
P391	Collect spillage.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**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.

- **Department issuing MSDS:** Product safety department
- **Contact:** Mr. Weber

- **Last Revision Date:**

6/28/2013 Revised hazard classification and precautionary statements. Updated component toxicology data and US State Right to Know listings.

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent