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acc. to OSHA HCS

Print Date 11/10/2015 Revision Date 11/10/2015

· **Product Identifier**
· **Trade Name: EP1350 A**
· **Application of the Substance or Mixture:** Epoxy Resin

· **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**

Skin Sens. 1	H317	May cause an allergic skin reaction.
Aquatic Acute 3	H402	Harmful to aquatic life.
Aquatic Chronic 3	H412	Harmful to aquatic life with long lasting effects.

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

GHS07

· **Signal Word** Warning

· **Hazard-determining Component(s)**
(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
Bisphenol A epoxy resin-Proprietary- CAS number withheld as permitted by 29CFR1910.1200 (i)
2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
Bisphenol-A-(epichlorohydrin) epoxy resin
· **Hazard statements**
May cause an allergic skin reaction.
Harmful to aquatic life.
Harmful to aquatic life with long lasting effects.

· **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
Avoid release to the environment.
Contaminated work clothing must not be allowed out of the workplace.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water.
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 = 1
Reactivity = 0

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

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

Health = 2
Fire = 1
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**		
CAS: 1344-28-1 EINECS: 215-691-6 RTECS: BD120000	Aluminum oxide	70-80%
CAS: 2386-87-0 EINECS: 219-207-4	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate Skin Sens. 1, H317 Aquatic Acute 3, H402	10-20%
	Bisphenol A epoxy resin-Proprietary- CAS number withheld as permitted by 29CFR1910.1200 (i) Aquatic Chronic 2, H411 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317 Aquatic Acute 2, H401	1-2.5%
CAS: 68610-41-3	2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin Aquatic Chronic 2, H411 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317 Aquatic Acute 2, H401	1-2.5%
CAS: 25068-38-6 NLP: 500-033-5 Index Number: 603-074-00-8	Bisphenol-A-(epichlorohydrin) epoxy resin Aquatic Chronic 2, H411 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	0.1-<1%
CAS: 67762-90-7 EC number: 614-122-2	Siloxanes and Silicones, di-Me, reaction products with silica	0.1-1%
CAS: 1333-86-4 EINECS: 215-609-9 RTECS: FF5800000	Carbon black	0.1-1%
CAS: 71-36-3 EINECS: 200-751-6 Index Number: 603-004-00-6 RTECS: EO 1400000	1-Butyl alcohol Flam. Liq. 3, H226 Eye Dam. 1, H318 Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336	0-<0.1%

· **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**
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.
Seek medical advice if any symptoms develop.

· **After Skin Contact**
As quickly as possible remove contaminated clothing, shoes, and leather goods (e.g. watchbands, belts). Quickly and gently blot or brush away excess chemical. Immediately flush with lukewarm water for 15 minutes. Completely decontaminate clothing, shoes, and leather goods before reuse or discard. If irritation persists, obtain medical advice.

· **After Eye Contact**
Rinse opened eyes under running water for at least 15 minutes.
Remove contact lenses if present and easy to do so; continue rinsing.
Seek medical treatment in case of complaints.

· **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.
Seek medical treatment in case of complaints.

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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.
Immediately withdraw all personnel from the area in case of rising sound from venting safety device.
Eliminate all ignition sources if safe to do so.
Do not extinguish fire unless flow can be stopped.

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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***
Will not burn unless preheated.
In case of fire, following can be released:
Phenolic compounds
Aldehydes
Carbon dioxide (CO_2) and Carbon monoxide (CO)
Aluminum oxide (Al_2O_3) dust, a serious respiratory irritant, may be formed during fires.

· ***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.

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6 Accidental release measures

· ***Personal Precautions***
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***
Ensure adequate ventilation.
Eliminate all ignition sources.
Keep unauthorized personnel away.
Allow molten product to cool.
Absorb residues with liquid-binding materials.
Avoid confined spaces, such as sewers, because of the possibility of an explosion.
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.

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

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7 Handling and storage

· ***Handling***
· ***Precautions for Safe Handling***
Persons with history of skin sensitization, asthma or chronic respiratory issues should not be employed in any process when this product is used. Avoid exposure and obtain special instructions prior to use.
Wear respiratory protection when handling.
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***
Will not burn unless preheated.
Keep away from heat, sparks, open flame and other ignition sources during handling.
Dust can combine with air to form an explosive mixture.

· ***Storage***
· ***Requirements to be Met by Storerooms and Receptacles***
Store in a well-ventilated place; provide ventilation for receptacles.
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**	
1344-28-1 Aluminum oxide	
ACGIH	Long-term value: 1 mg/m³ respirable fraction as Aluminum
OSHA	Long-term value: 15 TWA total dust mg/m³
67762-90-7 Siloxanes and Silicones, di-Me, reaction products with silica	
OSHA PEL	Short-term value: 15 mg/m³
US ACGIH	Short-term value: 10 mg/m³

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1333-86-4 Carbon black	
PEL	Long-term value: 3.5 mg/m³
REL	Long-term value: 3.5* mg/m³ *0.1 in presence of PAHs;See Pocket Guide Apps.A+C
TLV	Long-term value: 3* mg/m³ *inhalable fraction
71-36-3 1-Butyl alcohol	
PEL	Long-term value: 300 mg/m³, 100 ppm
REL	Ceiling limit value: 150 mg/m³, 50 ppm Skin
TLV	Long-term value: 61 mg/m³, 20 ppm

· **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** Do not eat, drink or smoke during work.

· **Personal Protective Equipment (PPE)**
· **Breathing Equipment**
Where the potential for over-exposure exists, use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode.
· **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

· **Body Protection** Chemical resistant apron; cover exposed skin.

· **Additional Information**
All protective clothing (suits, gloves, footwear, headgear) should be clean, available every day, and put on before work.
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:** Black
· **Odor:** Slight
· **Odor Threshold:** Not determined.

· **PH-Value:** Not determined.

· **Change in Condition:**
· **Melting Point:** Not determined.
· **Boiling Point:** >100 °C (>212 °F)
· **Flash Point:** >100 °C (>212 °F)
· **Decomposition Temperature:** Not determined.
· **Flammability:** Not determined.
· **Explosion:** Not determined.
· **Explosion Limits:**
· **Lower:** Not determined.
· **Upper:** Not determined.

· **Vapor Pressure:** Not determined.
· **Vapor Density:** >1 (air = 1)
not determined
· **Density at 25 °C (77 °F):** 2.52 g/cm³ (21.029 lbs/gal)
· **Solubility in or Miscibility with**
· **Water:** Not miscible or difficult to mix.
· **Viscosity:**
· **Dynamic:** Not determined.
· **Kinematic:** Not determined.

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

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10 Stability and reactivity

· **Physical Hazard(s)** Not a regulated reactive or physical hazard under GHS.

· **Hazardous Reactivity and Chemical Stability** Stable under normal conditions of use, storage and temperatures.

· **Thermal Decomposition and Conditions to be Avoided**
Keep away from incompatible material(s).
Thermally decomposes during fire or high heat; keep away from heat, sparks, open flame and other ignition sources.

· **Possibility of Other Hazardous Reaction(s)**
May act catalytically with ethylene oxide or vinyl chloride causing irreversible polymerization with considerable heat buildup.

· **Incompatible Material(s)**
Amines.
Oxidizing agents, Acids, Bases
Vinyl acetate
Chlorinated rubber
Nitrates

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

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11 Toxicological information

For detailed Toxilogical Information please email the Product Safety Department.

· **Acute Toxicity**

· **Oral**		
1344-28-1 Aluminum oxide		
Oral	LD50	> 5000 mg/kg (rat) (OECD TG 401) > 5050 mg/kg (rat) No mortality or abnormality was observed after an oral administration with 5050 mg/kg bw of the substance. Reference: IUCLID Dataset (2000) and OECD SIDS (2008).
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate		
Oral	LD50	≥ 5000 mg/kg (rat) (OECD TG 401; neat substance) 4490 mg/kg (rat) (test guideline not available) Reference: ChemID (2012)
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin		
Oral	LD50	>2000 mg/kg (rat) Reference: Vendor SDS 2014

· **Dermal**		
1344-28-1 Aluminum oxide		
Dermal	LD50	(Test species: n/a) (Toxicity not expected based on acute oral data) Based on the acute oral toxicity test, it was expected that toxicity to mammals via dermal application of the substance was not a significant concern and resulted in a similar lack of acute toxicity. Thus, the substance was not classified as an acute dermal hazard. Reference: OECD SIDS (2008).
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate		
Dermal	LD50	23400 mg/kg (rat) (Estimated from LD50 of 20ml/kg) > 2000 mg/kg (rat) (OECD TG 402; semiocclusive; neat substance) There were no deaths, clinical signs of reaction, or any macroscopic changes observed during the study; the substance was not expected to pose an acute dermal toxicity. Reference: ChemID (2012) and ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin		
Dermal	LD50	>2000 mg/kg (rabbit) Reference: Vendor SDS 2014

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

· **Inhalative**		
1344-28-1 Aluminum oxide		
Inhalative	LC50/4 h	7.6 mg/l (rat) (not given) Vendor SDS 2014 Due to wetted form of the substance, inhalative effects from dust form can be seen as negligible. Meanwhile, based on the acute oral toxicity test, it was expected that toxicity to mammals via inhalation of the substance was not a significant concern and resulted in a similar lack of acute toxicity. Thus, the substance was not classified as an acute inhalation hazard as a wetted form. Reference: OECD SIDS (2008).
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate		
Inhalative	LC50/4 h	(rat) (LC0≥5.19mg/l (aerosol; OECD TG 436; both sexes)) No animals died or showed any persistent clinical signs attributable to the test substance; it was therefore not considered as an acute inhalative hazard. Reference: ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin		
Inhalative	LC50/4 h	(No data available)

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

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· **Skin Corrosion or Irritation**

1344-28-1 Aluminum oxide	
Corrosion/Irritation	not irritating (rabbit) (OECD TG 404) Erythema score: 0.166/4 (Max. 4) in 2 out of 12 rabbits Edema score: 0 (Max. 4) Based on the classification criteria, the substance was not irritating to skin. Reference: ECHA (2011). Cabot SDS (2014)
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Corrosion/Irritation	slightly irrit. (rabbit) (0.5ml neat substance; OECD TG 404; occlusive) Minor erythema was observed on all 6 rabbits directly after the 4 hour contact but was fully reversible by day 14. Minor but quickly reversible transient oedema was evident on 3 animals. Reference: ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Corrosion/Irritation	(No data available)

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

· **Eye Serious Damage or Irritation**

1344-28-1 Aluminum oxide	
Damage/Irritation	mildly irritat. (rabbit) (US FDA Draize and Kelly test) Cornea and Iris score: 0 (Time point: 24 hours) Conjunctivae: 1/3 (Max. 3; mean score of all treated rabbits); fully reversible in 7 days. Based on the classification criteria, the substance was mildly irritating to eyes (Category 2B). Reference: ECHA (2011).
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Damage/Irritation	slightly irrit. (rabbit) (OECD TG 405; 0.1ml neat substance) No corneal injury or iritis in any of the four treated rabbits was observed. Minor irritation was exhibited in all four animals within one hour after application, but it was fully reversible within 72 hours to 9 days. Reference: ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Damage/Irritation	(No data available)

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

· **Respiratory or Skin Sensitization**

1344-28-1 Aluminum oxide		
Sensitization	Skin	not sensitizing (guinea pig) (Landsteiner/Draize method) 33% aqueous suspension induced mild to moderate skin reaction; however, significant difference between test and control groups with respect to the degree and incidence of erythema and oedema was not reported. Thus, the substance was not classified as a skin sensitizer. Reference: ECHA (2011).
	Respiratory	(No data available)
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate		
Sensitization	Skin	sensitizing (guinea pig) (OECD TG 406; intradermal and epicutaneous) Sensitizing number: 11 (19 treated animals; Time point: 24 hours) Sensitizing number: 8 (19 treated animals; Time point: 48 hours) The substance was therefore determined to be a moderate dermal sensitizer (Category 1). Reference: ECHA (2012).
	Respiratory	(No data available)
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin		
Sensitization	Skin	(No data available)
	Respiratory	(No data available)

· **Potential Health Effect(s):**
May cause an allergic skin reaction.
No relevant information for respiratory sensitization; classification is not possible.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Germ Cell Mutagenicity**

1344-28-1 Aluminum oxide	
Mutagenicity	negative (rat) (In Vivo (Chromosomal aberrations; Oral)) In Vitro (Ame test; salmonella typhimurium) - negative with and without metabolic activation. In Vitro (Bacillus subtilis recombination assay; Bacillus subtilis) - negative In Vivo (Chromosomal aberrations; rat bone marrow cells; Oral; up to 2000 mg/kg; bulk material) - negative. In Vivo (Chromosomal aberrations; rat bone marrow cells; Oral; up to 2000 mg/kg; particle size ranging from 30 mm – 40 mm) - positive. The positive result was exclusive for classification because particle size of the substance ranged from 1/2 inch (12.7mm) to 3/4 inch (19.1 mm). When considering all of the evidence, the substance was not classified as a mutagen. Reference: NLM CCRIS (2011), AluChem TDS (2002) and IUCLID Dataset (2000).

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2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Mutagenicity	negative (rat) (In Vivo (DNA damage and/or repair; OECD TG 486)) In Vitro (S. typhimurium TA 1535 and TA100) - positive with metabolic activation; negative without metabolic activation. In Vitro (S. typhimurium TA 1537, and TA 98; and E. coli WP2 uvr A) - negative with and without metabolic activation. In Vitro (Mammalian cell gene mutation assay; mouse lymphoma L5178Y cells) - positive with and without metabolic activation. In Vitro (Mammalian cell gene mutation assay; Chinese hamster Ovary (CHO)) - negative with and without metabolic activation. In Vivo (Chromosome aberration; EU Method B12; mouse; intraperitoneal with up to 2250 mg/kg) - negative; the substance did not induce micronuclei in bone marrow erythrocytes of mice. In Vivo (DNA damage and/or repair; OECD TG 486; Rat; Oral with up to 2000 mg/kg bw) - negative; it didn't induce the net nuclear grain counts in hepatocytes. Only negative results were observed from the In Vivo tests, the substance was not classified as a mutagen. Reference: ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Mutagenicity	(No data available)

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

· **Carcinogenicity**	
1344-28-1 Aluminum oxide	
Carcinogenicity	negative (rat) (Carcinogenicity not expected due to wetted form) There was some evidence of carcinogenicity via intraperitoneal routes which can be seen as negligible due to wetted form of the substance. Reference: NLM CCRIS (2011). Not classified as a human carcinogen. Aluchem SDS (2014)
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA)
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA)

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

· **Reproductive Toxicity**	
1344-28-1 Aluminum oxide	
Reproductive Toxi.	(No data available)
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Reproductive Toxi.	negative (rat) (OECD TG 414; Oral with up to 500 mg/kg bw/day) NOAEL (maternal toxicity) = 25 mg/kg bw/day; lower mean body weight, reduced mean food consumption, and increased mean kidney weight were observed. NOAEL (developmental toxicity) = 125 mg/kg bw/day. Reduced mean fetal body weight and increased skeletal developmental variations were observed at 500 mg/kg bw/day dose level. There were no developmental effects observed at the non-maternal toxic dose levels, the substance was therefore not classified as a reproductive hazard. Reference: ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Reproductive Toxi.	(No data available)

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

· **Specific Target Organ Toxicity - Single Exposure**	
1344-28-1 Aluminum oxide	
STOT-Single	Target: None (Test species: n/a) (Systemic toxicity not expected due to wetted form) Based on upper respiratory irritation reports from NIOSH ICSC, GHS-J classified the substance as Category 3 (respiratory tract irritation). However, inhalative effects can be seen as negligible due to wetted form of the substance. Reference: NIOSH ICSC (2000) and GHS-J (2006).
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
STOT-Single	(No data available)
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
STOT-Single	(No data available)

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

· **Specific Target Organ Toxicity - Repeated Exposure**	
1344-28-1 Aluminum oxide	
STOT-Repeated	Target: None (Test species: n/a) (Systemic toxicity not expected due to wetted form) The substance was classified as Category 1 to lungs by inhalation according to statement that pulmonary fibrosis occurred after long term exposure to the substance dust. However, inhalative effects can be seen as negligible due to wetted form of the substance. Reference: GHS-J (2006).
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
STOT-Repeated	Target: N/a (rat) (insufficient data for classification)
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
STOT-Repeated	(No data available)

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

· **Aspiration Hazard**	
1344-28-1 Aluminum oxide	
Aspiration Hazard	(No data available)
2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Aspiration Hazard	(No data available)

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Aspiration Hazard	(No data available)

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

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12 Ecological information

· **Aquatic Environmental Toxicity**

1344-28-1 Aluminum oxide	
Algae Toxicity	> 100 mg/l (Selenastrum capricornum) (NOEC (72 hrs), OECD TG 201) Aluchem SDS (2014)
Crustacean Toxicity	> 100 mg/l (Daphnia magna (water flea)) (NOEC (48 hrs), OECD TG 202) Aluchem SDS (2014)
Fish Toxicity	> 100 mg/l (Brown trout (Salmo trutta or Sea trout)) (NOEC (96 hrs), OECD TG 203) Reference: IUCLID Dataset (2000). Aluchem SDS (2014)

2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Algae Toxicity	90 mg/l (Selenastrum capricornum) (EC50 (72 hrs); OECD TG 201)
Crustacean Toxicity	40 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); OECD TG 202)
Fish Toxicity	24 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs); OECD TG 203) Based on the rapid degradability and the acute LC50 < 100 mg/l, the substance is classified as an Acute-3 environmental hazard. Reference: ECHA (2012).

68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Algae Toxicity	>11 mg/l (Test species: n/a) Based on similar mateial. 72hr EC 50 Reference: Vendor SDS 2014
Crustacean Toxicity	1-100 mg/l (Test species: n/a) 48hr EC 50 Based on similar mateials. Reference: Vendor SDS 2014
Fish Toxicity	1-100 mg/l (Test species: n/a) 96h LC 50 Based on similar materials. Reference: Vendor SDS 2014

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

· **Degradability and Stability**

1344-28-1 Aluminum oxide	
Biodegradation	non-biodegrad. (Test species: n/a) (As an inorganic and insoluble compound) As an inorganic and insoluble compound, biodegradation of the substance is not expected.
Persistence	(Test species: n/a) (The substance is persistent) Reference: Canada DSL (2007).
Photodegradation	(No data available) As an inorganic and insoluble compound, photodegradation of the substance is not expected.
Stability in water	stable (Test species: n/a) (As an inorganic and insoluble compound) As an insoluble inorganic metal compound, hydrolysis of the substance is not expected.

2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
Biodegradation	readily biodeg. (Test species: n/a) (OECD TG 301B; 4 weeks; Chemical Conc. 20 mg/l) Biodegradation = 71%; the substance is readily biodegradable. Reference: ECHA (2012).
Persistence	(Test species: n/a) (The substance is not persistent) Reference: Canada DSL (2007).
Photodegradation	(No data available)
Stability in water	Half-life=47hrs (Test species: n/a) (OECD TG 111; 20 °C; PH=7) Half-life (pH=4, 7, and 9) = 21, 47, and 42 hours respectively. Reference: ECHA (2012).

68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
Biodegradation	(No data available)
Persistence	(Test species: n/a) (The substance is persistent) Reference: Canada DSL (2007).
Photodegradation	(No data available)
Stability in water	(No data available)

· **Bioaccumulation and Distribution**

1344-28-1 Aluminum oxide	
BCF	(Test species: n/a) (The substance is not bioaccumulative) Reference: Canada DSL (2007).
Koc	(No data available) As an inorganic and insoluble compound, mobility of the substance is expected to be very low.
LogPow	(No data available)

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2386-87-0 (3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate	
BCF	(Test species: n/a) (The substance is not bioaccumulative) Reference: Canada DSL (2007).
Koc	26.27 L/kg (Test species: n/a) (Calculated by PCKOCWIN v1.66) Reference: ECHA (2012).
LogPow	1.34 (Test species: n/a) (OECD TG 107; 20 °C) Reference: ECHA (2012).
68610-41-3 2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin	
BCF	(No data available) The substance is not bioaccumulative. Reference: Canada DSL (2007).
Koc	(No data available)
LogPow	(No data available)

· **Degradability and Bioaccumulation Assessment:** Non-rapidly degradable, and low bioaccumulative.

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13 Disposal considerations

· **Hazardous Waste List**
· **Description:** It may be necessary to contain and dispose of the substance/mixture as a hazardous waste.

· **RCRA Waste:**			
71-36-3	1-Butyl alcohol	U031 (n-Butyl alcohol (I))	0-<0.1%

· **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**	Not regulated for transport; not applicable. -
· **UN Proper Shipping Name** · **DOT, ADR, IMDG, IATA**	Not regulated for transport; not applicable. -
· **Transport hazard class(es)** · **DOT, ADR, IMDG, IATA** · **Class**	Not regulated for transport; not applicable. -
· **Packing group** · **DOT, ADR, IMDG, IATA**	Not regulated for transport; not applicable. -
· **Environmental Hazards:**	Not applicable.
· **Special Precautions:**	Not applicable.
· **Transport in Bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	-

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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)**		
71-36-3	1-Butyl alcohol	0-<0.1%

· **Section 311/312 (Hazardous Chemical Inventory Reporting)**			
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin	A, C	0.1-<1%
2530-83-8	Glycidyloxypropyltrimethoxysilane	A, C	0.1-<1%
1333-86-4	Carbon black	A, C	0.1-1%

· **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

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

1344-28-1	Aluminum oxide
2386-87-0	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
68610-41-3	2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin
67762-90-7	Siloxanes and Silicones, di-Me, reaction products with silica
2530-83-8	Glycidyloxypropyltrimethoxysilane
1333-86-4	Carbon black
98171-53-0	Butanoic acid, 4-amino-4-oxosulfo-, N-coco alkyl derivs., monosodium salts, compds. with triethanolamine
71-36-3	1-Butyl alcohol

· **Proposition 65**

· **Chemicals Known to Cause Cancer**

1333-86-4	Carbon black

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Chemicals Known to Cause Developmental Toxicity**

67-56-1	Methanol

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

71-36-3	1-Butyl alcohol	D

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

1333-86-4	Carbon black	A4

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

None of the ingredients is listed.

· **International Regulation Lists**

· **Canadian Domestic Substance Listings:**

1344-28-1	Aluminum oxide
2386-87-0	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
68610-41-3	2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin
67762-90-7	Siloxanes and Silicones, di-Me, reaction products with silica
2530-83-8	Glycidyloxypropyltrimethoxysilane
1333-86-4	Carbon black
98171-53-0	Butanoic acid, 4-amino-4-oxosulfo-, N-coco alkyl derivs., monosodium salts, compds. with triethanolamine
71-36-3	1-Butyl alcohol

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

1344-28-1	Aluminum oxide
2386-87-0	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
68610-41-3	2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin
67762-90-7	Siloxanes and Silicones, di-Me, reaction products with silica
2530-83-8	Glycidyloxypropyltrimethoxysilane
1333-86-4	Carbon black
98171-53-0	Butanoic acid, 4-amino-4-oxosulfo-, N-coco alkyl derivs., monosodium salts, compds. with triethanolamine
71-36-3	1-Butyl alcohol

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

1344-28-1	Aluminum oxide
2386-87-0	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
68610-41-3	2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin
67762-90-7	Siloxanes and Silicones, di-Me, reaction products with silica
2530-83-8	Glycidyloxypropyltrimethoxysilane
1333-86-4	Carbon black

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71-36-3	1-Butyl alcohol
·	**Korean Existing Chemical Inventory:**
1344-28-1	Aluminum oxide
2386-87-0	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
68610-41-3	2-Propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin
67762-90-7	Siloxanes and Silicones, di-Me, reaction products with silica
2530-83-8	Glycidyloxypropyltrimethoxysilane
1333-86-4	Carbon black
71-36-3	1-Butyl alcohol
·	**European Pre-registered substances:**
1344-28-1	Aluminum oxide
2386-87-0	(3,4-Epoxycyclohexyl)methyl 3,4-epoxycyclohexylcarboxylate
25068-38-6	Bisphenol-A-(epichlorohydrin) epoxy resin
67762-90-7	Siloxanes and Silicones, di-Me, reaction products with silica
2530-83-8	Glycidyloxypropyltrimethoxysilane
1333-86-4	Carbon black
98171-53-0	Butanoic acid, 4-amino-4-oxosulfo-, N-coco alkyl derivs., monosodium salts, compds. with triethanolamine
71-36-3	1-Butyl alcohol
·	**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
ADR: European Agreement Concerning the International Carriage of Dangerous Goods by Road
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DOT: US Department of Transportation
HMIS: US National Paint & Coatings Association (NPCA) Hazardous Materials Identification System
IARC: International Agency for Research on Cancer developed by United Nations World Health Organisation (WHO)
ICAO-TI: Technical Instructions (TI) by the International Civil Aviation Organization (ICAO)
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)
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
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
SARA: US Superfund Amendments and Reauthorization Act
TEEL: Temporary Emergency Exposure Limit developed by US Subcommittee on Consequence Assessment and Protective Actions (SCAPA) of US Department of Energy (DOE)
TSCA: US Toxic Substance Control Act
ACToR: US EPA Aggregated Computational Toxicology Resource
BCF: Bioconcentration Factor
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
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
HSDB: US NLM TOXNET Hazardous Substances Databank
HSNO CCID: New Zealand Hazardous Substances and New Organisms Chemical Classification Information Database
IATA-DGR: Dangerous Goods Regulations (DGR) by the International Air Transport Association (IATA)
ICSC: International Chemical Safety Cards
IUCLID: EU REACh International Uniform Chemical Information Database
Koc: Partition coefficient, soil Organic Carbon to water
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
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)

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RTECS: US Registry of Toxic Effects of Chemical Substances
SIDS: OECD existing chemicals Screening Information Data Sets
SVHC: EU ECHA Substance of Very High Concern
TOXLINE: US NLM bibliographic database search system
· **Date of preparation / last revision** 11/10/2015 / 2