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· **Product Identifier**
· **Trade Name: EP1300 Black 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**
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
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 GHS06 GHS08

· **Signal Word** Danger

· **Hazard-determining Component(s)**
2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)
4-Nonylphenol, branched
Benzyl alcohol
· **Hazard statements**
Harmful if swallowed or if inhaled.
Toxic in contact with skin.
Causes severe skin burns and eye damage.
Suspected of damaging fertility or the unborn child.

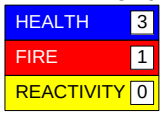
· **Precautionary statements**
Avoid breathing vapours.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not eat, drink or smoke when using this product.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Wash contaminated clothing before reuse.
IF exposed or concerned: Get medical advice/attention.
If swallowed: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN: Wash with plenty of water.
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

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· **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: 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	50-60%
CAS: 6864-37-5 EINECS: 229-962-1 Index Number: 612-110-00-1	2,2'-dimethyl-4,4'methylenebis(cyclohexylamine) Acute Tox. 3, H311; Acute Tox. 2, H330 Skin Corr. 1B, H314 Acute Tox. 4, H302	30-40%
CAS: 100-51-6 EINECS: 202-859-9 Index Number: 603-057-00-5 RTECS: DN 3150000	Benzyl alcohol Acute Tox. 4, H302; Acute Tox. 4, H332; Eye Irrit. 2A, H319 Aquatic Acute 2, H401	10-20%

· **Classification System:**
The Classifications were based on the Toxicological and Ecological Data of the substances/mixtures in the Section 11 and 12.
· **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**
Immediately remove any clothing contaminated with the product.
In case of irregular breathing perform artificial respiration.
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.
Consult a physician after significant exposure.

· **After Skin Contact**
Remove all contaminated clothing and wash before reuse.
Wash contaminated skin with water and soap and rinse thoroughly.
Get medical attention

· **After Eye Contact**
Immediately rinse opened eyes for at least 15 minutes under running water.
Immediately remove contact lenses if present. Continue rinsing.
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.
Seek medical treatment in case of complaints.

· **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)** Water with full jet

· **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.

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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.

· **Special Hazards Arising in Fire**
Will not burn unless preheated.
In case of fire, following can be released:
toxic vapor, gas or particulates
May generate ammonia gas.
nitric acid
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.

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7 Handling and storage

· **Handling**
· **Precautions for Safe Handling**
For industrial or professional use only
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**
Will not burn unless preheated.
Keep away from heat, sparks, open flame and other ignition sources during handling.
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.
· **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**	
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
100-51-6 Benzyl alcohol	
TEEL-1	Short-term value: 260 mg/m³, 60.0 ppm

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TEEL-2	Short-term value: 660 mg/m³, 150.0 ppm
TEEL-3	Short-term value: 660 mg/m³, 150.0 ppm
WEEL	Long-term value: 10 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**
Pregnant women should avoid direct skin contact with this product.
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.

· **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.
polymer laminate
· **Eye Protection**
tightly sealed goggles
tightly sealed goggles and face shields if the potential for splashing occurs.
· **Body Protection** Protective clothing should be selected to cover as much of the exposed skin area as possible.

· **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:** Irritating
· **Odor Threshold:** Not determined.

· **PH-Value:** Not determined.

· **Change in Condition:**
· **Melting Point:** Not determined.
· **Boiling Point:** Not determined.
· **Flash Point:** > 101 °C (> 214 °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:** not determined
· **Density at 25 °C (77 °F):** 0.96 g/cm³ (8.011 lbs/gal)
· **Solubility in or Miscibility with**
· **Water:** Slightly soluble.
· **Viscosity:**
· **Dynamic at 20 °C (68 °F):** 5000 mPas
· **Kinematic:** Not determined.

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

*
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 potentially cause an explosion when in contact with concentrated sulfuric acid and strong hydrogen peroxide.

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· ***Incompatible Material(s)***
Oxidizing agents
Nitric acid

· ***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.*

*
11 Toxicological information

· ***Acute Toxicity***

· **Oral**		
84852-15-3 4-Nonylphenol, branched		
Oral	LD50	1604 mg/kg (rat) Reference: Royce SDS (2015)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)		
Oral	LD50	320-460 mg/kg (rat) (BASF-test; 10 rats per dose level) At the lowest dose level of 320 mg/kg: no death occurred. At 460 mg/kg dose level: 7 out of 10 rats died. Reference: Air Products (M)SDS (2015) and OECD SIDS (2001).
100-51-6 Benzyl alcohol		
Oral	LD50	1580 mg/kg (mouse) 1610 mg/kg (rat) (Directive 84/449/EEC) Reference: OECD SIDS (2001).

· ***Potential Health Effect(s):***
Harmful if swallowed.
If swallowed, may cause:
diarrhea
shock or collapse
cramps
abnormal pain, headache, nausea, vomiting, drowsiness
See acute inhalative effect(s) for further information

· **Dermal**		
84852-15-3 4-Nonylphenol, branched		
Dermal	LD50	2031 mg/kg (rabbit) Royce SDS (2015)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)		
Dermal	LD50	200-400 mg/kg (rabbit) (BASF-test; shaven and intact skin; 24 hr-contact) 9 out of 10 rabbits died within the first 24 hours after dermal application of 400 mg/kg bw of the substance; 3 out of 10 rabbits died within the first 24 hours in the 200 mg/kg bw group. Reference: Air Products (M)SDS (2015) and OECD SIDS (2001).
100-51-6 Benzyl alcohol		
Dermal	LD50	2000 mg/kg (rabbit) < 5 mL/kg (guinea pig) Reference: OECD SIDS (2001).

· ***Potential Health Effect(s):***
Toxic in contact with skin.
See acute inhalative effect(s) for further information.

· **Inhalative**		
84852-15-3 4-Nonylphenol, branched		
Inhalative	LC50/4 h	(mouse) (Non-toxic; LC50 exceeded the satured vapor value) At 267 mg/m³ (230 ppm), there was no significant depression. At the saturated vapor concentration of 3636 mg/m³ (400 ppm) at 70 °C, there was sensory irritation observed which was rapidly gone after removal from exposure. The substance was not classified as an acute inhalative hazard under its regular use. Reference: IUCLID Dataset (2000).
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)		
Inhalative	LC50/4 h	0.42 mg/l (rat) (OECD TG 403; Aerosol) Calculated from LC50 (4 hrs) of 0.40 mg/L (females) and 0.44 mg/L (males). Based on the classification criteria, the substance was a Category 2 hazard (inhalation: mists). Reference: OECD SIDS (2001) and ECHA (2011).
100-51-6 Benzyl alcohol		
Inhalative	LC50/4 h	(rat) (LC50 exceeded the satured vapor value) LC50 (4 hours) = 8.9 mg/L (Calculated from 2000ppm and 1ppm = 4.42E-3 mg/L) LC50 (4 hours) = 8.8 mg/L (Extrapolated from LC50 (8 hrs) of 1000 ppm according to Haber's law) The LC50 value (4 hours) of 2000ppm was higher than the saturated vapor concentration (30 ppm) under a saturated vapour pressure of 0.03hPa (20 °C), the substance was considered as "mist containing substantially no vapor". Thus, the substance was not classified as an inhalative hazard based on the criteria. Reference: OECD SIDS (2001) and NLM HSDB (2011).

· ***Potential Health Effect(s):***
Harmful if inhaled.
In inhaled, may cause:
cough
dizziness or lightheadedness

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headache
nausea
shortness of breath
sore throat
vomiting
diarrhea

· **Skin Corrosion or Irritation**

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).
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
Corrosion/Irritation	corrosive (rabbit) (OECD TG 404; 3 min-contact; Test period: 8 days) Erythema: 2.7/4 (Max. 4; Time-point: 24+48 hrs; mean score of all treated animals;); not reversible by the end of the test period. Edema: 2.1/4 (Max. 4; Time-point: 24+48 hrs; mean score of all treated animals); not reversible by the end of the test period. Thus, the substance was classified as a corrosive irritant (Category 1) to rabbit skin. Reference: ECHA (2011).
100-51-6 Benzyl alcohol	
Corrosion/Irritation	(rabbit) (slightly irritating) non-irritating (OECD TG 404) Erythema: 0/4 (Max. 4; 1, 24, 48 hrs and 7 days; 2 out of 3 animals) Erythema: (0-1)/4 (Max. 4; 1, 24, 48 hrs and 7 days; 1 out of 3 animals). slightly irritating (test detail was not available) For safety reason, the substance was classified as slightly irritating to rabbit skin (Category 3). Reference: ECHA (2011) and OECD SIDS (2001).

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

· **Eye Serious Damage or Irritation**

84852-15-3 4-Nonylphenol, branched	
Damage/Irritation	serious irrit. (rabbit) (Draize Test) There was corneal opacity in all animals and iritis in two. Meanwhile, all treated animals showed marked conjunctival involvement with transient discharges. Thus, the substance was classified as a serious eye irritant (Category 1). Reference: IUCLID Dataset (2000).
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
Damage/Irritation	serious irrit. (rabbit) (OECD TG 405; 0.1 mL neat substance; 24-hr contact) Cornea: 3.2/4 (Max. 4; at 24+48+72 hrs; mean score of all treated animals); not reversible in 8 days. Conjunctivae: 2/3 (Max. 3; at 24+48+72 hrs; mean score of all treated animals); not reversible in 8 days. Overall irritation: 55.8/110 (Max. 110; at 24+48+72 hrs; mean score of all treated animals); not reversible in 8 days. Thus, the substance is classified as a serious irritant (Category 1) to rabbit eyes. Reference: ECHA (2011).
100-51-6 Benzyl alcohol	
Damage/Irritation	Irritating (rabbit) (0.1 ml neat substance; 7 days) Cornea: 1 (Max. 4; mean score of 2 animals); not fully reversible in 7 days Iris: ≤1 (Max. 2; mean score of 2 animals); fully reversible in 7 days Conjunctivae: ≤2 (Max. 3; mean score of 2 animals); fully reversible in 7 days Chemosis: ≤2 (Max. 4; mean score of 2 animals); fully reversible in 7 days The substance was classified as moderately irritating to rabbit eyes (Category 2A). Reference: ECHA (2011).

· **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**

84852-15-3 4-Nonylphenol, branched		
Sensitization	Skin	not sensitizing (guinea pig) (Buehler test with OECD TG 406) Guinea pig maximization test - negative There was no significant difference between treated and negative controlled groups; the substance was not classified as a dermal sensitizer. Reference: IUCLID Dataset (2000).
	Respiratory	(No data available)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)		
Sensitization	Skin	not sensitizing (guinea pig) (OECD TG 406; epicutaneous and occlusive) Positive reaction number (Conc. 2%) = 0 (24 hrs; 15 pigs in total) No skin reaction observed in either test or control groups; the substance was not sensitizing to pig skin. Reference: ECHA (2011).
	Respiratory	(No data available)

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100-51-6 Benzyl alcohol

Sensitization	Skin	Sensitizing (Human) (Patch-Test) (guinea pig) Not sensitizing (Draize Test and Maximization Test) Sensitizing (Open epicutaneous test and Freund's complete adjuvant test) For safety reason, the substance was classified as a skin sensitizer. Reference: OECD SIDS (2001).
	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**

84852-15-3 4-Nonylphenol, branched

Mutagenicity	negative (mouse) (In Vivo (Directive 79/831/EEC, B12)) In Vitro (Ames test; salmonella typhimurium) - negative with and without metabolic activation In Vitro (HGPRT assay with OECD TG 476; Chinese Hamster) - negative with and without metabolic activation In Vivo (Directive 79/831/EEC, B12; mouse) - no mutagenic effects in mouse erythrocytes were observed during the test sampling time. Reference: IUCLID Dataset (2000).

6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)

Mutagenicity	negative (Test species listed below) In Vitro (mammalian cell gene mutation assay; OECD TG 476; Chinese hamster lung fibroblasts (V79) cells) - negative with and without metabolic activation In Vitro (mammalian chromosome aberration test; OECD TG 473; Chinese hamster Ovary (CHO) CHO-K1 BH4 cells) - negative with and without metabolic activation 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 Reference: ECHA (2011).

100-51-6 Benzyl alcohol

Mutagenicity	Negative (mouse) (In Vivo (micronucleus assay; OECD TG 474)) In Vitro (mammalian chromosome aberration test in Chinese hamster Ovary (CHO) cells) - negative without metabolic activation; weakly positive with metabolic activation. In Vitro (bacterial reverse mutation assay in Salmonella typhimuriun (TA98, TA100, TA1535, and TA1537 strains) with OECD TG 471) - negative with and without metabolic activation In Vivo (micronucleus assay; mouse (ddY strains); OECD TG 474; intraperitoneal injection with up to 200 mg/kg bw) - negative; there was no indication of micronucleus induction at any dose tested. When considering all of the evidence, the substance was not a classified mutagen. Reference: ECHA (2011).

· **Potential Health Effect(s):** Not a known Germ Cell Mutagen.

· **Carcinogenicity**

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).

6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)

Carcinogenicity	(Test species: n/a) Not listed as a carcinogen according to ACGIH, IARC, NTP, or OSHA.

100-51-6 Benzyl alcohol

Carcinogenicity	Negative (rat) (No carcinogenic effect after oral doses for 2yrs) NOAEL (carcinogenicity; oral; 103 weeks; OECD TG 453) = 400 mg/kg bw/d (maximum dose test): no evidence of carcinogenic activity was observed. Reference: ECHA (2011).

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

· **Reproductive Toxicity**

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).

6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)

Reproductive Toxi.	N/A (rat) NOAEL (oral; OECD TG 408; Parental generation) = 2.5 mg/kg bw/day Decreased absolute testicle weights, atrophy of seminiferous tubules and reduced seminal vesicle were observed at 60 mg/kg bw/day. (rat) NOAEC (inhalation; OECD TG 413; Parental generation) = 12 mg/m³ An increase in relative testicle weights observed at 48 mg/m³. (rat) NOAEL (oral; OECD TG 414; developmental toxicity) = 45 mg/kg bw/day (highest dose level): no adverse effects observed. ECHA concluded it as conclusive but not sufficient for the classification. Reference: OECD SIDS (2001) and ECHA (2012).

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100-51-6 Benzyl alcohol	
Reproductive Toxi.	Negative (mouse) (No developmental or maternal toxicity observed) NOAEL (oral; developmental toxicity) = 550 mg/kg bw/day; no adverse effect observed. NOAEL (oral; maternal toxicity) = 550 mg/kg bw/day; no adverse effect observed. Reference: ECHA (2011).

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

· **Specific Target Organ Toxicity - Single Exposure**	
84852-15-3 4-Nonylphenol, branched	
STOT-Single	(No data available)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
STOT-Single	N/A (rat) There were animal studies that the substance caused sedation; labored breathing; dyspnea; spasm; arrhythmia; cardiac fibrillation; proteinuria; kidney damage; corrosiveness of the respiratory tract; and pulmonary edema. However, ECHA concluded it as conclusive but not sufficient for the classification. Reference: ECHA (2012).
100-51-6 Benzyl alcohol	
STOT-Single	(No data available)

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

· **Specific Target Organ Toxicity - Repeated Exposure**	
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).
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
STOT-Repeated	N/A (rat) - NOAEC = 2 mg/m³ (OECD TG 413; Inhalation with up to 48 mg/m³ of the aerosolized substance; 90 days): Vacuolar degeneration of nasal mucosa and olfactory epithelium; elevated GOT/GPT; decreased hemoglobin level/mean corpuscular hemoglobin concentration (MCHC); and mild renal tubular nephrosis. - NOAEL = 2.5 mg/kg bw/day (OECD TG 408; oral with up to 60 mg/kg bw/day for 90-days): histological alterations observed in livers, red blood cells, white blood cells, kidneys, adrenals and hearts. Meanwhile, relative/absolute weight changes observed in livers, kidneys, adrenals, and testes. However, ECHA concluded it as conclusive but not sufficient for the classification. Reference: ECHA (2012).
100-51-6 Benzyl alcohol	
STOT-Repeated	Target: None (Rats and Mice) (No systemic effect after oral or inhalative doses) -Target organs: None NOAEL (mouse; females and males; oral with up to 800 mg/kg bw/d) = 200 mg/kg bw/day NOAEL (rat; females and males; oral with up to 800 mg/kg bw/d) = 400 mg/kg bw/day The dose levels were outside of guidance value ranges. -Target organs: None NOAEC (rat; OECD TG 412; inhalation: aerosol; up to 1072 mg/m³; 6 hours/day for 4 weeks) = 1072 mg/m³: no adverse effect was found. Reference: ECHA (2011).

· **Aspiration Hazard**	
84852-15-3 4-Nonylphenol, branched	
Aspiration Hazard	(No data available)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
Aspiration Hazard	(No data available)
100-51-6 Benzyl alcohol	
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**	
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 Royce SDS (2015) NOEC (21 days) = 0.024 mg/L (Mysidopsis bahia) EC50 (96 hrs) = 0.043 mg/L NOEC (28 days) = 3.9 µg/L
Fish Toxicity	0.14 mg/l (Pimephales promelas (fathead minnow)) Royce SDS (2015)

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6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
Algae Toxicity	(Scenedesmus subspicatus) (OECD TG 201) ErC50 (growth rate; 96 hrs) > 5 mg/L EbC50 (biomass; 96 hrs) = 1.6 mg/L Based on the non-rapid degradability and the acute EbC50 < 10 mg/L, the substance is classified as a Chronic-2 environmental hazard.
Crustacean Toxicity (static)	15.2 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); Directive 79/831/EEC) Reference: Air Products SDS 2015
Fish Toxicity (static)	22 - 46.4 mg/l (Leuciscus idus (Ide or Orfe)) (LC50 (96 hrs); DIN38412 Part 15) Reference: OECD SIDS (2001).
100-51-6 Benzyl alcohol	
Algae Toxicity	770 mg/l (Pseudokirchneriella subcapitata) (ErC50 (72 hrs); OECD TG 201)
Crustacean Toxicity	230 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); OECD TG 202) 51 mg/L (NOEC (21 days); OECD TG 211)
Fish Toxicity (static)	460 mg/l (Pimephales promelas (fathead minnow)) (LC50 (96 hrs); EPA OPP 72-1) Based on the acute L(E)C50 (algae, crustacea and fish) > 100 mg/L, and chronic NOEC (crustacea) > 10 mg/L, the substance is not classified as an environmental hazard. Reference: ECHA (2011).

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

· **Degradability and Stability**	
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)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
Biodegradation	(Activated Sludge) (OECD TG 301C; 4 weeks; Chemical conc.100 ppm) Biodegradation (Direct from TOC and HPLC) = 3% and 0 Biodegradation (Indirect from BOD) = 0% The substance is non-biodegradable. Reference: CHRIP (2011).
Persistence	(Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007).
Photodegradation	1.249E-10 cm³/molecule-sec (OH radical) (Calculated from AOP v1.5) Half-life (5E5 OH-molecule/cm³) = 3.1 hours; however, the photolysis in water is negligible. Reference: OECD SIDS (2001).
Stability in water	(Test species: n/a) There is no hydrolysis group in the formula; hydrolysis of the substance in water is negligible. Reference: OECD SIDS (2001).
100-51-6 Benzyl alcohol	
Biodegradation	readily (Test species: n/a) (Biodegradation (OECD TG 301C) ≥ 94%) Biodegradation (Direct from TOC and HPLC; 4 weeks; Chemical conc.100 ppm) = 98% and 100% Biodegradation (Indirect from BOD; 4 weeks; Chemical conc.100 ppm) = 94% The substance is readily biodegradable. Reference: CHRIP (2011).
Persistence	(Test species: n/a) (The substance is not persistent) Reference: Canada DSL (2007).
Photodegradation	2.29E-11 cm³/molecule-sec (OH radical) (at 25 °C) Reference: ChemID Full Record (2011).
Stability in water	stable (Test species: n/a) Based on structure and organic chemistry rules, no hydrolysis will occur at pH ranges 4 - 11. Reference: OECD SIDS (2001).

· **Bioaccumulation and Distribution**	
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) BCF = 250 - 330 (8 weeks; Concentration: 0.1 ppm) BCF = 90 - 220 (8 weeks; Concentration: 0.01 ppm) (Pimephales promelas (fathead minnow)) BCF (20 days, chemical concentration = 21 µg/L) = 271 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).

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6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
LogPow	2.51 (Test species: n/a) (OECD TG 107; 25 °C) Reference: OECD SIDS (2001).
BCF	(Cyprinus carpio) BCF (Chemical Conc. 0.2 mg/L; 60 days) < 6 BCF (Chemical Conc. 0.02 mg/L; 60 days) < 60 The substance is not highly bioaccumulative. Reference: CHRIP (2011).
Koc	48-553 L/kg (Test species: n/a) Based on the Koc value, the sorption onto soil is low to moderate. Based on Mackay model Level I, the substance would partition 95.1% to water; 4.7% to soil and sediment; and 0.2% to air. Reference: OECD SIDS (2001).
100-51-6 Benzyl alcohol	
LogPow	1.1 (Test species: n/a) Reference: ECHA (2011).
BCF	(Test species: n/a) (The substance is not bioaccumulative) Reference: Canada DSL (2007).
Koc	(No data available)

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

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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.

· **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** UN2922

· **UN Proper Shipping Name**
· **DOT, ADR, IMDG, IATA** Corrosive liquids, toxic, n.o.s. (4-Nonylphenol, branched, 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine))

· **Transport hazard class(es)**

· **DOT**

· **Class** 8 Corrosive substances
· **Label** 8, 6.1

· **ADR**

· **Class** 8 (CT1) Corrosive substances
· **Label** 8+6.1

· **IMDG**

· **Class** 8 Corrosive substances

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· **Label**	8/6.1
· **IATA**	

· **Class**	8 Corrosive substances
· **Label**	8 (6.1)
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental Hazards:**	Product contains environmentally hazardous substances: 4-Nonylphenol, branched, 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)
· **Marine Pollutant:**	Yes (DOT) Symbol (fish and tree)
· **Special Marking (ADR):**	Symbol (fish and tree)
· **Special Precautions:**	Warning: Corrosive substances
· **Danger Code (Kemler):**	86
· **EMS Number:**	F-A,S-B
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **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: 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 2922 CORROSIVE LIQUIDS, TOXIC, N.O.S. (4-NONYLPHENOL, BRANCHED, 2,2'-DIMETHYL-4,4'METHYLENEBIS(CYCLOHEXYLAMINE)), 8 (6.1), 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	50-60%

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

84852-15-3	4-Nonylphenol, branched	A	50-60%
6864-37-5	2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	A	30-40%

· **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)**

All ingredients are listed.

· **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.

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· **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)**
None of the ingredients is listed.

· **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)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **International Regulation Lists**

· **Canadian Domestic Substance Listings:**
All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**
None of the ingredients is listed.

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

100-51-6	Benzyl alcohol	

· **Chinese Chemical Inventory of Existing Chemical Substances:**
All ingredients are listed.

· **Japanese Existing and New Chemical Substance List:**
All ingredients are listed.

· **Korean Existing Chemical Inventory:**
All ingredients are listed.

· **European Pre-registered substances:**
All ingredients are listed.

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

84852-15-3	4-Nonylphenol, branched	50-60%

· **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
HPVIS: US EPA High Production Volume Information 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

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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)
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** *12/14/2015 / 4*