Safety Data Sheet
acc. to OSHA HCS

Print Date 03/07/2017 Revision Date 03/07/2017

· **Product Identifier**
· **Trade Name: EP1200LV 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**
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Skin Sens. 1 H317 May cause an allergic skin reaction.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.

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

GHS05 GHS07 GHS08

· **Signal Word** Danger

· **Hazard-determining Component(s)**
4-Nonylphenol, branched
Nonylphenol
Proprietary Ingredient-CAS number withheld as permitted by 29CFR1910.1200(i).
N-(2-Aminoethyl)piperazine
1,4-Bis(aminocyclohexyl)methane
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child.

· **Precautionary statements**
Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves / eye protection / face protection.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
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 INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
Wash contaminated clothing before reuse.
IF exposed or concerned: Get medical advice/attention.
If skin irritation or rash occurs: Get medical advice/attention.
If swallowed: Rinse mouth. Do NOT induce vomiting.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Health = 3
Fire = 1
Reactivity = 0

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

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

Health = *3
Fire = 1
Reactivity = 0

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

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· **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	50-60%
CAS: 84852-15-3 EINECS: 284-625-5 Index Number: 601-053-00-8	4-Nonylphenol, branched Repr. 2, H361 Skin Corr. 1B, H314; Eye Dam. 1, H318 Aquatic Chronic 1, H410 Acute Tox. 4, H302	20-<25%
CAS: 9046-10-0	Poly(oxypropylene)diamine Skin Corr. 1C, H314; Eye Dam. 1, H318 Aquatic Chronic 2, H411 Aquatic Acute 3, H402	2.5-5%
CAS: 140-31-8 EINECS: 205-411-0 Index Number: 612-105-00-4 RTECS: TK 8050000	N-(2-Aminoethyl)piperazine Acute Tox. 3, H311 Skin Corr. 1B, H314 Acute Tox. 4, H302; Skin Sens. 1, H317 Aquatic Chronic 3, H412	1-<2.5%
CAS: 1761-71-3 EINECS: 217-168-8	1,4-Bis(aminocyclohexyl)methane STOT RE 2, H373 Skin Corr. 1B, H314 Aquatic Chronic 2, H411 Acute Tox. 4, H302; Skin Sens. 1, H317	1-<2.5%
	Polypropylene glycol	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%

· **Additional Information:**
If the chemical name/CAS number is proprietary and or weight percentage is listed as a range, the specific chemical identity and or percentage of composition has been withheld as a trade secret.

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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.
Supply fresh air; consult doctor in case of complaints.

· **After Skin Contact**
Immediately remove all contaminated clothing and put them in a tightly sealed bag.
Immediately wash contaminated skin with water and soap and rinse them thoroughly.
Seek medical treatment in case of complaints.

· **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.
Do NOT induce vomiting.
Get medical attention

· **Information for Doctor**

· **Indication of any Immediate Medical Attention and Special Treatment Needed**
Check section 11 Toxicological Information for further relevant information.

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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).

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Water spray or water fog.
· **Unsuitable Extinguishing Agent(s)** Water with full jet

· **Firefighting Procedures**
Solid stream of water may spread fire; use water spray or water fog.
Cool all affected containers with flooding quantities of water.
Runoff from fire control or dilution water may be corrosive and/or toxic; protect personnel and minimize property damage.
Contain fire water runoff if possible to prevent environmental pollution.
Apply water from as far as a distance as possible.

· **Special Hazards Arising in Fire**
May evolve flammable hydrogen (H_2) in contact with metals when heated or in a fire.
In case of fire, following can be released:
Carbon dioxide (CO_2) and Carbon monoxide (CO)
Nitrogen oxides

· **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**
Do not touch damaged containers or spills unless wearing appropriate protective equipment.
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.
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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
84852-15-3	4-Nonylphenol, branched	3.9 mg/m3
9046-10-0	Poly(oxypropylene)diamine	4.8 mg/m3
140-31-8	N-(2-Aminoethyl)piperazine	6.4 mg/m3
112945-52-5	silicon dioxide amorphous	18 mg/m3
	Polypropylene glycol	30 mg/m3
71-36-3	1-Butyl alcohol	60 ppm

· **PAC-2:**		
84852-15-3	4-Nonylphenol, branched	43 mg/m3
9046-10-0	Poly(oxypropylene)diamine	53 mg/m3
140-31-8	N-(2-Aminoethyl)piperazine	71 mg/m3
112945-52-5	silicon dioxide amorphous	100 mg/m3
	Polypropylene glycol	330 mg/m3
71-36-3	1-Butyl alcohol	800 ppm

· **PAC-3:**		
84852-15-3	4-Nonylphenol, branched	260 mg/m3
9046-10-0	Poly(oxypropylene)diamine	320 mg/m3
140-31-8	N-(2-Aminoethyl)piperazine	420 mg/m3
112945-52-5	silicon dioxide amorphous	630 mg/m3
	Polypropylene glycol	2,000 mg/m3
71-36-3	1-Butyl alcohol	8000** ppm

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7 Handling and storage

· **Handling**
· **Precautions for Safe Handling**
Avoid breathing vapor.
Ensure good ventilation and/or exhaustion at workplace.
Keep away from incompatible material(s).
Avoid any release into the environment.
For industrial or professional use only
Observe all the personal protection requirements in Section 8.
· **Information about Protection Against Explosions and Fires**
Keep away from heat, sparks, open flame and other ignition sources during handling.

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Be prepared with respirators.

· **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.

· **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**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

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
84852-15-3 4-Nonylphenol, branched	
TEEL-1	Short-term value: 20 mg/m³
TEEL-2	Short-term value: 125 mg/m³
TEEL-3	Short-term value: 500 mg/m³
140-31-8 N-(2-Aminoethyl)piperazine	
TEEL-1	Short-term value: 7.5 mg/m³
TEEL-2	Short-term value: 50.0 mg/m³
TEEL-3	Short-term value: 500 mg/m³
Polypropylene glycol	
TEEL-1	Short-term value: 30 mg/m³
TEEL-2	Short-term value: 200 mg/m³
TEEL-3	Short-term value: 500 mg/m³
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**
Use of this material at elevated temperatures or aerosol/spray applications may require additional precautions.
Avoid any contact with skin or eye.
Do not eat, drink or smoke during work.
Clean hands and exposed skin thoroughly after work and before breaks.
Pregnant women should avoid direct skin contact with this product.

· **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.
Nitrile Gloves
Butyl Rubber Gloves
· **Eye Protection**
do not wear contacts.
safety glasses with side shields and or face shield.
· **Body Protection** Appropriate chemical resistant clothing.

· **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:** White
· **Odor:** Amine-like

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· **Odor Threshold:**	Not determined.
· **PH-Value at 20 °C (68 °F):**	>10
· **Change in Condition:**	
· **Melting Point:**	Not determined.
· **Boiling Point:**	Not determined.
· **Flash Point:**	>93 °C (>199 °F)
· **Decomposition Temperature:**	Not determined.
· **Auto-ignition Temperature:**	Not determined.
· **Flammability:**	Not determined.
· **Explosion:**	Not determined.
· **Explosion Limits:**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.
· **Vapor Pressure:**	Not determined.
· **Vapor Density:**	not determined
· **Density at 20 °C (68 °F):**	1.7 g/cm³ (14.187 lbs/gal)
· **Solubility in or Miscibility with**	
· **Water:**	Not miscible or difficult to mix.
· **Viscosity:**	
· **Dynamic at 20 °C (68 °F):**	16.000 mPas
· **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 react with strong reducing agents generating flammable hydrogen (H_2).
May act catalytically with ethylene oxide or vinyl chloride causing irreversible polymerization with considerable heat buildup.

· **Incompatible Material(s)**
Oxidizing agents
metals
Strong reducing agents
Ethylene oxide
Chlorine trifluoride
Acids

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

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

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11 Toxicological information

· **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).
84852-15-3 4-Nonylphenol, branched		
Oral	LD50	1604 mg/kg (rat) Reference: Vendor SDS (2015)
9046-10-0 Poly(oxypropylene)diamine		
Oral	LD50	2885 mg/kg (rat) (similar to OECD guideline 401) Reference: Vendor SDS (2015).
140-31-8 N-(2-Aminoethyl)piperazine		
Oral	LD50	2140 mg/kg (rat)
1761-71-3 1,4-Bis(aminocyclohexyl)methane		
Oral	LD50	380 mg/kg (rat) (female and male rats; EPA OPP 81-1) Calculated from LC50 (females) of 350 mg/kg bw and LC50 (males) of 480 mg/kg bw. 100 - 1250 mg/kg (rat) (no test details available) 600 mg/kg (mouse) (no test details available) When considering the weight of all evidence, 380 mg/kg was chosen for classification. Reference: ECHA (2011).

· **Potential Health Effect(s):**
If swallowed, may cause:
diarrhea
shock or collapse

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abnormal pain, headache, nausea, vomiting, drowsiness
See acute inhalative effect(s) for further information

· **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).
84852-15-3 4-Nonylphenol, branched		
Dermal	LD50	2031 mg/kg (rabbit) Vendor SDS 2015
9046-10-0 Poly(oxypropylene)diamine		
Dermal	LD50	2980 mg/kg (rabbit) (similar to OECD guideline 402) Reference: Vendor SDS (2015).
140-31-8 N-(2-Aminoethyl)piperazine		
Dermal	LD50	866 mg/kg (rabbit)
1761-71-3 1,4-Bis(aminocyclohexyl)methane		
Dermal	LD50	2110 mg/kg (rabbit) (EPA OPP 81-2; semi-occlusive) LD0(EPA OPP 81-2)>1000 mg/kg; no death occurred at 1000 mg/kg. Reference: ECHA (2011).

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

· **Inhalative**		
1344-28-1 Aluminum oxide		
Inhalative	LC50/4 h	7.6 mg/l (read across from 101-68-8) (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).
84852-15-3 4-Nonylphenol, branched		
Inhalative	LC50/4 h	not classified mg/l (mouse) (Non-toxic; LC50 exceeded the satured vapor value)
9046-10-0 Poly(oxypropylene)diamine		
Inhalative	LC50/4 h	not classified mg/l (read across from 101-68-8) (Exposure Time 8h)
140-31-8 N-(2-Aminoethyl)piperazine		
Inhalative	LC50/4 h	not classified mg/l (rat) (No mortality observed at saturated atmosphere)
1761-71-3 1,4-Bis(aminocyclohexyl)methane		
Inhalative	LC50/4 h	not classified mg/l (mouse) (LC0/6h >0.4wt%; no death occurred)

· **Potential Health Effect(s):**
Harmful if inhaled.
nasal discharge
sore throat
cough, headache, nausea, shortness of breath, vomiting, and wheezing

· **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)
84852-15-3 4-Nonylphenol, branched	
Corrosion/Irritation	corrosive (rabbit) (Directive 84/449/EEC B4; Post-exposure: 8 days) All tested animals showed signs of erythema, edema, and eschar which were not fully reversible within 8 days.Reference: IUCLID Dataset (2000).
9046-10-0 Poly(oxypropylene)diamine	
Corrosion/Irritation	corrosive (rabbit) (similar to OECD guideline 404) Reference: Vendor SDS 2015
140-31-8 N-(2-Aminoethyl)piperazine	
Corrosion/Irritation	corrosive (rabbit) (US DOT Corrosivity Assay)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Corrosion/Irritation	corrosive (rabbit) (US DOT test and Draize score system; occlusive) Overall irritation: 5.6/8 (Max. 8; mean score of all animals; time point: 1 hour) Overall irritation: 8/8 (Max. 8; mean score of all animals; time point: 24+48+72+120+168 hours) The substance was therefore classified as corrosive to rabbit skin (Category 1). Reference: ECHA (2011).

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

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· **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).
84852-15-3 4-Nonylphenol, branched	
Damage/Irritation	serious irrit. (rabbit) (Draize Test) The substance was classified as a serious eye irritant (Category 1).Reference: IUCLID Dataset (2000).
9046-10-0 Poly(oxypropylene)diamine	
Damage/Irritation	serious damage (rabbit) (similar to OECD Guideline 405) Reference: Vendor SDS 2015.
140-31-8 N-(2-Aminoethyl)piperazine	
Damage/Irritation	serious damage (rabbit)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Damage/Irritation	seriously irrit (rabbit) (0.01 mL or 0.1 mL neat substance) Corrosive effects (irreversible effect) were observed after a single In Vivo administration with 0.1 ml neat substance to rabbit eyes; the substance was therefore classified as a serious eye irritant (Category 1). Reference: IUCLID Dataset (2000).

· **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**

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)
84852-15-3 4-Nonylphenol, branched		
Sensitization	Skin	not sensitizing (guinea pig) (Buehler test with OECD TG 406) Guinea pig maximization test - negative Reference: IUCLID Dataset (2000).
	Respiratory	(No data available)
9046-10-0 Poly(oxypropylene)diamine		
	Respiratory	(No data available)
140-31-8 N-(2-Aminoethyl)piperazine		
Sensitization	Skin	sensitizing (guinea pig) (OECD TG 406)
	Respiratory	(No data available)
1761-71-3 1,4-Bis(aminocyclohexyl)methane		
Sensitization	Skin	sensitizing (guinea pig) (OECD TG 406; abraded skin; 13% solution) Positive reactions were observed in 7 out of 10 animals; the substance was therefore classified as a skin sensitizer to guinea pigs. Reference: ECHA (2011).
	Respiratory	(No data available)

· **Potential Health Effect(s):**
May cause an allergic skin reaction.
Repeated skin contact may cause dermatitis, skin rash or itchiness.
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).
84852-15-3 4-Nonylphenol, branched	
Mutagenicity	negative (mouse) (In Vivo (Directive 79/831/EEC, B12)) no mutagenic effects in mouse erythrocytes were observed during the test sampling time.Reference: IUCLID Dataset (2000).
9046-10-0 Poly(oxypropylene)diamine	
Mutagenicity	(No data available)
140-31-8 N-(2-Aminoethyl)piperazine	
Mutagenicity	negative (Human) (In Vitro (Cytogenic Assay with OECD TG 473)) negative (mouse) (In Vivo (Micronucleus Assay))

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1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Mutagenicity	negative (mouse) (In Vivo (Micronucleus assay)) In Vitro (Ame Test; Salmonella typhimurium) - negative with and without metabolic activation In Vitro (Cytogenetic assay in CHL cells, Directive 84/449/EEC, B10) - negative with and without metabolic activation In Vitro (HGPRT assay in CHO cells, OECD TG 476) - negative with and without metabolic activation Reference: IUCLID Dataset (2000) and CCRIS (2011).

· **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)
84852-15-3 4-Nonylphenol, branched	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA) Reference: Hexion (M)SDS (2004).
9046-10-0 Poly(oxypropylene)diamine	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA)
140-31-8 N-(2-Aminoethyl)piperazine	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA)

· **Reproductive Toxicity**	
1344-28-1 Aluminum oxide	
Reproductive Toxi.	(No data available)
84852-15-3 4-Nonylphenol, branched	
Reproductive Toxi.	positive (rat) (NOAEL (oral) = 15 mg/kg/day) There were adverse effects on pups observed at the non-maternally toxic doses; the substance was therefore classified as a suspected reproductive hazard by EU.Reference: EPA HPVIS (2010) and REACh CLP (2012).
9046-10-0 Poly(oxypropylene)diamine	
Reproductive Toxi.	not impairing (Test species listed below) (OECD 421/422) The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening Test. Reference: Vendor SDS 2015
140-31-8 N-(2-Aminoethyl)piperazine	
Reproductive Toxi.	negative (rat) (OECD TG 422; No reproductive performance observed)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Reproductive Toxi.	N/A (rat) (conclusive but not sufficient for classification) NOAEL (parental, reproduction and developmental toxicity; OECD TG 422) = 15 mg/kg bw/day. A reduced number of viable fetuses were seen in females at 100 mg/kg bw/day. A higher incidence of postnatal loss with a corresponding reduction in viability index were observed in females at 50 mg/kg bw/day and above. However, ECHA concluded it was conclusive but not sufficient for classification without further evidence. Reference: ECHA (2011).

· **Potential Health Effect(s):** Suspected of damaging fertility or the unborn child.

· **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).
84852-15-3 4-Nonylphenol, branched	
STOT-Single	(No data available)
9046-10-0 Poly(oxypropylene)diamine	
STOT-Single	(No data available)
140-31-8 N-(2-Aminoethyl)piperazine	
STOT-Single	Target: N/A (rat) (conclusive but not sufficient for classification)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
STOT-Single	(rat) Dyspnea was observed after a single oral administration with 670 mg/kg of the substance to rats. However, ECHA concluded it was conclusive but not sufficient for classification without further evidence. Reference: ChemID (2011) and ECHA (2012).

· **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).

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84852-15-3 4-Nonylphenol, branched	
STOT-Repeated	(rat) (Target: Kidney via Oral routes) NOAEL (oral, 90 days) = 50 mg/kg/day; there were renal tubular epithelial degeneration and renal tubular dilatation observed from the test animals. Reference: Huntsman (M)SDS (2009), EPA HPVIS (2010), IUCLID Dataset (2000) and GHS-J (2006).
9046-10-0 Poly(oxypropylene)diamine	
STOT-Repeated	(No data available)
140-31-8 N-(2-Aminoethyl)piperazine	
STOT-Repeated	Target: None (rat) (After repeated dermal or oral administration)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
STOT-Repeated	(rat) Target organs (OECD TG 422): Muscles and liver via Oral routes Treatment related microscopic findings were observed in various organs including muscles (vaculolation of stomach musculature) and liver (vacuolation of centrilobular liver) after repeated oral administration with 50 mg/kg bw/day of the substance to rats. Reference: ECHA (2011) and IUCLID Dataset (2000).

· **Potential Health Effect(s):**
May cause damage to the kidneys, the liver and the muscles through prolonged or repeated exposure. Route of exposure: Oral.

· **Aspiration Hazard**	
1344-28-1 Aluminum oxide	
Aspiration Hazard	(No data available)
84852-15-3 4-Nonylphenol, branched	
Aspiration Hazard	(No data available)
9046-10-0 Poly(oxypropylene)diamine	
Aspiration Hazard	(No data available)
140-31-8 N-(2-Aminoethyl)piperazine	
Aspiration Hazard	(No data available)
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Aspiration Hazard	(No data available)

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

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

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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)
84852-15-3 4-Nonylphenol, branched	
Algae Toxicity	0.27 mg/l (Skeletonema costatum) (EC50 (96 hrs)) (Pseudokirchneriella subcapitata)EC50 (96 hrs) = 0.41 mg/L(Scenedesmus subspicatus)EC50 (72 hrs; Algenwachstums-Hemmtest nach UBA) = 1.3 mg/L
Crustacean Toxicity	0.15 mg/l (Hyalella azteca) (EC50 (96 hrs)) (Daphnia magna (water flea))EC50 (48 hrs) = 0.035 mg/L)NOEC (21 days) = 0.024 mg/L(Mysidopsis bahia) EC50 (96 hrs) = 0.043 mg/LNOEC (28 days) = 3.9 µg/L
Fish Toxicity	0.14 mg/l (Pimephales promelas (fathead minnow)) Vendor SDS (2015)
9046-10-0 Poly(oxypropylene)diamine	
Algae Toxicity	(No data available)
Crustacean Toxicity (static)	80 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs), OECD TG 202,part 1) The details of the toxic effect relate to nominal concentration.
Fish Toxicity	>15 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs), OECD TG 203;semistatic)
140-31-8 N-(2-Aminoethyl)piperazine	
Algae Toxicity	495 mg/l (Green Algae) (EC50 (72 hrs); OECD TG 201)
Crustacean Toxicity	32 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); OECD TG 202)
Fish Toxicity	368 mg/l (Leuciscus idus (Ide or Orfe)) (LC50 (96 hrs))
1761-71-3 1,4-Bis(aminocyclohexyl)methane	
Algae Toxicity (static)	141-200 mg/l (Scenedesmus subspicatus) (ErC50 (72 hrs; Growth rate); DIN 38412, Part 9) EbC50 (DIN 38412, Part 9; Biomass, 72 hrs) = 141 - 200 (mg/L)
Crustacean Toxicity (static)	6.84 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs), OECD TG 202) Based on the non-rapid degradability and the acute LC50 < 10 mg/L, the substance is classified as Chronic-2 environmental hazard.
Fish Toxicity	46-100 mg/l (Leuciscus idus (Ide or Orfe)) (LC50 (96 hrs)) Reference: ECHA (2011) and IUCLID Dataset (2000).

· **Aquatic Environmental Toxicity Assessment:** No further relevant information; classification is not possible.

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· **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.

84852-15-3 4-Nonylphenol, branched

Biodegradation	non-biodegrad. (Test species: n/a) (Read-across from 25154-52-3; OECD TG 301C) Biodegradation (Conc. 100 ppm; 2 weeks; Direct analysis from GC, UV-vis, HPLC) = 8.9, 5.3, 2.5% Biodegradation (Conc. 100 ppm; 2 weeks; Indirect analysis from BOD) = 0% The substance is non-biodegradable. Reference: NITE CHRIP (2010).
Persistence	(Test species: n/a) (The substance is not persistent) Reference: Canada DSL (2007).
Photodegradation	9.99E-11 cm³/molecule-sec (OH radical) (Half-life (5.0E5 OH/cm³) = 0.3 day) Reference: IUCLID Dataset (2000).
Stability in water	(No data available)

9046-10-0 Poly(oxypropylene)diamine

Biodegradation	non-biodegrad. (Activated Sludge) (Biodegradation (OECD TG 301A; 28 days) = 10%) Reference: BASF (M)SDS (2006).
Persistence	(Test species: n/a) (This substance is not persistent) Reference: Canada DSL (2007).
Photodegradation	(Test species: n/a) (Indirect photolysis) t1/2 (Indirect photolysis) 1.6h; OH radical After evaporation or exposure to the air; the product will be rapidly degraded by photochemical processes.
Stability in water	(No data available) In contact with water the substance will hydrolyse slowly. Reference: Vendor SDS 2015

140-31-8 N-(2-Aminoethyl)piperazine

Biodegradation	non-biodegrad. (Test species: n/a) (Biodegradation (OECD TG 301C) < 5%)
Persistence	(Test species: n/a) (The substance is persistent)
Photodegradation	2.14E-14 cm³/molecule-sec (OH radical) (Half-life (1.5E6 OH/cm³) = 0.6 hours)
Stability in water	stable (Test species: n/a)

1761-71-3 1,4-Bis(aminocyclohexyl)methane

Biodegradation	non-biodegrad. (Test species: n/a) (Degradation (OECD TG 302B) < 10%) The substance is not biodegradable. Reference: ECHA (2011).
Persistence	(No data available)
Photodegradation	1.16E-10 cm³/molecule-sec (Test species: n/a) (Calculated QSAR) Half-Life = 0.092 Days (12-hr day; 1.5E6 OH/cm³) = 1.101 Hours; however, photolysis in water is negligible. Reference: ECHA (2011).
Stability in water	(No data available)

· **Bioaccumulation and Distribution**

1344-28-1 Aluminum oxide

LogPow	(No data available)
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.

84852-15-3 4-Nonylphenol, branched

LogPow	3.8 - 4.8 (Test species: n/a) Reference: IUCLID Dataset (2000).
BCF	90-330 (Cyprinus carpio) (The substance is not bioaccumulative) Reference: NITE CHRIP (2010) and IUCLID Dataset (2000).
Koc	2580 - 25200 L/kg (Test species: n/a) Calculated from Log Koc = 0.989 LogPow - 0.346 and LogPow of 3.8 - 4.8.Reference: IUCLID Dataset (2000).

9046-10-0 Poly(oxypropylene)diamine

LogPow	-0.09 (Test species: n/a) (The substance is not bioaccumulative) Reference: BASF (M)SDS.
BCF	(No data available)
Koc	(No data available)

140-31-8 N-(2-Aminoethyl)piperazine

LogPow	-1.48 (Test species: n/a) (Shake-flask method)
BCF	(Test species: n/a) (The substance is not bioaccumulative)
Koc	37000 L/kg (Test species: n/a) (Batch equilibrium method)

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1761-71-3 1,4-Bis(aminocyclohexyl)methane	
LogPow	2.03 (Test species: n/a) (OECD TG 107 at 25 °C) Reference: ECHA (2011).
BCF	LogBCF=1.01 (Test species: n/a) (QSAR; the substance is not bioaccumulative) Reference: ECHA (2011) and IUCLID Dataset (2000)
Koc	446 L/kg (Test species: n/a) (Calculated by QSAR) Thus, mobility of the substance to soil is low. According to Mackay Level I, the substance would be expected to mainly partition to water (98%). Reference: ECHA (2011).

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

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

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13 Disposal considerations

· **Hazardous Waste List**

· **Description:**
The product has not been evaluated for its hazards when disposed as a waste by RCRA.
However, it is necessary to contain and dispose of the product as a hazardous waste based on the Hazard Identification in Section 2.

· **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** UN3267

· **UN Proper Shipping Name**

· **DOT** Corrosive liquid, basic, organic, n.o.s. (4-Nonylphenol, branched, Poly(oxypropylene)diamine)

· **IMDG** CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (4-Nonylphenol, branched, Poly(oxypropylene)diamine), MARINE POLLUTANT

· **IATA** CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (4-Nonylphenol, branched, Poly(oxypropylene)diamine)

· **Transport hazard class(es)**

· **DOT**

· **Class** 8 Corrosive substances
· **Label** 8

· **ADR**

· **Class** 8 (C7) Corrosive substances
· **Label** 8

· **IMDG**

· **Class** 8 Corrosive substances

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· **Label**	8
· **IATA**	
	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental Hazards:**	Product contains environmentally hazardous substances: 4-Nonylphenol, branched
· **Marine Pollutant:**	Yes Symbol (fish and tree)
· **Special Marking (ADR):**	Symbol (fish and tree)
· **Special Precautions:**	Warning: Corrosive substances
· **Danger Code (Kemler):**	80
· **EMS Number:**	F-A,S-B
· **Segregation Groups**	Alkalis
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **Segregation Code**	SG35 Stow "separated from" acids.
· **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: On cargo aircraft only:
· **Remarks:**	Special marking with the symbol (fish and tree).
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 3267 CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (4-NONYLPHENOL, BRANCHED, POLY(OXYPROPYLENE)DIAMINE), 8, III

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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)**

84852-15-3	4-Nonylphenol, branched	20-<25%
71-36-3	1-Butyl alcohol	0-<0.1%

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

84852-15-3	4-Nonylphenol, branched	A	20-<25%
9046-10-0	Poly(oxypropylene)diamine	A	2.5-5%
140-31-8	N-(2-Aminoethyl)piperazine	A, C	1-<2.5%
1761-71-3	1,4-Bis(aminocyclohexyl)methane	A, C	1-<2.5%

· **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)**

84852-15-3	4-Nonylphenol, branched
9046-10-0	Poly(oxypropylene)diamine
140-31-8	N-(2-Aminoethyl)piperazine
1761-71-3	1,4-Bis(aminocyclohexyl)methane
	Polypropylene glycol
98171-53-0	Butanoic acid, 4-amino-4-oxosulfo-, N-coco alkyl derivs., monosodium salts, compds. with triethanolamine

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71-36-3	1-Butyl alcohol
7732-18-5	Water, distilled

· **Proposition 65**

· **Chemicals Known to Cause Cancer**

None of the ingredients is listed.

· **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**

None of the ingredients is listed.

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

71-36-3	1-Butyl alcohol	D

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

112945-52-5	silicon dioxide amorphous	3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **International Regulation Lists**

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

All ingredients are listed.

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

1344-28-1	Aluminum oxide
84852-15-3	4-Nonylphenol, branched
9046-10-0	Poly(oxypropylene)diamine
140-31-8	N-(2-Aminoethyl)piperazine
1761-71-3	1,4-Bis(aminocyclohexyl)methane
112945-52-5	silicon dioxide amorphous
	Polypropylene glycol
71-36-3	1-Butyl alcohol
7732-18-5	Water, distilled

· **Korean Existing Chemical Inventory:**

1344-28-1	Aluminum oxide
84852-15-3	4-Nonylphenol, branched
9046-10-0	Poly(oxypropylene)diamine
140-31-8	N-(2-Aminoethyl)piperazine
1761-71-3	1,4-Bis(aminocyclohexyl)methane
112945-52-5	silicon dioxide amorphous
	Polypropylene glycol
71-36-3	1-Butyl alcohol
7732-18-5	Water, distilled

· **European Pre-registered substances:**

All ingredients are listed.

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

84852-15-3	4-Nonylphenol, branched	20-<25%

· **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

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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
HPVIS: US EPA High Production Volume Information 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
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*** *03/07/2017 / 4*