Safety Data Sheet
acc. to OSHA HCS

Print Date 03/04/2016 Revision Date 03/04/2016

· **Product Identifier**
· **Trade Name: W112800 Red B**
· **Application of the Substance or Mixture:** Epoxy Hardener

· **Details of the Supplier of the Safety Data Sheet (SDS)**
· **Manufacturer or Supplier:**
Resinlab, LLC
N109 W13300 Ellsworth Drive,
Germantown, WI 53022
1-800-388-8605
www.resinlab.com
· **Information Department:** Product Safety Department: msds@resinlab.com
· **Emergency Telephone Number:**
North America - Chemtrec: 1-800-424-9300 (24 hours)
International - Chemtrec: 01-703-527-3887 (24 hours)

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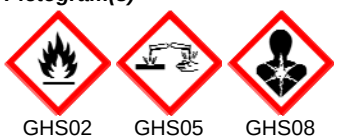
2 Hazard(s) identification

· **Hazard Classification**

Flam. Liq. 2	H225	Highly flammable liquid and vapor.
Skin Irrit. 2	H315	Causes skin irritation.
Eye Dam. 1	H318	Causes serious eye damage.
Resp. Sens. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Muta. 1B	H340	May cause genetic defects.
Carc. 1A	H350	May cause cancer.
Repr. 2	H361	Suspected of damaging fertility or the unborn child.
STOT SE 1	H370	Causes damage to the nervous system. Route of exposure: Inhalation.
STOT RE 1	H372	Causes damage to the nervous system, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalation.

· **Label Elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Pictogram(s)**



GHS02 GHS05 GHS08

· **Signal Word** Danger

· **Hazard-determining Component(s)**
Fatty Acid Polyamide (Proprietary, CAS number withheld trade secret)
benzene
Toluene
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)
· **Hazard statements**
Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to the nervous system. Route of exposure: Inhalation.
Causes damage to the nervous system, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalation.

· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dust/fume/gas/mist/vapors/spray.
[In case of inadequate ventilation] wear respiratory protection.
Wear protective gloves/protective clothing/eye protection/face protection.
Ground/bond container and receiving equipment.
Keep container tightly closed.
Use only non-sparking tools.
Avoid release to the environment.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.
Do not handle until all safety precautions have been read and understood.
Do not eat, drink or smoke when using this product.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
Wash contaminated clothing before reuse.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If skin irritation occurs: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
In case of fire: Use for extinction: CO2, powder or water spray.
Collect spillage.

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Store locked up.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Hazard Rating System**
· **NFPA System**
· **NFPA Ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

NFPA special hazards (water reactivity and oxidizing property): None

· **HMIS System**
· **HMIS Ratings (scale 0 - 4)**

Health = *2
Fire = 3
Reactivity = 0

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

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3 Composition/information on ingredients

· **Chemical Characterization: Mixtures**

· Composition/Information on Ingredients		
	Fatty Acid Polyamide (Proprietary, CAS number withheld trade secret) Resp. Sens. 1, H334; Repr. 2, H361; STOT SE 1, H370; STOT RE 1, H372 Eye Dam. 1, H318 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Skin Irrit. 2, H315; Skin Sens. 1, H317	50-60%
CAS: 67-63-0 EINECS: 200-661-7 Index Number: 603-117-00-0 RTECS: NT 8050000	Isopropyl alcohol Flam. Liq. 2, H225 Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H336	10-20%
CAS: 108-88-3 EINECS: 203-625-9 Index Number: 601-021-00-3 RTECS: XS 5250000	Toluene Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	10-20%
	Polyethylenepolyamine (Proprietary CAS number withheld as trade secret) Resp. Sens. 1, H334; Repr. 2, H361; STOT SE 1, H370; STOT RE 2, H373 Eye Dam. 1, H318 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Skin Irrit. 2, H315; Skin Sens. 1, H317	2.5-5%
CAS: 100-41-4 EINECS: 202-849-4 Index Number: 601-023-00-4 RTECS: DA 0700000	Ethylbenzene Flam. Liq. 3, H226 Carc. 2, H351 Acute Tox. 4, H332	0.1-1%
CAS: 71-43-2 EINECS: 200-753-7 Index Number: 601-020-00-8 RTECS: CY 1400000	benzene Flam. Liq. 2, H225 Muta. 1B, H340; Carc. 1A, H350; STOT RE 1, H372; Asp. Tox. 1, H304 Skin Irrit. 2, H315; Eye Irrit. 2A, H319	0.1-<1%

· **Classification System:**
The Classifications were based on the Toxicological and Ecological Data of the substances/mixtures in the Section 11 and 12.

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4 First-aid measures

· **Description of First Aid Measures**
· **General Information**
Symptoms may be delayed several hours after exposure; victims should be medically observed for at least 48 hours after exposure.
Ensure medical personnel are aware of exposure and take precautions for their personal protection; see Section 8 for the information of personal protection.

· **After Inhalation**
Remove victim from exposure to fresh air. Keep person at rest. Provide oxygen if person is not breathing.
In case of unconsciousness place patient stably in side position for transportation.
Consult a physician after significant exposure.

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· **After Skin Contact**
Flush skin thoroughly. Remove all contaminated clothing and shoes. Continue to rinse skin for 15 minutes. Obtain medical attention.
Wash all contaminated clothing and shoes before reuse.

· **After Eye Contact**
Immediately rinse opened eyes for at least 15 minutes under running water.
Immediately remove contact lenses if present. Continue rinsing.
Do not put any ointments, oils or medication in eyes without specific instructions.
Seek medical advice.

· **After Swallowing**
If victim is unconscious; never give anything by mouth.
If victim is conscious; rinse out mouth and give victim small amounts of water.
Get medical attention

· **Additional Information**
For additional information, please consult the corresponding first aid measures in the most current version of Emergency Response Guidebook which is produced by the US Department of Transportation.

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5 Fire-fighting measures

· **Extinguishing Media**
· **Suitable Extinguishing Agent(s)**
Use fire fighting measures and extinguishing agents that suit the environment.
In case of fire, suitable extinguishing agents are:
Alcohol resistant foam.
Dry chemical or fire-extinguishing powder.
Carbon dioxide (CO_2).
Water spray or water fog.
· **Unsuitable Extinguishing Agent(s)** No relevant information.

· **Firefighting Procedures**
Isolate fire and deny unnecessary entry.
Eliminate all ignition sources if safe to do so.
Do not extinguish fire unless flow can be stopped.
Fight fire remotely due to the risk of explosion.
Burning liquids may be moved by flushing with water; protect personnel and minimize property damage.
Contain fire water runoff if possible to prevent environmental pollution.

· **Special Hazards Arising in Fire**
Caution! Highly flammable liquid or vapor.
In case of fire, following can be released:
unburned hydrocarbons, aldehydes and products of incomplete combustion.
Carbon oxides, Nitrogen oxides, Hydrogen if mixed with metals

· **Advice for Firefighters**
If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA fire brigades standard (29 CFR 1910.156).
As with any fire, wear positive-pressure self-contained breathing apparatus and full protective gear that are NIOSH approved.

· **Additional Information** Ensure adequate and functional fire fighting facilities equipped in working area at all times.

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6 Accidental release measures

· **Personal Precautions**
Caution! Highly flammable liquid or vapor; wear fire resistant or retardant clothing during clean up.
Do not breathe gas, vapors, dusts or mists if their inhalable particles occur during use.
Ensure personnel take precautions for their personal protection during clean up; see Section 8 for the specific requirements.

· **Environmental Precautions**
Keep away from sewage system or other water courses; do not penetrate ground/soil.
Inform respective authorities in case of any seepage to the environment.

· **Cleaning Up Methods**
Eliminate heat, sparks, open flame and other ignition sources before clean up.
A vapor suppressing foam should be used to reduce vapors at first.
All equipment used for clean up must be grounded.
Don't touch or walk through spilled chemicals unless trained and equipped as stated in the OSHA fire brigades standard (29 CFR 1910.156).
Ensure adequate ventilation.
Keep unauthorized personnel away.
Allow molten product to cool.
Do not flush with water or aqueous solutions.
Absorb residues with liquid-binding materials.
Ventilate and wash area after clean-up is complete.
Collect spills in suitable and properly labeled containers.
Do not use solvents unless following safe handling practices and within the recommended exposure guidelines.
Dispose contaminated chemicals as waste according to Section 13.

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7 Handling and storage

· **Handling**
· **Precautions for Safe Handling**
Caution! Highly flammable liquid or vapor.
Keep away from heat, sparks, open flame and other ignition sources during handling.
Ensure good ventilation and/or exhaustion at workplace.
Keep away from incompatible material(s).
Avoid any release into the environment.
Observe all the personal protection requirements in Section 8.
· **Information about Protection Against Explosions and Fires**
Have an approved breathing apparatus prepared in case of emergency.
Keep away from heat, sparks, open flame and other ignition sources.
Protect against electrostatic charges during handling.
Metal containers involved must be grounded and bonded.
Use only non-sparking tools and equipment, especially when opening or closing containers of combustible contents.

· **Storage**
· **Requirements to be Met by Storerooms and Receptacles**
Caution! Highly flammable liquid or vapor; keep away from heat, sparks, open flame and other ignition sources during storage.
Store in tightly closed containers in a cool, and well-ventilated area.
Keep stored in accordance with local, regional, national, and international regulations.
· **Information about Storage in One Common Storage Facility**
Store away from incompatible material(s).
Store away from foodstuffs.
Avoid release to the environment.

· **Additional Information** No further relevant information.

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8 Exposure controls/personal protection

· **Engineering Measures or Controls**

· **Exposure Limit Values that Require Monitoring at the Workplace**	
67-63-0 Isopropyl alcohol	
PEL	Long-term value: 980 mg/m³, 400 ppm
REL	Short-term value: 1225 mg/m³, 500 ppm Long-term value: 980 mg/m³, 400 ppm
TLV	Short-term value: 984 mg/m³, 400 ppm Long-term value: 492 mg/m³, 200 ppm BEI
108-88-3 Toluene	
PEL	Long-term value: 200 ppm Ceiling limit value: 300; 500* ppm *10-min peak per 8-hr shift
REL	Short-term value: 560 mg/m³, 150 ppm Long-term value: 375 mg/m³, 100 ppm
TLV	Long-term value: 75 mg/m³, 20 ppm BEI
100-41-4 Ethylbenzene	
PEL	Long-term value: 435 mg/m³, 100 ppm
REL	Short-term value: 545 mg/m³, 125 ppm Long-term value: 435 mg/m³, 100 ppm
TLV	Long-term value: 87 mg/m³, 20 ppm BEI
71-43-2 benzene	
PEL	Short-term value: 15* mg/m³, 5* ppm Long-term value: 3* mg/m³, 1* ppm *table Z-2 for exclusions in 29CFR1910.1028(d)
REL	Short-term value: 1 ppm Long-term value: 0.1 ppm See Pocket Guide App. A
TLV	Short-term value: 8 mg/m³, 2.5 ppm Long-term value: 1.6 mg/m³, 0.5 ppm Skin; BEI

· **Additional Information for the Limit Values**
As a CLASSIFIED CARCINOGEN, there may be NO safe level of exposure; reduce all contact to the lowest possible level.
As a classified TERATOGEN to humans, there may be NO safe level of exposure; reduce all contact to the lowest possible level.
· **Other Engineering Measures or Controls**
Ventilation rates should be matched to conditions.
If applicable, use process enclosure(s), local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

· **Personal Protective**
· **General Protective and Hygienic Measures**
Avoid any contact with skin or eye.
Do not eat, drink or smoke during work.

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Clean hands and exposed skin thoroughly after work and before breaks.

· **Personal Protective Equipment (PPE)**
· **Breathing Equipment**
Sufficient ventilation in pattern and volume should be provided in order to maintain air contaminant levels below recommended exposure limits.
Use a NIOSH approved air-purifying organic vapor respirator if occupational limits are exceeded. For emergency situations, confined space use, or other conditions where exposure limits may be greatly exceeded, use an approved air supplied respirator. Observe OSHA regulations (29CFR 1910.134) for respirator use.
· **Hand Protection**
Selection of glove material should take into consideration the penetration times, rates of diffusion, and the degradation.
Suggested glove type(s):
Nitrile Gloves
Butyl Rubber Gloves
· **Eye Protection**
safety glasses with side shields and or face shield.
tightly sealed goggles
tightly sealed goggles and face shields if the potential for splashing occurs.
· **Body Protection** Chemical resistant apron; cover exposed skin.

· **Additional Information**
The Engineering measures or controls, and PPE recommendations are only guidelines and may not apply to every situation. For additional information, please consult the corresponding requirements under OSHA 29 CFR 1910.94-95, and 29 CFR 1910.132-138.

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9 Physical and chemical properties

· **Information on Basic Physical and Chemical Properties**	
· **Appearance:**	
· **Form:**	Liquid
· **Color:**	Amber
· **Odor:**	Ammonia-like
· **Odor Threshold:**	Not determined.
· **PH-Value:**	Not determined.
· **Change in Condition:**	
· **Melting Point:**	Not determined.
· **Boiling Point:**	>82 °C (>180 °F)
· **Flash Point:**	> 4 °C (> 39 °F)
· **Decomposition Temperature:**	Not determined.
· **Flammability:**	Highly flammable.
· **Explosion:**	Explosive.
· **Explosion Limits:**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.
· **Vapor Pressure:**	Not determined.
· **Vapor Density:**	not determined
· **Density at 25 °C (77 °F):**	0.90 g/cm³ (7.511 lbs/gal)
· **Solubility in or Miscibility with**	
· **Water:**	Soluble.
· **Segregation coefficient LogPow (n-octanol/water):**	Not determined.
· **Viscosity:**	
· **Dynamic at 20 °C (68 °F):**	275 mPas
· **Kinematic:**	Not determined.
· **Additional Information**	No further relevant information.

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10 Stability and reactivity

· **Physical Hazard(s)** Highly flammable liquid or vapor.
· **Hazardous Reactivity and Chemical Stability** May form explosive vapor-air mixtures when heated above the flash point.
· **Thermal Decomposition and Conditions to be Avoided**
Highly flammable liquid or vapor; keep away from direct sunlight, heat, sparks, open flame and other ignition sources at all times.
· **Possibility of Other Hazardous Reaction(s)** May slowly corrode alkali metals.
· **Incompatible Material(s)**
alkanolamines
chlorinated compounds
Halogens
Amines.
aldehydes
Oxidizing agents
Strong acids
Isocyanates
Ethylene oxide
Phosgene, and Crotonaldehyde

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· ***Hazardous Decomposition Product(s)***
Ammonia (NH_3) and/or Amines.
Thermally decomposes during fire or very high heat. See Section 5 for fire hazards evolved during thermal decomposition.

· ***Hazardous Polymerization Product(s)*** *No relevant information.*

· ***Additional Information*** *No further relevant information.*

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11 Toxicological information

· ***Acute Toxicity***

· **Oral**		
Fatty Acid Polyamide (Proprietary, CAS number withheld trade secret)		
Oral	LD50	>5000 mg/kg (rat)
67-63-0 Isopropyl alcohol		
Oral	LD50	3437 mg/kg (rat) (Statistically calculated from LD50 (rat)) The toxicity value was statistically calculated from LD50 (rat) of 5280 mg/kg, 5500 mg/kg, 5480 mg/kg, 4710 mg/kg, and 1870 mg/kg. 4475 mg/kg (mouse) 5030 mg/kg (rabbit) 4830 mg/kg (dog) Reference: GHS-J (2006) and OECD SIDS (1997).
108-88-3 Toluene		
Oral	LD50	>5580 mg/kg (rat) Reference: Sigma Aldrich SDS 2015
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)		
Oral	LD50	2500 mg/kg (rat)
71-43-2 benzene		
Oral	LD50	4894 mg/kg (rat)

· ***Potential Health Effect(s):***
Harmful if swallowed.
While not a classified acute oral hazard, the product may cause the following symptom(s):
abnormal pain
diarrhea
vomiting
See acute inhalative effect(s) for further information

· **Dermal**		
67-63-0 Isopropyl alcohol		
Dermal	LD50	12870 mg/kg (rabbit) (OECD TG 402) (Estimated from LD50 of 16.4 mL/kg and the density of 0.785 g/ml) Reference: ECHA (2011).
108-88-3 Toluene		
Dermal	LD50	12267 mg/kg (rabbit) (males; occlusive; neat substance) Reference: ECHA (2011).
71-43-2 benzene		
Dermal	LD50	48 mg/kg (mouse)

· ***Potential Health Effect(s):***
Not a classified acute dermal hazard.
See acute inhalative effect(s) for further information.

· **Inhalative**		
67-63-0 Isopropyl alcohol		
Inhalative	LC50/4 h	72.8 mg/l (rat) (LC50/4 hrs) 53 mg/l (mouse) (LC50/2 hrs) Reference: OECD SIDS (1997).
108-88-3 Toluene		
Inhalative	LC50/4 h	18 mg/l (rat) (Calculated from LC50 of 12.5, 28.1, 28.8, &33mg/L) The LC50/4hrs of 18 mg/l was lower than 90% of the saturated vapor concentration (124.5 mg/l at 25 °C) under a saturated vapour pressure of 33 hPa (25 °C); thus, the substance was considered as vapor containing substantially no mist, and placed into Category 4 for the acute inhalative toxicity. Reference: ECHA (2011).
71-43-2 benzene		
Inhalative	LC50/4 h	9980 mg/l (mouse)

· ***Potential Health Effect(s):***
Harmful if inhaled.
headache
loss of consciousness
incoordination

· **Skin Corrosion or Irritation**	
Fatty Acid Polyamide (Proprietary, CAS number withheld trade secret)	
Corrosion/Irritation	irritation (Test species: n/a)

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67-63-0 Isopropyl alcohol	
Corrosion/Irritation	not irritating (rabbit) (Overall irritation score: 0/4) Overall irritation score: 0/4 (Max. 4; Time point: 4+24+48 hrs; Occlusive; Mean score of all treated animals): no irritation observed. Reference: ECHA (2011).
108-88-3 Toluene	
Corrosion/Irritation	irritating (rabbit) (EU Method B4; 0.5ml neat substance; 4hr-contact) Erythema: 3.3 (Max. score: 4; mean score of all treated animals; Time point: 24+48+72 hrs); not fully reversible within 7 days. Edema: 1.1(Max. score: 4; mean score of all treated animals; Time point: 24+48+72 hrs); not fully reversible within 7 days. The substance was therefore considered as a moderate dermal irritant (Category 2). Reference: ECHA (2011).
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)	
Corrosion/Irritation	severe (rabbit) 24 hour exposure

· **Potential Health Effect(s):**
Causes skin irritation.
In contact with skin, may cause:
redness and pain

· **Eye Serious Damage or Irritation**	
67-63-0 Isopropyl alcohol	
Damage/Irritation	irritating (rabbit) (OECD TG 405; 0.1ml neat substance) Maximum mean total score (MMTS): 30.5 (Max. 110; mean score of all treated rabbits; Time point: 24 hours); fully reversible within 10 days. The substance was therefore classified as an eye irritant (Category 2A). Reference: ECHA (2011).
108-88-3 Toluene	
Damage/Irritation	slightly (rabbit) (OECD TG 405; 0.1 ml neat substance) Cornea: 0/4 (Max. score: 4; Time point: 24h+48h+72h; mean score of all treated animals) Iris: 0/2 (Max. score: 2; Time point: 24h+48h+72h; mean score of all treated animals) Conjunctivae: 1.4/3 (Max. score: 3; Time point: 24h+48h+72h; mean score of all treated animals) Chemosis: 0.4/3 (Max. score: 3; Time point: 24h+48h+72h; mean score of all treated animals) The substance was therefore considered as slightly irritating (Category 2B) to rabbit eyes. Reference: ECHA (2011).
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)	
Damage/Irritation	moderate (rabbit) 24 hour exposure

· **Potential Health Effect(s):**
Causes serious eye damage.
In contact with eye, may cause:
decrease or loss of vision
redness, pain and severe deep burns

· **Respiratory or Skin Sensitization**		
Fatty Acid Polyamide (Proprietary, CAS number withheld trade secret)		
	Respiratory	irritation (Test species: n/a)
67-63-0 Isopropyl alcohol		
Sensitization	Skin	not sensitizing (guinea pig) (OECD TG 406; Epicutaneous and occlusive) No animals showed positive responses with up to 100% pure substance. Reference: ECHA (2011).
	Respiratory	(No data available)
108-88-3 Toluene		
Sensitization	Skin	not sensitizing (guinea pig) (intradermal and epicutaneous; EU Method B6) Only one treated pig showed a grade 1 reaction (discrete or patchy erythema) in response to a 50% solution. No other skin reactions were observed. The substance was therefore not classified as a skin sensitizer in this study. Reference: ECHA (2011).
	Respiratory	(No data available)

· **Potential Health Effect(s):**
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

· **OSHA-Ca (Occupational Safety & Health Administration)**	
71-43-2	benzene

· **Germ Cell Mutagenicity**	
67-63-0 Isopropyl alcohol	
Mutagenicity	negative (mouse) (In Vivo (Chromosome aberration; OECD TG 474)) In Vitro (Bacterial reverse mutation assay; OECD TG 471; S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) - negative with and without metabolic activation. In Vitro (Mammalian cell gene mutation assay; OECD TG 476; Chinese hamster Ovary) - negative with and without metabolic activation. In Vivo (Chromosome aberration; OECD TG 474; mouse; intraperitoneal with up to 3500 mg/kg bw) - negative; the substance did not induce micronuclei in polychromatic erythrocytes of the bone marrow. Reference: ECHA (2011).

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108-88-3 Toluene	
Mutagenicity	negative (salmonella typhimurium) (In Vitro (Mammalian cell gene mutation assay)) In Vitro (Mammalian cell gene mutation assay; OECD TG 476; L5178Y mouse lymphoma cells) - negative with and without metabolic activation. In Vitro (Bacterial reverse mutation assay; EU Method B13/14; S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) - negative with and without metabolic activation. In Vivo (Chromosome aberration; Rat; Intraperitoneal with up to 0.25 ml/kg) - negative; there was no evidence of genotoxicity observed. Reference: ECHA (2011).

· **Potential Health Effect(s):** May cause genetic defects.

· **Carcinogenicity**	
67-63-0 Isopropyl alcohol	
Carcinogenicity	negative (Rats and Mice) (No carcinogenicity after repeated inhalation) NOEC (OECD TG 451; Inhalation: vapor with up to 5000 ppm (12.3 mg/l) for 104 weeks; carcinogenicity) = 5000 ppm (1.2 mg/l); there were no increased frequencies of neoplastic lesions noted for mice or rats from any test substance exposure groups. Reference: ECHA (2011).
108-88-3 Toluene	
Carcinogenicity	negative (rat) (OECD TG 453; Inhalation: vapor) NOAEC (Inhalation with up to 4.52 mg/l) = 4.52 mg/l; no increases in any tumor type observed. Reference: ECHA (2011). IARC: Group 3 Not classifiable as to it's carcinogenicity to humans.

· **Potential Health Effect(s):**
May cause cancer.
Not a known Carcinogen.

· **Reproductive Toxicity**	
67-63-0 Isopropyl alcohol	
Reproductive Toxi.	N/a (rat) (conclusive but not sufficient for classification) (rat) (reproductive toxicity; oral) - a statistically significant decrease in male mating index of the F1 males. (rat) (developmental toxicity studies; oral with up to 1200 mg/kg) - decreased fetal body weights occurred at maternally toxic doses; NOAEL = 400 mg/kg. (rabbit) (developmental toxicity studies; oral with up to 480 mg/kg) - no adverse effects; NOAEL = 480 mg/kg. (rat) (developmental neurotoxicity study; oral with up to 1200 mg/kg) - no adverse effects; NOAEL=1200 mg/kg. However, ECHA concluded it conclusive but not sufficient for classification. Reference: ECHA (2011).
108-88-3 Toluene	
Reproductive Toxi.	positive (Test species: n/a) There were reproductive and/or developmental effects including increased incidence of natural abortion, abnormal development, and malformation of newborns observed after chronic exposure to the substance in humans. Meanwhile, there was evidence that it caused effects including increased incidences of foetal death, higher delayed ossification rate, a decrease and unossification of sternebrae, a shift in rib profile, excess ribs, retarded skeletal development, delayed reflex response, learning disability, early vaginal opening, and early testes descent at dosing levels not toxic to dams from rat and mouse teratogenicity tests. Meanwhile, it was listed as a teratogen by California 65. The substance was therefore classified as a suspected teratogen. Reference: GHS-J (2006), California Proposition 65 (2009), and ECHA (2012).

· **Potential Health Effect(s):** May damage fertility or the unborn child.

· **Specific Target Organ Toxicity - Single Exposure**	
67-63-0 Isopropyl alcohol	
STOT-Single	Narcotic effect (rat) (after 6hr-exposure to 12.3 mg/l of the substance) Target organ: Category 3 (Narcotic effects) Transient, concentration-related narcosis and central nervous system sedation were observed in treated rats after a single 6hr-exposure with 5000ppm (12.3 mg/l) of the substance. Reference: ECHA (2011).
108-88-3 Toluene	
STOT-Single	(Human) (Target: Nervous system via inhalation) Based on human epidemiological studies, the substance caused fatigue, sleepiness, dizziness and mild respiratory irritation after short term inhalation with 50-100 ppm of the substance. Reference: US NIOSH (2011).
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)	
STOT-Single	affects eyes (Test species: n/a)

· **Potential Health Effect(s):**
Causes damage to the nervous system. Route of exposure: Inhalation.
Some target organs may be exclusive due to low concentration of the hazardous component(s).

· **Specific Target Organ Toxicity - Repeated Exposure**	
67-63-0 Isopropyl alcohol	
STOT-Repeated	N/A (Rats and Mice) (OECD TG 408; Oral with up to 20000 ppm) No NOAEL identified; the liver was the primary target organ based on increases in liver weights, hepatocellular hypertrophy, clinical chemistry changes, and induction of liver microsomal cytochrome P450 2B isomer. However, ECHA concluded it was conclusive but not sufficient for the classification. Reference: ECHA (2012).

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108-88-3 Toluene	
STOT-Repeated	(Human) (Nervous system, kidney, and liver via inhalation) The substance induced nervous system effects including restricted vision, headache associated with nystagmus and hearing loss, tremor, ataxia and amnesia; kidney and liver effects including cerebral atrophy in CT tests, renal dysfunction manifested, hepatic toxicity associated with an increase in SGOT, fatty degeneration of hepatic cells, and lymphocytic infiltration after repeated exposure to the substance in human victims. Reference: US NIOSH (2011).
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)	
STOT-Repeated	(Test species: n/a) respiratory tract, skin, liver and kidneys.

· **Potential Health Effect(s):**
Causes damage to the nervous system, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalation.

· **Aspiration Hazard**	
67-63-0 Isopropyl alcohol	
Aspiration Hazard	positive (rat) (cardiopulmonary arrest occurred after inhalation) The death of cardiopulmonary arrest was observed in rats after a single intratracheal administration with the substance within 24 hours. Meanwhile, kinematic viscosity of the substance was 2.68 mm²/s by estimating from the dynamic viscosity of 2.1 mPas and the density of 0.785 g/ml. Due to absence of human data, the substance was classified as a Category 2 aspiration hazard. Reference: GHS-J (2006).
108-88-3 Toluene	
Aspiration Hazard	positive (Test species: n/a) (As a hydrocarbon with viscosity of 0.65 mm²/s) As a hydrocarbon with dynamic viscosity of 0.65 mm²/s (25 °C), the substance was classified as a Category 1 aspiration hazard. Reference: GHS-J (2006).

· **Potential Health Effect(s):** No relevant information; classification is not possible.

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12 Ecological information

· **Aquatic Environmental Toxicity**	
67-63-0 Isopropyl alcohol	
Algae Toxicity	1800 mg/l (Scenedesmus quadricauda (Green algae)) (Toxicity threshold (7 days))
Crustacean Toxicity	> 1000 mg/l (Daphnia magna (water flea)) (EC50 (24 hrs); OECD TG 202) 30 mg/l (Daphnia magna (water flea)) (NOEC (21 days)) 1400 mg/l (Crangon Crangon) (EC50 (48 hrs))
Fish Toxicity	9640 mg/l (Pimephales promelas (fathead minnow)) (LC50 (96 hrs); OECD TG 203) Thus, the substance is not expected to pose an environmental hazard. Reference: ECHA (2011).
108-88-3 Toluene	
Algae Toxicity	207 mg/l (Chlorella vulgaris) (EC50 (3 hrs)) 134 mg/l (Chlamydomonas angulosa) (EC50 (3 hrs))
Crustacean Toxicity	3.78 mg/l (Ceriodaphnia dubia) (LC50 (48 hrs); US EPA 600/4-91-003) NOEC (7 days) = 0.74 mg/l Based on the rapid degradability, the substance is not classified as a chronic hazard. Based on the acute LC50 <10 mg/l, the substance is classified as an Acute-2 environmental hazard.
Fish Toxicity	5.5 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs)) 1.39 mg/l (Oncorhynchus kisutch) (NOEC (40 days); growth rate) Reference: ECHA (2011).
Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)	
Crustacean Toxicity	33.9 mg/l (Daphnia magna (water flea)) 48 hour exposure

· **Aquatic Environmental Toxicity Assessment:** Very toxic to aquatic life with long lasting effects.

· **Degradability and Stability**	
67-63-0 Isopropyl alcohol	
Biodegradation	readily biodeg. (Test species: n/a) (Biodegradation (OECD TG 301C) > 86%) Biodegradation (Indirect analysis from BOD; Chemical conc. 100ppm; 2 weeks) = 86% Biodegradation (Direct analysis from TOC, HPLC; Chemical conc. 100ppm; 2 weeks) = 94%, 100% respectively. The substance is readily biodegradable. Reference: CHRIP (2011).
Persistence	(Test species: n/a) (The substance is persistent) Although it was concluded to be persistent by Canada DSL, the substance was approved to be readily biodegradable and photodegradable based on CHRIP and ECHA; assessment is not possible without further information.
Photodegradation	5.1E-12 cm³/molecule-sec (OH radical) (at 25 °C) Half-life (5E5 OH/cm³) = 3.1 days Reference: ECHA (2011).
Stability in water	stable (Test species: n/a) There is no hydrolysis group in formula of the substance; hydrolysis is negligible.
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Biodegradation	readily biodeg. (Test species: n/a) (Biodegradation (OECD TG 301C) = 100%) Biodegradation (Direct analysis from GC; Chemical conc. 100 ppm; 2 weeks) = 100% The substance is readily biodegradable. Reference: CHRIP (2011).
Persistence	(Test species: n/a) (The substance is not persistent) Although it was concluded to be persistent by Canada DSL, the substance was approved to be readily biodegradable and fast photodegradable based on ECHA; assessment is not possible without further information.
Photodegradation	6.19E-12 cm³/molecule-sec (OH radical) Half-life (5E5 OH/cm³) = 2.59 days Reference: ECHA (2011).

· **Bioaccumulation and Distribution**

Fatty Acid Polyamide (Proprietary, CAS number withheld trade secret)

BCF	492 (Test species: n/a) Low potential

67-63-0 Isopropyl alcohol

BCF	(Test species: n/a) (The substance is not or low bioaccumulative) Reference: Canada DSL (2007).
Koc	1.07 L/kg (Test species: n/a) (Estimated from LogKoc of 0.03) The substance would partition primarily to water (77.7%) and to a lesser extent air (22.3%) based on Level 1 Fugacity Modeling; but is not expected to have high affinity for adsorption to soil or sediments. Reference: OECD SIDS (1997).
LogPow	0.05 (Test species: n/a) (at 25 °C) Reference: OECD SIDS (1997).

108-88-3 Toluene

BCF	90 (Leuciscus idus (Ide or Orfe)) (The substance is not or low bioaccumulative)
Koc	(No data available)
LogPow	2.73 (Test species: n/a) (pH=7; at 20 °C) Reference: Canada DSL (2007) and ECHA (2011).

Polyethylenepolyamine (Proprietary CAS number withheld as trade secret)

LogPow	-1.66 to -1.4 (Test species: n/a) low potential

· **Degradability and Bioaccumulation Assessment:** No further relevant information; assessment is not possible.

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13 Disposal considerations

· **Hazardous Waste List**
· **Description:** Regulated as a hazardous waste for disposal.

· **RCRA Waste:**

67-63-0	Isopropyl alcohol	D001	≤20%
108-88-3	Toluene	U220	10-<20%
100-41-4	Ethylbenzene	D001	0.1-<1%

· **Additional Information of the Hazardous Waste List** Classification was according to the U.S. Federal Regulation: 40 CFR 261.

· **Waste Treatment Recommendation:**
Generation of waste should be avoided or minimized wherever possible.
Chemical waste, even small quantities, is neither allowed to be poured down drains, sewage system or waterways; nor disposed with household garbage.
Dispose of contents/containers in accordance with local, regional, national, and international regulations.

· **Unused and Uncontaminated Packagings**
· **Recommendation** Dispose of according to your local waste regulations.

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14 Transport information

· **UN-Number**
· **DOT, ADR, IMDG, IATA** UN1993

· **UN Proper Shipping Name**
· **DOT, ADR, IMDG, IATA** Flammable liquids, n.o.s. (Isopropanol, Toluene)

· **Transport hazard class(es)**
· **DOT**

· **Class** 3 Flammable liquids

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· **Label** 3

· **ADR**

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

· **IMDG**

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

· **IATA**

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

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

· **Environmental Hazards:**
· **Marine Pollutant:** Yes
Symbol (fish and tree)
· **Special Marking (ADR):** Symbol (fish and tree)

· **Special Precautions:** 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:**

· **DOT**
· **Quantity limitations** On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L
· **Remarks:** Special marking with the symbol (fish and tree).

· **ADR**
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **IMDG**
· **Limited quantities (LQ)** 1L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN1993, Flammable liquids, n.o.s. (Isopropanol, Toluene), ENVIRONMENTALLY HAZARDOUS, 3, II

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15 Regulatory information

· **USA Regulation Lists**
· **SARA (Superfund Amendments and Reauthorization Act of 1986)**
· **Section 302 (Extremely Hazardous Substances)**
None of the ingredients is listed.

· **Section 313 (Toxics Release Inventory (TRI) reporting)**

67-63-0	Isopropyl alcohol	≤20%
108-88-3	Toluene	10-<20%
100-41-4	Ethylbenzene	0.1-<1%
71-43-2	benzene	0.1-<1%

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· **Section 311/312 (Hazardous Chemical Inventory Reporting)**

108-88-3	Toluene	A, C, F	10-<20%

· **Hazard Abbreviations for SARA 311/312**
A - Acute Health Hazard
C - Chronic Health Hazard
F - Fire Hazard
R - Reactive Hazard
S - Sudden Release of Pressure Hazard

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

67-63-0	Isopropyl alcohol
108-88-3	Toluene
100-41-4	Ethylbenzene
71-43-2	benzene

· **Proposition 65**

· **Chemicals Known to Cause Cancer**

100-41-4	Ethylbenzene
71-43-2	benzene

· **Chemicals Known to Cause Reproductive Toxicity for Females**

108-88-3	Toluene

· **Chemicals Known to Cause Reproductive Toxicity for Males**

71-43-2	benzene

· **Chemicals Known to Cause Developmental Toxicity**

108-88-3	Toluene
71-43-2	benzene

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

108-88-3	Toluene	D
100-41-4	Ethylbenzene	D
71-43-2	benzene	A, K/L

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

67-63-0	Isopropyl alcohol	3
108-88-3	Toluene	3
100-41-4	Ethylbenzene	2B
71-43-2	benzene	1

· **NTP (National Toxicology Program)**

71-43-2	benzene	K

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

67-63-0	Isopropyl alcohol	A4
108-88-3	Toluene	A4
100-41-4	Ethylbenzene	A3
71-43-2	benzene	A1

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

71-43-2	benzene

· **International Regulation Lists**

· **Canadian Domestic Substance Listings:**

67-63-0	Isopropyl alcohol
108-88-3	Toluene
100-41-4	Ethylbenzene
71-43-2	benzene

· **Canadian Ingredient Disclosure list (limit 0.1%)**

100-41-4	Ethylbenzene
71-43-2	benzene

· **Canadian Ingredient Disclosure list (limit 1%)**

67-63-0	Isopropyl alcohol
108-88-3	Toluene

· **Chinese Chemical Inventory of Existing Chemical Substances:**

67-63-0	Isopropyl alcohol
108-88-3	Toluene
100-41-4	Ethylbenzene
71-43-2	benzene

· **Japanese Existing and New Chemical Substance List:**

67-63-0	Isopropyl alcohol
108-88-3	Toluene
100-41-4	Ethylbenzene

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71-43-2	benzene

· **Korean Existing Chemical Inventory:**

67-63-0	Isopropyl alcohol
108-88-3	Toluene
100-41-4	Ethylbenzene
71-43-2	benzene

· **European Pre-registered substances:**

67-63-0	Isopropyl alcohol
108-88-3	Toluene
100-41-4	Ethylbenzene
71-43-2	benzene

· **REACh - Substances of Very High Concern (SVHC) List:**

None of the ingredients is listed.

· **Restriction of Hazardous Substances Directive (RoHS) list:**

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.

· **Department Issuing (M)SDS:** Product Safety Department
· **Contact:** msds@resinlab.com

· **Abbreviations and acronyms:**
ACGIH: American Conference of Governmental Industrial Hygienists
ACToR: US EPA Aggregated Computational Toxicology Resource
ADR: European Agreement Concerning the International Carriage of Dangerous Goods by Road
BCF: Bioconcentration Factor
CAS: Chemical Abstracts Service (division of the American Chemical Society)
CCRIS: US NLM TOXNET Chemical Carcinogenesis Research Information System
CHRIP: Japan NITE Information on Biodegradation and Bioconcentration of the Existing Chemical Substances in the Chemical Risk Information Platform
DOT: US Department of Transportation
DSL: Canada Domestic Substance List
ECHA: European Chemicals Agency's Dissemination portal with information on chemical substances registered under REACH
ESIS: European Chemical Substances Information System
HMIS: US National Paint & Coatings Association (NPCA) Hazardous Materials Identification System
HSDB: US NLM TOXNET Hazardous Substances Databank
HSNO CCID: New Zealand Hazardous Substances and New Organisms Chemical Classification Information Database
IARC: International Agency for Research on Cancer developed by United Nations World Health Organisation (WHO)
IATA-DGR: Dangerous Goods Regulations (DGR) by the International Air Transport Association (IATA)
ICAO-TI: Technical Instructions (TI) by the International Civil Aviation Organization (ICAO)
ICSC: International Chemical Safety Cards
IMDG: International Maritime Dangerous Goods; the principal international rules for International Carriage of Dangerous Goods by SEA under the Recommendations on the Transport of Dangerous Goods by United Nations (RTDG)
IUCLID: EU REACh International Uniform Chemical Information Database
Koc: Partition coefficient, soil Organic Carbon to water
LC50/LD50: Lethal Concentration/Dose, 50 percent
N/a: Not available or Not applicable
NFPA: US National Fire Protection Association
NIOSH: US National Institute of Occupational Safety and Health
NITE: National Institute of Technology and Evaluation, Japan
NLM TOXNET: US National Library of Medicine Toxicology Data Network
OECD: Organisation for Economic Co-operation and Development
OSHA: US Occupational Safety and Health Administration
P: Marine Pollutant
RCRA: Resource Conservation and Recovery Act (USA)
REACh: EU Registry, Evaluation and Authorisation of Chemicals
RID: the Regulations Concerning the International Carriage of Dangerous Goods by Rail; published by the Central Office for International Carriage by Rail (OTIF)
RTDG: the Recommendations on the Transport of Dangerous Goods by United Nations (UN)
RTECS: US Registry of Toxic Effects of Chemical Substances
SARA: US Superfund Amendments and Reauthorization Act
SIDS: OECD existing chemicals Screening Information Data Sets
SVHC: EU ECHA Substance of Very High Concern
TEEL: Temporary Emergency Exposure Limit developed by US Subcommittee on Consequence Assessment and Protective Actions (SCAPA) of US Department of Energy (DOE)
TOXLINE: US NLM bibliographic database search system
TSCA: US Toxic Substance Control Act
· **Date of preparation / last revision** 03/04/2016 / 3