



EM RESIST LTD

SPECIALISTS IN ELECTRON BEAM RESIST TECHNOLOGY

SAFETY DATA SHEET

Creation Date 21-May-2011

Revision Date 23-Oct-2017

SECTION 1: Identification

Product Name: SML series electron beam resist
Identified Uses: Positive tone electron beam resist
Company: EM Resist Ltd.
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SECTION 2: Hazards identification

Classification

| | |
|-----------------------------------|--------------|
| Flammable liquids | (Category 3) |
| Acute toxicity, Oral | (Category 4) |
| Skin corrosion/irritation | (Category 2) |
| Serious eye damage/eye irritation | (Category 2) |
| Specific target organ toxicity | (Category 3) |
| Specific target organ toxicity | (Category 2) |

Label Elements

Pictogram



Signal Word

Warning

Hazard statement(s) :

H226 Flammable liquid and vapour
H302 Harmful if swallowed
H315 Causes skin irritation

Precautionary statement(s):

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

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| H319 | Causes serious eye irritation | P301 + P310 | clothing IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician |
| H336 | May cause drowsiness or dizziness | P303 + P361 + P353 | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| H373 | May cause damage to organs through prolonged or repeated exposure | P271 | Use only outdoors or in a well-ventilated area. |
| | | P304 + P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| | | P370 + P378 | In case of fire: Use CO ₂ , dry chemical or foam for extinction. |
| | | P403 | Store in a well-ventilated place. Keep container tightly closed |
| | | P501 | Dispose of contents/container to an approved waste disposal plant |

SECTION 3: Composition / information on ingredients

| Component | Weight % |
|-----------------------------|----------|
| Anisole CAS: 100-66-3 | <=90% |
| Component A Trade Secret | <=10% |
| Component B Trade Secret | <=2% |
| Component C Trade Secret | <=2% |
| Component D Trade Secret | <=2% |
| Component E Trade Secret | <=2% |

SECTION 4: First-aid measures

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| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur. |
| Inhalation | Move to fresh air. If breathing is difficult give oxygen. Get medical attention if symptoms occur. |
| Ingestion | Do not induce vomiting. Obtain medical attention |

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| Most important symptoms/effects | Breathing difficulties. Symptoms of overexposure may be headaches, dizziness, tiredness, nausea and vomiting. |
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SECTION 5: Fire-fighting measures

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| Suitable Extinguishing Media | User water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray. |
| Flash Point | 43°C / 109.4°F |
| Autoignition Temperature | 475°C / 887°F |
| Specific Hazards Arising from the Chemical | Flammable. Risk of ignition. Vapours may form explosive mixtures with air. Vapours may travel to source of ignition and flash back. Thermal decomposition can lead to release of irritating gases and vapours. Keep product and empty container away from heat and sources of ignition. |
| Hazardous Combustion Products | Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (NO _x), Phenols. |
| Protective Equipment and Precautions for Firefighters | As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear |

SECTION 6: Accidental release measures

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| Personal Precautions | Use personal protective equipment as required. Remove all sources of ignition. Ensure adequate ventilation. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing |
| Environmental Precautions | Avoid release to the environment |
| Methods for Containment and Clean Up | Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment |

SECTION 7: Handling and storage

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| Handling | Wear personal protective equipment. Keep away from open flames, hot surfaces and sources of ignition. Ensure adequate ventilation. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static |
|-----------------|--|

discharge. Avoid contact with skin, eyes and clothing

Storage Keep containers tightly closed in a dry, cool and well ventilated place. Keep away from heat and sources of ignition.
Flammables areas

SECTION 8: Exposure controls/personal protection

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| Exposure Guidelines | This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies |
| Engineering Measures | Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location |
| Personal Protective Equipment | |
| Eye/face Protection | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166 |
| Skin and body protection | Wear appropriate protective gloves and clothing to prevent skin exposure. |
| Respiratory Protection | Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced |
| Hygiene Measures | Handle in accordance with good industrial hygiene and safety practice |

SECTION 9: Physical and chemical properties

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| Physical State | Liquid |
| Appearance | Black |
| Odor | Sweet aromatic |
| Odor Threshold | No Information available |
| pH | No Information available |
| Melting Point/Range | -37°C / -34.6°F |
| Boiling Point/Range | 154°C / 309.2°F @ 760 mmHg |
| Flash Point | 43°C / 109.4°F |
| Evaporation Rate | No information available |

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| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | 6.3 vol % |
| Lower | 0.34 vol % |
| Vapor Pressure | 10 mmHg @ 42°C |
| Vapor Density | 3.72 |
| Relative Density | No information available |
| Solubility | Insoluble in water |
| Autoignition Temperature | 475°C / 887°F |
| Decomposition Temperature | No information available |
| Partition coefficient: n-octanol/water | No information available |
| Viscosity | No information available |

SECTION 10: Stability and reactivity

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| Reactive Hazard | None known, based on information available |
| Stability | Stable under normal conditions |
| Conditions to avoid | Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition |
| Incompatible Materials | Strong oxidising agents |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (NO _x), Phenols |
| Hazardous Polymerisation | Hazardous polymerisation does not occur |
| Hazardous Reactions | May form explosive peroxides |

SECTION 11: Toxicological information

Acute Toxicity

Product Information

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-----------|------------|-------------|------------------------------------|
| Anisole | Not listed | Not listed | 3021 mg/m ³ /2h (Mouse) |

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| Toxicologically Synergistic Products | No information available |
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

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| Irritation | No information available |
| Sensitization | No information available |
| Carcinogenicity | None of the components have been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs or found to be a potential carcinogen by OSHA. None of the components are listed in the National Toxicological Program (NTP) Report on Carcinogens |
| Mutagenic Effects | No information available |
| Reproductive Effects | No information available |
| Developmental Effects | No information available |
| Teratogenicity | No information available |
| STOT – single exposure | Central nervous system (CNS) |
| STOT – repeated exposure | Liver, Kidney |
| Aspiration hazard | No information available |
| Symptoms/effects, both acute and delayed | Symptoms of overexposure may be headache, dizziness, tiredness, nausea, and vomiting |
| Endocrine Disruptor Information | No information available |

SECTION 12: Ecological Information

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| Ecotoxicity | Not available |
| BOD5 and COD | Not available |
| Products of Biodegradation | Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. |
| Toxicity of the Products of Biodegradation | The products of degradation are more toxic. |
| Special remarks on the Products of Biodegradation | Not available |

SECTION 13: Disposal Considerations

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| Product | Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. |
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Contaminated Packaging Dispose of as unused product.

SECTION 14: Transport Information

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| UN-No | UN2222 |
| Proper Shipping Name | ANISOLE SOLUTION |
| Hazard Class | 3 |
| Packing Group | III |

SECTION 16: Other information

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|-------------------------|--|
| Prepared By | EM Resist Ltd. |
| Creation Date | 21-May-2011 |
| Revision Date | 23-October-2017 |
| Revision Summary | This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) |

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.