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· **Product Identifier**
· **Trade Name: EP1215 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**


GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.


GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.

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)**


GHS05 GHS07

· **Signal Word** Danger

· **Hazard-determining Component(s)**
Polyamide Resin
Hydrogenated Terphenyl
Triethylenetetramine
Terphenyls
· **Hazard statements**
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.
Harmful to aquatic life with long lasting effects.

· **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
Wear eye protection / face protection.
Avoid release to the environment.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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Immediately call a poison center/doctor.
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.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Prevention**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid release to the environment.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

· **Disposal** *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: 68410-23-1 EC number: 614-452-7	Polyamide Resin Skin Irrit. 2, H315; Eye Irrit. 2A, H319 Aquatic Chronic 3, H412	80-90%
CAS: 61788-32-7 EINECS: 262-967-7 RTECS: WZ6535000	Hydrogenated Terphenyl Aquatic Chronic 4, H413	5-10%
CAS: 112-24-3 EINECS: 203-950-6 Index Number: 612-059-00-5 RTECS: YE6650000	Triethylenetetramine Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H312; Skin Sens. 1, H317 Aquatic Chronic 3, H412	2.5-5%
CAS: 68956-74-1 EINECS: 273-316-1	Polyphenyls, quater- and higher, partially hydrogenated	1-2.5%
CAS: 26140-60-3 EINECS: 247-477-3	Terphenyls Aquatic Chronic 1, H410 STOT SE 3, H335	0.1-1%

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· **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.
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air; consult doctor in case of complaints.

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

· **After Eye Contact**
Immediately bathe eyes for 15 minutes under running water.
Immediately remove contact lenses if present. Continue rinsing.
Seek immediate 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.

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

· **Information for Doctor** Have chemical containers, labels and/or (M)SDS ready when calling or visiting a medical center.

· **Indication of any Immediate Medical Attention and Special Treatment Needed**
After frequent or high intense exposure, the following medical tests are recommended:
eye tests
skin tests
Check section 11 Toxicological Information for further relevant information.

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

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5 Fire-fighting measures

· **Extinguishing Media**

· **Suitable Extinguishing Agent(s)**
Use fire fighting measures and extinguishing agents that suit the environment.
In case of fire, suitable extinguishing agents are:
Alcohol resistant foam.
Dry chemical or fire-extinguishing powder.
Carbon dioxide (CO_2).
Water spray or water fog.

· **Unsuitable Extinguishing Agent(s)** No relevant information.

· **Firefighting Procedures**
Isolate fire and deny unnecessary entry.
Eliminate all ignition sources if safe to do so.
Do not extinguish fire unless flow can be stopped.
Fight fire remotely due to the risk of explosion.
Use water spray or water fog to cool fire-exposed containers.

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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.
Use water in flooding quantities as fog.
Fight fire from protected location or safe distance.
Contain fire water runoff if possible to prevent environmental pollution.

· **Special Hazards Arising in Fire**
In case of fire, following can be released:
Carbon oxides, Nitrogen oxides, and Hydrogen if mixed with metals.

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

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

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6 Accidental release measures

· **Personal Precautions**
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.
For large spills:
Shut off source of leak if safe to do so.
Dike and contain.
Remove with vacuum trucks or pump to storage/salvage vessels.
Allow molten product to cool.
Absorb residues with liquid-binding materials.
For small spills:
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**
Obtain special instruction before use; do not handle until all safety precautions have been read and understood.
Do not breathe gas, vapors, dusts or mists if their inhalable particles occur during handling.
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.

· **Storage**
· **Requirements to be Met by Storerooms and Receptacles**
Store in a well-ventilated place; provide ventilation for receptacles.

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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**

61788-32-7 Hydrogenated Terphenyl	
REL	Long-term value: 5 mg/m³, 0.5 ppm
TLV	Long-term value: 4.9 mg/m³, 0.5 ppm nonirradiated
112-24-3 Triethylenetetramine	
WEEL	Long-term value: 6 mg/m³, 1 ppm Skin

· **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.
If exposure limits have not been established, maintain airborne levels to an acceptable level.

· **Personal Protective**

· **General Protective and Hygienic Measures**
Avoid any contact with eye.
Do not eat, drink or smoke during work.
Keep food, drink or feed away from working area.
Contaminated work clothing is not allowed out of workplace.
Clean hands and exposed skin thoroughly after work and before breaks.

· **Personal Protective Equipment (PPE)**

· **Breathing Equipment**
Caution! Improper use of respirators is dangerous.
In case of brief exposure or low pollution, use a respiratory filter device.
In case of intensive or longer exposure, use a positive-pressure respiratory protective device that is independent of circulating air.

· **Hand Protection**

Protective gloves

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**

Tightly sealed goggles

· **Body Protection**
Where the potential for over-exposure exists, the following protective work clothing is recommended:
Tychem® BR Coveralls
Responder® Coveralls
TK Coveralls

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Trellchem® HPS and VPS Coveralls

· **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:**	Amber
· **Odor:**	Amine-like
· **Odor Threshold:**	Not determined.
· **PH-Value:**	Not determined.
· **Change in Condition:**	
· **Melting Point:**	Not determined.
· **Boiling Point:**	>200 °C (>392 °F)
· **Flash Point:**	>170 °C (>338 °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 25 °C (77 °F):**	0.97 g/cm³ (8.095 lbs/gal)
· **Solubility in or Miscibility with**	
· **Water:**	Not miscible or difficult to mix.
· **Viscosity:**	
· **Dynamic at 20 °C (68 °F):**	28000 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 slowly corrode Copper, Aluminum, Nickel, Cobalt, Zinc and Galvanized surfaces.

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

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Cyanides
Strong acids
Chlorinated hydrocarbons

· **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)** Hazardous polymerization may not occur.

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

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11 Toxicological information

· **Acute Toxicity**

· **Oral**

68410-23-1 Polyamide Resin		
Oral	LD50	> 5000 mg/kg (Test species: n/a) Reference: Cognis (M)SDS (2007).
61788-32-7 Hydrogenated Terphenyl		
Oral	LD50	12500 mg/kg (mouse) (Adamson and Weeks method) > 10000 mg/kg (rat) (OECD TG 401) Reference: IUCLID Dataset (2000).
112-24-3 Triethylenetetramine		
Oral	LD50	1600 mg/kg (mouse) (2500 - 4340) mg/kg (rat) Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated		
Oral	LD50	>2000 mg/kg (rat)
26140-60-3 Terphenyls		
Oral	LD50	2604 mg/kg (rat) (OECD TG 401) LD50 (male rats) = 2925 mg/L LD50 (female rats) = 2304 mg/L Reference: ECHA (2011).

· **Potential Health Effect(s):**
While not possible to classify the acute oral hazard due to missing data, the product may cause the following symptom(s):
abnormal pain
shock or collapse
See acute inhalative effect(s) for further information

· **Dermal**

68410-23-1 Polyamide Resin		
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.
61788-32-7 Hydrogenated Terphenyl		
Dermal	LD50	6800 mg/kg (rabbit) (LD50; Industrial biotest laboratory method) > 2000 mg/kg (rabbit) (LD0; OECD TG 402) No deaths, no abnormalities at gross necropsy, and no abnormal physical observations were evident. Reference: IUCLID Dataset (2000) and ECHA (2011).
112-24-3 Triethylenetetramine		
Dermal	LD50	550 - 805 mg/kg (rabbit) Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated		
Dermal	LD50	>2000 mg/kg (rabbit)

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26140-60-3 Terphenyls		
Dermal	LD50	> 5000 mg/kg (rabbit) (OECD TG 402) No deaths were observed after a single dermal administration with 5000 mg/kg of the substance. Reference: ECHA (2011).

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

· **Inhalative**

68410-23-1 Polyamide Resin		
Inhalative	LC50/4 h	(Test species: n/a) (Toxicity not expected based on acute oral data)

61788-32-7 Hydrogenated Terphenyl		
Inhalative	LC50/4 h	(rat) > 4.7 mg/l (OECD TG 403) 5 out of 36 rats died after a single 4hr inhalative administration with 4.7 mg/l of the substance; classification was not possible without further information. Reference: ECHA (2011).

112-24-3 Triethylenetetramine		
Inhalative	LC50/4 h	(rat) (No death to the saturated vapor for 8hrs) Test species: rat, rabbit, guinea pig and mouse Reversible effects including slight irritation of the mucous membranes and impeded respiration were observed after a single 1-hour inhalative application with 40 volume percent of the substance in ethanol to the test animals. However, the changes were considered to be of negligible toxicological significance; classification was not possible without further information. Reference: OECD SIDS (2002).

68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated		
Inhalative	LC50/4 h	>3.8 mg/l (rat)

26140-60-3 Terphenyls		
Inhalative	LC50/4 h	(rat) (LC0> 3.8mg/l; OECD TG 403; no death occurred) No death occurred; classification was not possible without further information. Reference: ECHA (2011).

· **Potential Health Effect(s):**
While not possible to classify the acute inhalative hazard due to missing data, the product may cause the following symptom(s):
cough
shortness of breath
sore throat
wheezing

· **Skin Corrosion or Irritation**

68410-23-1 Polyamide Resin	
Corrosion/Irritation	irritating (Test species: n/a) (Experiment) Based on HSNO CCID, the substance caused corrosive effects to dermal and ocular tissue with over 5% concentration of the substance in a non-hazardous diluent; however, there was no data validity, or experimental results or not, available for that conclusion. Meanwhile, there was experimental data available from Cognis (M)SDS, the substance was severely irritating to skin. When considering the weight of evidence, the substance was considered as irritating (Category 2) to skin. Reference: HSNO CCID (2010) and Cognis (M)SDS (2007).

61788-32-7 Hydrogenated Terphenyl	
Corrosion/Irritation	not irritating (rabbit) (Draize test) Primary dermal irritation index (PDII): 0.1/8 (Max. 8; Time table: 24+72 hrs; mean score of all treated animals); fully reversible within 72 hrs. The substance was therefore not irritating to rabbit skin under the classification criteria. Reference: IUCLID Dataset (2000).

112-24-3 Triethylenetetramine	
Corrosion/Irritation	corrosive (rat) (Erythema, edema, and necrosis observed) Strong irritation was observed in treated animals after application with both diluted and pure substances. corrosive (rabbit) Erythema, edema, and necrosis were found with pure substance. Reference: OECD SIDS (2002).

68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Corrosion/Irritation	(No data available)

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26140-60-3 Terphenyls	
Corrosion/Irritation	not irritating (rabbit) (OECD TG 404; 0.5g neat substance; 24 hr-exposure) Primary dermal irritation: 0.1/8 (Max.8; Time point: 24+72 hrs; Mean score of all treated animals); fully reversible within 10 days. The substance was therefore not classified as irritating to skin. Reference: ECHA (2011).

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

· **Eye Serious Damage or Irritation**

68410-23-1 Polyamide Resin	
Damage/Irritation	irritating (Test species: n/a) (Experiment) Based on HSNO CCID, the substance caused corrosive effects to dermal and ocular tissue with over 5% concentration of the substance in a non-hazardous diluent; however, there was no data validity, or experimental results or not, available for that conclusion. Meanwhile, there was experimental data available from Cognis (M)SDS, the substance was severely irritating to eyes. When considering the weight of evidence, the substance was considered as severely irritating (Category 2A) to eyes. Reference: HSNO CCID (2010) and Cognis (M)SDS (2007).
61788-32-7 Hydrogenated Terphenyl	
Damage/Irritation	not irritating (rabbit) (OECD TG 405; 0.1ml neat substance) Draize score: 0.3/110 (Max. 110; Time table: 24+48+72 hrs; mean score of all treated animals); fully reversible within 48 hrs. The substance was therefore not classified as irritating to rabbit eyes. Reference: IUCLID Dataset (2000).
112-24-3 Triethylenetetramine	
Damage/Irritation	serious damage (rabbit) (Severe damage in cornea observed) Severe damage in cornea of treated rabbits was observed after application with both pure and diluted substances. Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Damage/Irritation	(No data available)
26140-60-3 Terphenyls	
Damage/Irritation	not irritating (rabbit) (OECD TG 405; 0.1ml neat substance;) Overall irritation score: 0.6/110 (Max. 110; Time-point: 24+48+72 hrs; Mean score of all treated animals); fully reversible within 2 days after application. The substance was therefore not classified as irritating to rabbit eyes. Reference: ECHA (2011).

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

· **Respiratory or Skin Sensitization**

68410-23-1 Polyamide Resin		
Sensitization	Skin	(No data available)
	Respiratory	(No data available)
61788-32-7 Hydrogenated Terphenyl		
Sensitization	Skin	not sensitizing (Human) (Repeated Insult Patch Test; 0.2ml neat substance) No positive results were observed after 24 hour-exposure to a 0.2 ml neat substance in 50 human individuals. Reference: IUCLID Dataset (2000).
	Respiratory	(No data available)
112-24-3 Triethylenetetramine		
Sensitization	Skin	sensitizing (Human) (Patch Test) Sensitizing - over 50% of 422 employees showed positive reactions when treated with 1% of the substance in water after an average of 18.5 months. (mouse) (Ear Swelling Test) Sensitizing - 40% of test animals showed positive results after application with 10% of the substance. (guinea pig) (Maximization Test) Sensitizing - more than 80% of tested animals showed positive results. Reference: OECD SIDS (2002).

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	Respiratory	(No data available)
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated		
Sensitization	Skin	(No data available)
	Respiratory	(No data available)
26140-60-3 Terphenyls		
Sensitization	Skin	not sensitizing (guinea pig) Although there was description that sensitizing property was acknowledged in some animal experiments, their positive rate was not indicated. Therefore GHS-J could not classify it as a dermal sensitizer due to the insufficiency of data. Reference: GHS-J (2006).
	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**

68410-23-1 Polyamide Resin	
Mutagenicity	(No data available)
61788-32-7 Hydrogenated Terphenyl	
Mutagenicity	negative (Test species listed below) In Vitro (Mammalian cell gene mutation assay; Chinese hamster Ovary) - negative with and without metabolic activation. In Vitro (DNA damage and repair assay; rat hepatocytes) - negative with and without metabolic activation. In Vitro (Bacterial reverse mutation assay; S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) - negative with and without metabolic activation. In Vivo (Chromosome aberration assay; OECD TG 475; rat; intraperitoneal with up to 2500 mg/kg bw) - negative; the substance didn't induce chromosomal damage in male or female rats in this study. Reference: ECHA (2011).
112-24-3 Triethylenetetramine	
Mutagenicity	negative (mouse) (In Vivo (Micronucleus assay, single injection)) In Vitro (Ame test in salmonella typhimurium) - positive with and without metabolic activation. In Vitro (Bacterial gene mutation assay in Escherichia coli) - positive without metabolic activation. In Vitro (Unscheduled DNA synthesis in rat hepatocytes) - positive without metabolic activation. In Vitro (Mammalian cell gene mutation assay in CHO cells) - positive with and without metabolic activation. In Vitro (Sister chromatid exchange assay in CHO cells) - positive with and without metabolic activation. In Vivo (Micronucleus assay, single injection) - negative. Due to only negative results were observed from In Vivo tests, classification of the mutagenicity was not possible without further information. Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Mutagenicity	(No data available)
26140-60-3 Terphenyls	
Mutagenicity	negative (Test species listed below) In Vitro (Ames tests in salmonella typhimurium strains) - negative with and without metabolic activation In Vitro (DNA damage and repair assay in rat hepatocytes) - negative In Vitro (HGPRT assay in CHO cells) - negative with and without metabolic activation In Vitro (Mammalian cell gene mutation assay in CHO cells) - negative with and without metabolic activation Reference: IUCLID Dataset (2000).

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

· **Carcinogenicity**

68410-23-1 Polyamide Resin	
Carcinogenicity	(Test species: n/a) (Not listed as a Carcinogen by NTP, IARC or OSHA) Reference: Cognis (M)SDS (2007).
61788-32-7 Hydrogenated Terphenyl	
Carcinogenicity	negative (Test species: n/a) Not listed as a carcinogen according to ACGIH, IARC, NTP, or OSHA.

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112-24-3 Triethylenetetramine	
Carcinogenicity	negative (rat) (Dermal application didn't cause any tumors) Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Carcinogenicity	(No data available)
26140-60-3 Terphenyls	
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**

68410-23-1 Polyamide Resin	
Reproductive Toxi.	(No data available)
61788-32-7 Hydrogenated Terphenyl	
Reproductive Toxi.	negative (rat) NOAEL (Reproductive toxicity; OECD TG 416; Oral with up to 1000 ppm; P and F1 generations) = 1000 ppm; there were no reproductive toxicities observed. NOAEL (Fetotoxicity; OECD TG 414; Oral with up to 1500 mg/kg bw/day) = 500 mg/kg bw/day; effects including reduced fetal weights and increased incidence of fetuses with certain ossification variations were observed at high dose levels. NOAEL (Developmental toxicity/teratogenicity; rat; Oral with up to 2000 mg/kg bw/day) = 1000 mg/kg bw/day. At 2000 mg/kg bw/day, embryonic death and decreased fetal weights were observed. NOAEL (Maternal) = 250 mg/kg bw/day. When considering all of the evidence, there were no adverse effects observed in fetuses at the non-toxic dose levels for parental animals; the substance was therefore not considered as a reproductive hazard. Reference: ECHA (2011).
112-24-3 Triethylenetetramine	
Reproductive Toxi.	negative (Human) No miscarriages or any fetal abnormalities were expected based on experiences (substance given as a drug). (rabbit) The substance didn't cause any embryotoxic or teratogenic effects even at maternally toxic dose levels. (rat) Developmental toxicity observed was produced as a secondary consequence of the chelating properties, which was considered as irrelevant to hazard classification. (mouse) There were no treatment related effects observed in any reproductive organs. Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Reproductive Toxi.	(No data available)
26140-60-3 Terphenyls	
Reproductive Toxi.	(No data available)

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

· **Specific Target Organ Toxicity - Single Exposure**

68410-23-1 Polyamide Resin	
STOT-Single	(No data available)
61788-32-7 Hydrogenated Terphenyl	
STOT-Single	(rat) (Respiratory tract irritant via Inhalation) Effects including increased salivation, discharge/encrustation of noses and eyes, labored breathing, and prostration were all observed after a single inhalative administration with 4.3 mg/l aerosol of the substance for 4 hours. Based on the dose level, the substance was classified as a respiratory tract irritant. Reference: IUCLID Dataset (2000).
112-24-3 Triethylenetetramine	
STOT-Single	(Test species: n/a) (Respiratory tract irritation via (Inhalation)) Exposure to saturated vapor of the substance was tolerated without impairment. Whereas exposure to the aerosolized substance led to reversible irritation of respiratory tract in treated animals. Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
STOT-Single	(No data available)

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26140-60-3 Terphenyls	
STOT-Single	(rat) (Respiratory tract irritant) Red encrustation around eyes and noses, labored breathing and salivation observed after inhalation with 3.6 mg/L of the substance which were all disappeared in 7 or 14 days. For safety reason, category 3 was chosen. Reference: ECHA (2011).

· **Potential Health Effect(s):**
No further relevant information; classification is not possible.
Some target organs may be exclusive due to low concentration of the hazardous component(s).

· **Specific Target Organ Toxicity - Repeated Exposure**	
68410-23-1 Polyamide Resin	
STOT-Repeated	(No data available)
61788-32-7 Hydrogenated Terphenyl	
STOT-Repeated	N/A (rat) LOAEL (OECD TG 408; Oral with up to 2000 ppm (120 mg/kg/day) for 90 days) = 120 mg/kg/day; differences were noticed in hematology levels, kidneys, and livers by comparing with the negative controlled groups. LOAEL (Inhalation with 0.01 mg/l and 0.05 mg/l of the substance; aerosol; 6 hrs/day; 5 days/week) = 0.05 mg/l. Changes of hematology level (glucose, BUN, SAP, SGOT, SGPT) and liver weight were noticed at dose level of 0.05 mg/l. However; ECHA concluded the results were conclusive but not sufficient for the classification. Reference: ECHA (2012).
112-24-3 Triethylenetetramine	
STOT-Repeated	Target: None (mouse) (No systemic effects after repeated oral doses) Inflammation of lung interstitium, proliferation of spleen hemapoietic cell, infiltration of liver-periportal fat, and reduction of kidney weight were observed after repeated oral administration with 3000 ppm/day of the substance to mice for 92 days. However, the effects observed were all considered as irrelevant to target organ toxicities. Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
STOT-Repeated	(No data available)
26140-60-3 Terphenyls	
STOT-Repeated	(No data available)

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

· **Aspiration Hazard**	
68410-23-1 Polyamide Resin	
Aspiration Hazard	(No data available)
61788-32-7 Hydrogenated Terphenyl	
Aspiration Hazard	(No data available)
112-24-3 Triethylenetetramine	
Aspiration Hazard	(No data available)
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Aspiration Hazard	(No data available)
26140-60-3 Terphenyls	
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**	
68410-23-1 Polyamide Resin	
Algae Toxicity	1.1 - 2.2 mg/l (Scenedesmus quadricauda (Green algae)) (EC50 (96 hrs, OECD TG 201)) (Read-across from 68140-00-1, 68155-06-6&68603-42-9)

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Crustacean Toxicity	2.25 mg/l (Ceriodaphnia dubia) (EC50 (48 hrs)) (Read-across from 68603-42-9; EPA-600/3-88-034(-36))
Fish Toxicity	3.6 mg/l (Brachydanio rerio (Zebra fish)) (LC50 (96 hrs)) (Read-across from 68603-42-9; ISO 7346/1-3) 2.6 mg/L (Pimephales promelas (fathead minnow)) (LC50 (96 hrs); Read-across from 93-83-4) Based on the non-rapid degradability and the acute LC50 < 10 mg/L, the substance is classified as a Chronic-2 environmental hazard. Reference: IUCLID Dataset (2000) and EPA HPVIS (2010).
61788-32-7 Hydrogenated Terphenyl	
Algae Toxicity	> 0.53 mg/l (Pseudokirchneriella subcapitata) (EC50 (96 hrs); OECD TG 201)
Crustacean Toxicity	(Daphnia magna (water flea)) 0.1 mg/l (EC50 (48 hrs); OECD TG 202) > 0.53 mg/l (Gammarus Fasciatus) (EC50 (48 hrs); EPA-560/6-82-0023) > 0.53 mg/l (Paratanytarsus parthenogenica) (EC50 (48 hrs); EPA-660/3-75-009)
Fish Toxicity	> 0.53 mg/l (Pimephales promelas (fathead minnow)) (LC50 (96 hrs); OECD TG 203) > 0.53 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs); OECD TG 203) Water solubility = 0.53 mg/l; based on the classification criteria and weight of all evidence together, the substance fell into "Safety net" Classification (Category 4) for environmental hazard. Reference: IUCLID Dataset (2000).
112-24-3 Triethylenetetramine	
Algae Toxicity	2.5 mg/l (Scenedesmus subspicatus) (EC50 (72 hrs, biomass), DIN 38412 part 9) 3.7 mg/l (Selenastrum capricornum (green algae)) (EC50 (96 hrs); bio-mass)
Crustacean Toxicity	12 mg/l (Daphnia magna (water flea)) (LC50 (48 hrs), OECD TG 202) NOEC (21 days) = 1 mg/L Based on the non-rapid degradability and the chronic NOEC = 1 mg/L, the substance is classified as a Chronic-2 environmental hazard.
Fish Toxicity	570 mg/l (Poecilia reticulata) (LC50 (96 hrs), 84/449/EEC, C1) 495 mg/l (Pimephales promelas (fathead minnow)) (LC50 (96 hrs)) Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
Algae Toxicity	(No data available) .103 mg/l (Green Algae)
Crustacean Toxicity	(No data available) (Daphnia magna (water flea))
Fish Toxicity	(No data available)
26140-60-3 Terphenyls	
Algae Toxicity	0.102 mg/l (Pseudokirchneriella subcapitata) (EC50 (72 hrs); OECD TG 201)
Crustacean Toxicity	0.022 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); Methods according to US EPA (1975))
Fish Toxicity	27 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs), Methods according to US EPA (1975)) 0.049 mg/l (Pimephales promelas) (Maximum acceptable toxicant concentration (MATC; 34 days); MATC > NOAEC) Based on the non-rapid degradability and the Chronic MATC < 0.1 mg/l, the substance is classified as a Chronic-1 environmental hazard with a M factor 10 by ECHA. Reference: ECHA (2011).

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

· **Degradability and Stability**

68410-23-1 Polyamide Resin	
Biodegradation	(Test species: n/a) (The substance is poorly biodegradable) Reference: Cognis (M)SDS (2007).
Persistence	(Test species: n/a) (The substance is not persistent) Reference: Canada DSL (2007).
Photodegradation	(No data available)
Stability in water	(No data available)
61788-32-7 Hydrogenated Terphenyl	

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Biodegradation	not biodegrad. (Test species: n/a) (OECD TG 301C; 28 days; Chemical conc. 100 mg/L) Biodegradation (Direct analysis from GC) = 16% Biodegradation (Indirect analysis from BOD) = 6% The substance is not biodegradable. Reference: CHIRP (2011).
Persistence	(Test species: n/a) The substance is persistent. Reference: CHIRP (2011).
Photodegradation	(No data available)
Stability in water	(No data available)

112-24-3 Triethylenetetramine

Biodegradation	non-biodegrad. (Test species: n/a) (Biodegradation (OECD TG 301C) ≈ 0) Biodegradation (Direct analysis from TOC and UV-vis; Conc. 100 ppm; 2 weeks) = negative values Biodegradation (Indirect analysis from BOD; Conc. 100 ppm; 2 weeks) = 0% The substance is non-biodegradable. Reference: CHRIP (2010).
Persistence	(Test species: n/a) (The substance is not persistent) Reference: Canada DSL (2007).
Photodegradation	2.25E-10 cm^3/molecule-sec (OH radical) (Calculated according to Arkinson) Half-life (T1/2) = 1.7 hours; however, photolysis in water is negligible. Reference: OECD SIDS (2002).
Stability in water	stable (Test species: n/a) (No hydrolysis happened after 36 days) The substance is hydrolytically stable in water. Reference: OECD SIDS (2002).

68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated

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)

26140-60-3 Terphenyls

Biodegradation	not biodegrad. (Test species: n/a) (OECD TG 301C) Degradation (2 weeks; Direct analysis from GC) = 3.9% Degradation (2 weeks; Indirect analysis from BOD) = 0.5% The substance is not biodegradable. Reference: CHRIP (2011).
Persistence	(Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007).
Photodegradation	(Test species: n/a) Half-life (concentration: 20 mg/L, in water) > 29 days Thus, photodegradation is not expected to be the significant pathway for degradation. Reference: IUCLID Dataset (2000).
Stability in water	(No data available)

· Bioaccumulation and Distribution

68410-23-1 Polyamide Resin

BCF	(No data available)
Koc	(No data available)
LogPow	(No data available)

61788-32-7 Hydrogenated Terphenyl

BCF	(Cyprinus carpio) 6300 (Chemical concentration: 0.199 µg/L) 9200 (Chemical concentration: 1.99 µg/L) The substance is highly bioaccumulative. Reference: CHIRP (2011).
Koc	(No data available)

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LogPow	> 6.5 (Test species: n/a) (OECD TG 117) Reference: ECHA (2011).
112-24-3 Triethylenetetramine	
BCF	< 5.0 (Cyprinus carpio) (The substance is low bioaccumulative) BCF (2 ppm) < 0.5 BCF (0.2 ppm) < 5.0 Reference: NITE CHRIP (2001).
Koc	4766-19111 L/kg (Test species: n/a) (Read-across) No measured Koc value available for the substance itself; the Koc for its similar chemicals are 4766L/kg and 19111L/kg respectively, which would suggest a high potential for mobility to soil. Reference: OECD SIDS (2002).
LogPow	-1.4 to -1.7 (Test species: n/a) (By calculation) Reference: OECD SIDS (2002).
68956-74-1 Polyphenyls, quater- and higher, partially hydrogenated	
BCF	(No data available) The substance is not bioaccumulative. Reference: Canada DSL (2007).
Koc	(No data available)
LogPow	(No data available)
26140-60-3 Terphenyls	
BCF	15 - 80 (Cyprinus carpio) (Test concentration: 0.25 ppm) BCF (0.025 ppm) = 21 - 129 The substance is non or not highly bioaccumulative. Reference: CHRIP (2011).
Koc	(No data available)
LogPow	5.86 (Test species: n/a) (at 22 ℃) Reference: CHRIP (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:** It may be necessary to contain and dispose of the substance/mixture as a hazardous waste.

· **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**	Not regulated for transport; not applicable.
· **DOT, ADR, IMDG, IATA**	Void
· **UN Proper Shipping Name**	
· **DOT, ADR, IMDG, IATA**	Void
· **Transport hazard class(es)**	Not regulated for transport; not applicable.

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· **DOT, ADR, IMDG, IATA**	
· **Class**	Void
· **Packing group**	Not regulated for transport; not applicable.
· **DOT, ADR, IMDG, IATA**	Void
· **Environmental Hazards:**	
· **Marine Pollutant:**	Yes
· **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)**

None of the ingredients is listed.

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

68410-23-1	Polyamide Resin	A	80-90%
112-24-3	Triethylenetetramine	A	2.5-<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)**

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.

· **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.

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· **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%)**

112-24-3	Triethylenetetramine

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

None of the ingredients is listed.

· **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:**

None of the ingredients is listed.

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

None of the ingredients is listed.

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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

· **Abbreviations and acronyms:**
ACGIH: American Conference of Governmental Industrial Hygienists
ACToR: US EPA Aggregated Computational Toxicology Resource
ADR: European Agreement Concerning the International Carriage of Dangerous Goods by Road
CAS: Chemical Abstracts Service (division of the American Chemical Society)
CCR: Canadian Categorization Results
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
ChV: Chronic Value
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
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)

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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
LC50/LD50: Lethal Concentration/Dose, 50 percent
N/a: Not available or Not applicable
NFPA: US National Fire Protection Association
NIOSH: US National Institute of Occupational Safety and Health
NITE: National Institute of Technology and Evaluation, Japan
NLM TOXNET: US National Library of Medicine Toxicology Data Network
OECD: Organisation for Economic Co-operation and Development
OSHA: US Occupational Safety and Health Administration
P: Marine Pollutant
RCRA: Resource Conservation and Recovery Act (USA)
REACh: EU Registry, Evaluation and Authorisation of Chemicals
RID: the Regulations Concerning the International Carriage of Dangerous Goods by Rail; published by the Central Office for International Carriage by Rail (OTIF)
RTDG: the Recommendations on the Transport of Dangerous Goods by United Nations (UN)
RTECS: US Registry of Toxic Effects of Chemical Substances
SARA: US Superfund Amendments and Reauthorization Act
SIDS: OECD existing chemicals Screening Information Data Sets
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
BCF: Bioconcentration Factor
ESIS: European Chemical Substances Information System
Koc: Partition coefficient, soil Organic Carbon to water
SVHC: EU ECHA Substance of Very High Concern

· **Date of preparation / last revision** *06/02/2015 / 4*