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SDS Number: 278
Revision Date: 07/09/2015
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SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Product Name: SILVER PRINT II

SECTION 1- PRODUCT AND COMPANY IDENTIFICATION

Product Type: Resin Mixture
Product Name: **SILVER PRINT II**
Part Number(s): 22-023

Emergency Contact: Chemtrec
Phone: (800) 424-9300

SECTION 1. HAZARD(S) IDENTIFICATION

Hazard Classification

GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.

GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

Label Elements

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

· ***Pictogram(s)***

GHS02 GHS07 GHS08

· ***Signal Word*** *Danger*

· ***Hazard-determining Component(s)***
Xylene

· ***Hazard statements***
Flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
May damage fertility or the unborn child.

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SECTION 1. HAZARD(S) IDENTIFICATION (CONTINUED)

· ***Precautionary statements***
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Wear protective gloves / eye protection / face protection.
Ground/bond container and receiving equipment.
IF ON SKIN (or hair): Remove/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.
Specific treatment (see on this label).
Store locked up.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Health = 2
Fire = 3
Reactivity = 0

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

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

*Health = *2*
Fire = 3
Reactivity = 0

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

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

· **Chemical Characterization: Mixtures**

· Composition/Information on Ingredients			
CAS: 7440-22-4 EINECS: 231-131-3	Silver	Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Eye Irrit. 2A, H319	50-60%
CAS: 1330-20-7 EINECS: 215-535-7 Index Number: 601-022-00-9 RTECS: ZE 2100000	Xylene	Flam. Liq. 3, H226 Repr. 1B, H360 Skin Irrit. 2, H315; Eye Irrit. 2A, H319	10-20%
CAS: 108-65-6 EINECS: 203-603-9 Index Number: 607-195-00-7 RTECS: AI8925000	Methoxy Propyl acetate	Flam. Liq. 3, H226	10-20%
CAS: 9011-53-4	Poly(Butyl Methacrylates)		5-<10%
CAS: 128-37-0 EINECS: 204-881-4 RTECS: GO 7875000	2,6-di-tert-butyl-p-cresol	Aquatic Acute 1, H400 Acute Tox. 4, H302	0-<0.1%

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

SECTION 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. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
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.

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SECTION 4. FIRST-AID MEASURES (CONTINUED)

· ***After Exposure*** *Get medical advice/attention at once.*

· ***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
Reproductive system function 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.

SECTION 5. FIRE-FIGHTING MEASURES

· ***Extinguishing Media***

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

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

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

· ***Special Hazards Arising in Fire***
Caution! Flammable liquid.
In case of fire, following can be released:
n-butyl methacrylate and iso-butyl methacrylate
Carbon oxides, Silver
Carbon dioxide (CO_2) and Carbon monoxide (CO)
Silver (Ag) dust

· ***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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SECTION 6. ACCIDENTAL RELEASE MEASURES

· ***Personal Precautions***
Caution! Flammable liquid and vapor; wear fire/flame resistant or retardant clothing.
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*** *No further relevant information.*

· ***Cleaning Up Methods***
Caution! Flammable liquid.
Eliminate heat, sparks, open flame and other ignition sources before clean up.
A vapor suppressing foam should be used to reduce vapors at first.
All equipment used for clean up must be grounded.
Don't touch or walk through spilled chemicals unless trained and equipped as stated in the OSHA fire brigades standard (29 CFR 1910.156).
Ensure adequate ventilation.
Keep unauthorized personnel away.
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.
Do not flush with water or aqueous solutions.
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.*

SECTION 7. HANDLING AND STORAGE

· ***Handling***

· ***Precautions for Safe Handling***
Caution! Flammable liquid; gentle heat may cause the chemical to burst or explode.
Keep away from direct sunlight, heat, sparks, open flame and other ignition sources during 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***
Keep away from heat, sparks, open flame and other ignition sources.
Protect against electrostatic charges during handling.
Metal containers involved must be grounded and bonded.
Use only non-sparking tools and equipment, especially when opening or closing containers of combustible contents.

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SECTION 7. HANDLING AND STORAGE (CONTINUED)

· **Storage**

· **Requirements to be Met by Storerooms and Receptacles**
Caution! Flammable liquid; gentle heat may cause the chemical to burst or explode.
Keep away from direct sunlight, heat, sparks, open flame and other ignition sources.
Store in tightly closed containers in a cool, and well-ventilated area.
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.*

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

· **Engineering Measures or Controls**

· **Exposure Limit Values that Require Monitoring at the Workplace**	
1330-20-7 Xylene	
PEL	Long-term value: 435 mg/m³, 100 ppm
REL	Short-term value: 655 mg/m³, 150 ppm Long-term value: 435 mg/m³, 100 ppm
TLV	Short-term value: 651 mg/m³, 150 ppm Long-term value: 434 mg/m³, 100 ppm BEI
108-65-6 Methoxy Propyl acetate	
WEEL	Long-term value: 50 ppm
9011-53-4 Poly(Butyl Methacrylates)	
OSHA	Short-term value: 15 mg/m³ 15 mg/m3 total dust, 5 mg/m3 respirable dust
128-37-0 2,6-di-tert-butyl-p-cresol	
REL	Long-term value: 10 mg/m³
TLV	Long-term value: 2* mg/m³ *as inhalable fraction and vapor

· **Additional Information for the Limit Values**
As a classified TERATOGEN to humans, there may be NO safe level of exposure; reduce all contact to the lowest possible level.

· **Other Engineering Measures or Controls**
Ventilation rates should be matched to conditions.
If applicable, use process enclosure(s), local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

· ***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*** *No relevant information.*

· ***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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

· ***Information on Basic Physical and Chemical Properties***	
· ***Appearance:***	
· ***Form:***	*Liquid*
· ***Color:***	*Silver-colored*
· ***Odor:***	*Solvent-like*
· ***Odor Threshold:***	*Not determined.*
· ***PH-Value:***	*Not determined.*

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (CONTINUED)

· **Change in Condition:**
· **Melting Point:** Not determined.
· **Boiling Point:** >146 °C (>295 °F)
· **Flash Point:** > 26 °C (> 79 °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):** 1.76 g/cm³ (14.687 lbs/gal)
· **Solubility in or Miscibility with**
· **Water:** Partially miscible.
· **Viscosity:**
· **Dynamic:** Not determined.
· **Kinematic:** Not determined.

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

SECTION 10. STABILITY AND REACTIVITY

· **Physical Hazard(s)** Flammable liquid and vapor.

· **Hazardous Reactivity and Chemical Stability** May form explosive vapor-air mixtures when heated above the flash point.

· **Thermal Decomposition and Conditions to be Avoided**
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)** No further relevant information available.

· **Incompatible Material(s)**
Ammonia
Acetylene, Oxidizing agents, Strong acids, Strong bases

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

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

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

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SECTION 11. TOXICOLOGICAL INFORMATION

· **Acute Toxicity**

· Oral		
7440-22-4 Silver		
Oral	LD50	3804 mg/kg (rat) (Read-across from silver(I) oxide; OECD TG 401) > 5000 mg/kg bw (rats) (Read-across from silver(I) sulfate; OECD TG 401) Reference: ECHA (2011).
1330-20-7 Xylene		
Oral	LD50	(mouse) (EU method B1; mixed-xylenes and ethylbenzene) 5627 mg/kg bw (male mice) 5251 mg/kg bw (female mice) (rat) (EU method B1; mixed-xylenes and ethylbenzene) 3523 mg/kg bw (male rats) > 4000 mg/kg bw (female rats) Reference: ECHA (2011).
108-65-6 Methoxy Propyl acetate		
Oral	LD50	6190 mg/kg (rat) (OECD TG 401; both males and females) Reference: ECHA (2012).
9011-53-4 Poly(Butyl Methacrylates)		
Oral	LD50	(No data available)

· **Potential Health Effect(s):** See acute inhalative effect(s) for further information

· Dermal		
7440-22-4 Silver		
Dermal	LD50	> 2000 mg/kg (rat) (males; test guideline not available) Reference: NLM HSDB (2011).
1330-20-7 Xylene		
Dermal	LD50	12126 mg/kg (rabbit) (males; occlusive; neat substance) > 4200 mg/kg (mixed-xylenes and ethylbenzene) 1 out of 3 rabbits died at the highest dose of 5.0 mL/kg bw (4200 mg/kg) on the fifth day after exposure; the substance was therefore not expected to pose an acute dermal hazard. Reference: ECHA (2011).
108-65-6 Methoxy Propyl acetate		
Dermal	LD50	(rabbit) (LD0(OECD TG 402)>5000 mg/kg bw; no death occurred) Reference: ECHA (2012).
9011-53-4 Poly(Butyl Methacrylates)		
Dermal	LD50	(No data available)

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

· Inhalative		
7440-22-4 Silver		
Inhalative	LC50/4 h	(Test species: n/a) (Toxicity not anticipated as a wetted form) 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 also resulted in a low acute toxicity.

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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

1330-20-7 Xylene		
Inhalative	LC50/4 h	(rat) (EU method B2; mixed-xylenes) LC50 (male rats; 4h) = 6350 ppm = 27.6 mg/L Reference: ECHA (2011).
108-65-6 Methoxy Propyl acetate		
Inhalative	LC50/4 h	(rat) (LC0/6hrs (OECD TG 403; males) ≥ 4345 ppm) Reference: ECHA (2012).
9011-53-4 Poly(Butyl Methacrylates)		
Inhalative	LC50/4 h	(No data available)

· **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):
headache
nausea
vomiting
passing out
suffocation

· **Skin Corrosion or Irritation**	
7440-22-4 Silver	
Corrosion/Irritation	not irritating (rabbit) (OECD TG 404; 0.5g substance in water; 4 hr-contact) Erythema: 0.33/4 (Max. 4; Mean score of all treated animals; Time point: 24+48 hrs); fully reversible within 72 hours. Edema: 0/4 (Max.4; Mean score of all treated animals; Time point: 24+48+72 hrs); the substance was therefore considered as non-irritating to rabbit skin. Reference: ECHA (2011).
1330-20-7 Xylene	
Corrosion/Irritation	irritating (rabbit) (mixed-xylenes and ethylbenzene) Primary dermal irritation index: 2.21 (mean score of erythema and oedema for both intact and abraded skin of all treated animals; Time point: 24+72 hours); the substance was classified as a moderate irritant (Category 2) to rabbit skin. Reference: ECHA (2011).
108-65-6 Methoxy Propyl acetate	
Corrosion/Irritation	not irritating (rabbit) (OECD TG 404) Erythema: 0/4 (Max. 4; Mean score of all treated animals; Time point: 24+48+72 hours); no signs of irritation noted. Edema: 0/4 (Max. 4; Mean score of all treated animals; Time point: 24+48+72 hours); no signs of irritation noted. Reference: ECHA (2012).
9011-53-4 Poly(Butyl Methacrylates)	
Corrosion/Irritation	(No data available)

· **Potential Health Effect(s):**
Causes skin irritation.

In contact with skin, may cause:
redness and pain

· **Eye Serious Damage or Irritation**	
7440-22-4 Silver	
Damage/Irritation	not irritating (rabbit) (OECD TG 405; 100mg substance; 1sec-contact) No ocular effects were noted 24, 48 or 72 hours after treatment; the substance was therefore not classified as irritating to rabbit eyes. Reference: ECHA (2011).

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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

1330-20-7 Xylene	
Damage/Irritation	*irritating (rabbit) (mixed-xylenes and ethylbenzene)* *Eye irritation: 5.33 (mean score all treated animals; at 24 hours)* *Eye irritation: 6.33 (mean score all treated animals; at 48 hours)* *Eye irritation: 4.67 (mean score all treated animals; at 72 hours)* *The substance was classified as a irritant (Category 2A) to rabbit eyes.* *Reference: ECHA (2011).*
108-65-6 Methoxy Propyl acetate	
Damage/Irritation	*not irritating (rabbit) (OECD TG 405; 0.1ml neat substance;)* *Cornea: 0/4 (Max. 4; Mean score of all treated animals; Time point: 24+48+72 hours)* *Iris: 0/2 (Max. 2; Mean score of all treated animals; Time point: 24+48+72 hours)* *Conjunctivae: 1.2/3 (Max. 3; Mean score of all treated animals; Time point: 24+48+72 hours)* *Chemosis: 0.2/4 (Max. 4; Mean score of all treated animals; Time point: 24+48+72 hours)* *The substance was not irritating to rabbit eyes.* *Reference: ECHA (2012).*
9011-53-4 Poly(Butyl Methacrylates)	
Damage/Irritation	*(No data available)*

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

· ***Respiratory or Skin Sensitization***		
7440-22-4 Silver		
Sensitization	*Skin*	*not sensitizing (guinea pig) (EPA OPPTS 870.2600; epicutaneous and occlusive)* *There were no positive reactions after dermal application with up to 50% of the substance in distilled water; the substance was not considered as a dermal sensitizer.*
	Respiratory	*(No data available)*
1330-20-7 Xylene		
Sensitization	*Skin*	*not sensitizing (mouse) (OECD TG 429)* *Stimulation index (undiluted substances) = 3.1; the substance was not sensitizing to mouse skin based on the classification criteria.* *Reference: ECHA (2011).*
	Respiratory	*(No data available)*
108-65-6 Methoxy Propyl acetate		
Sensitization	*Skin*	*not sensitizing (guinea pig) (OECD TG 406; Time point: 24+48 hrs)* *None of the twenty test animals showed any positive response at either 24 and 48 hours after removal of the challenge patches, therefore the substance was not a skin sensitizer in guinea pigs.* *Reference: ECHA (2012).*
	Respiratory	*(No data available)*
9011-53-4 Poly(Butyl Methacrylates)		
Sensitization	*Skin*	*(Test species: n/a)* *Unlikely to cause skin irritation. Contains greater than 0.1% residual (n-Butyl methacrylate, iso-Butyl methacrylate). During normal handling this will not constitute a hazard. If the polymer matrix is destroyed e.g. when the product is dissolved in organic solvent, chemical residues will be released from the polymer matrix. Under these conditions, they may product allergic reactions in persons already sensitized.*
	Respiratory	*(No data available)*

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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

· **Potential Health Effect(s):**
No further relevant information for skin sensitization; classification is not possible.
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**	
7440-22-4 Silver	
Mutagenicity	negative (rat) (In Vivo (micronucleus assay; OECD TG 474)) In Vitro (Mammalian cell micronucleus test; OECD TG 487; Read-across from Silver Sulphate; human lymphocytes) - negative with and without metabolic activation. In Vitro (Mammalian cell gene mutation assay; OECD TG 476; Read-across from Silver Sulphate; mouse lymphoma L5178Y cells) - An increase in mutant frequency was observed without metabolic activation at the highest concentration; negative with metabolic activation, or without metabolic activation at other concentrations. In Vivo (micronucleus assay; OECD TG 474; Read-across from Silver nanoparticles; rats; oral with up to 1000 mg/kg bw/day) - negative; the substance did not affect either the frequency of micronucleated polychromatic erythrocytes, or the PCE/(PCE+NCE) ratio. When considering all of the evidence, the substance was not classified as mutagenic. Reference: ECHA (2011).
1330-20-7 Xylene	
Mutagenicity	negative (Test species listed below) In Vivo (male and female mice; subcutaneous; dominant lethal assay with OECD TG 478) - negative; no deviations in treated animals were observed; no evidence of decreased pregnancy rate or increased embryo loss exhibited. In Vivo (male rats; intraperitoneal; dominant lethal assay with OECD TG 478) - negative; no deviations in treated animals were observed; no evidence of decreased pregnancy rate or increased embryo loss exhibited. In Vitro (sister chromatid exchange assay in Chinese hamster Ovary (CHO) cells with EU Method B19) - negative with and without metabolic activation In Vitro (mammalian chromosome aberration test in Chinese hamster Ovary (CHO) cells with EU Method B10) - negative with and without metabolic activation Reference: ECHA (2012).
108-65-6 Methoxy Propyl acetate	
Mutagenicity	negative (Test species listed below) In Vitro (Bacterial reverse mutation assay; OECD TG 471; S. typhimurium strains TA98, TA100, TA1535, TA1537, TA1538) - Negative with and without metabolic activation. In Vitro (DNA damage and/or repair; OECD TG 482; Primary cell cultures of rat hepatocytes) - Negative without metabolic activation. Reference: ECHA (2012).
9011-53-4 Poly(Butyl Methacrylates)	
Mutagenicity	(No data available)

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

· **Carcinogenicity**	
7440-22-4 Silver	
Carcinogenicity	negative (Test species: n/a) (not listed as a Carcinogen by NTP, IARC or OSHA)
1330-20-7 Xylene	

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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

Carcinogenicity	*negative (Rats and Mice)* *(mouse) (oral; EU Method B32; mixed-xylenes and ethylbenzene)* *No evidence of carcinogenicity of the substance in male or female mice was observed with up to the maximum dose of 1000 mg/kg per day for 2 years.* *(rat) (oral; EU Method B32; mixed-xylenes and ethylbenzene)* *No evidence of carcinogenicity of the substance in male or female rats was observed with up to 500 mg/kg (maximum dose treated) per day up to 103 weeks.* *Reference: ECHA (2011).*
108-65-6 Methoxy Propyl acetate	
Carcinogenicity	*negative (mouse)* *NOEL(OECD TG 453; vapor; up to 3000ppm; Carcinogenicity; male/female) = 3000 ppm* *Reference: ECHA (2012).*
9011-53-4 Poly(Butyl Methacrylates)	
Carcinogenicity	*negative (Test species: n/a)* *Not listed as a carcinogen according to ACGIH, IARC, NTP, or OSHA.*

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

· ***Reproductive Toxicity***	
7440-22-4 Silver	
Reproductive Toxi.	*negative (rat) (OECD TG 414; Oral with up to 100 mg/kg/d)* *(Read-across from Silver (I) acetate;)* *NOAEL (Developmental toxicity) ≥ 100 mg/kg/day: no adverse effects.* *LOAEL (Maternal toxicity) = 30 mg/kg/day: weight loss. The substance was therefore not classified as a reproductive hazard.* *Reference: ECHA (2011).*
1330-20-7 Xylene	
Reproductive Toxi.	*N/a (mouse)* *Based on the evidence in mouse developmental toxicity tests that weight reduction and hydrocephalus were observed in fetuses at dosing levels that were not toxic to parental animals, the substance was classified as a Category 1B reproductive hazard by GHS-J.* *(rat) (inhalation; EPA OPPTS 870.3800)* *NOAEC (reproductive performance; P and F1 Generation) ≥ 500 ppm (highest dose tested)* *NOAEC (developmental toxicity; F1 and F2 Generation) ≥ 500 ppm (highest dose tested).* *(rat) (inhalation; OECD TG 414)* *NOAEC (maternal toxicity and developmental toxicity) = 500 ppm (2.2 mg/L); reduced body weight gain and reduced food consumption in maternal rats, and reduced foetal weight exhibited at or above 1000 ppm dose levels.* *(rat) (inhalation; EPA OPPTS 870.3800)* *NOAEC (reproductive performance; P and F1 Generation) ≥ 500 ppm (highest concentration tested)* *NOAEC (developmental toxicity; F1 and F2 Generation) ≥ 500 ppm (highest concentration tested).* *(inhalation; up to 500 ppm; OECD TG 414)* *NOAEC (maternal toxicity and developmental toxicity) = 500 ppm (2.2 mg/L); reduced body weight gain and reduced food consumption in maternal rats, and reduced foetal weight exhibited at or above 1000 ppm dose levels. However, based on the effects above, ECHA concluded it conclusive but not sufficient for the reproductive toxic classification.* *Reference: ECHA (2011) and GHS-J (2006).*
108-65-6 Methoxy Propyl acetate	
Reproductive Toxi.	*negative (rat)* *NOAEL (OECD TG 422; Oral; P and F1 Generations; Oral with up to 1000 mg/kg bw/day) = 1000 mg/kg bw/day* *Reference: ECHA (2012).*
9011-53-4 Poly(Butyl Methacrylates)	

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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

Reproductive Toxi.	*(No data available)*

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

· ***Specific Target Organ Toxicity - Single Exposure***	
7440-22-4 Silver	
STOT-Single	*(No data available)*
1330-20-7 Xylene	
STOT-Single	*(mouse) (Respiratory irritation)* *Exposure of mice to o-xylene at a concentration of 9.48 mg/L of air inhalation resulted in very slight to slight depressions in respiratory rates which indicates very slight to slight respiratory irritation.* *Reference: ECHA (2012).*
108-65-6 Methoxy Propyl acetate	
STOT-Single	*(No data available)*
9011-53-4 Poly(Butyl Methacrylates)	
STOT-Single	*(No data available)*

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

· ***Specific Target Organ Toxicity - Repeated Exposure***	
7440-22-4 Silver	
STOT-Repeated	*(No data available)* *Target organ: N/A (Rat)* *NOAEL (Test substance: silver nanoparticles with median diameter of 56 nm; OECD TG 408; Oral with up to 500 mg/kg bw/day) = 30 mg/kg bw/day: target organs for the silver nanoparticles were found to be livers in both male and female rats; however, diameter of this substance was over 1µm based on the vendor's TDS. Thus, the NOAEL of 30 mg/kg bw/day can't be used for classification of target organ toxicity.* *Reference: ECHA (2011) and Technic TDS (2011).*
1330-20-7 Xylene	
STOT-Repeated	*Target: None (rat) (mixed-xylenes and ethylbenzene)* *LOAEL (OECD TG 408; males and females; Oral with up to 750 mg/kg bw/day) = 250 mg/kg bw/day; hepatocyte hypertrophy and liver and kidney-related clinical chemistry changes were observed; however, the dose level was out of the category ranges.* *Reference: ECHA (2011).*
108-65-6 Methoxy Propyl acetate	
STOT-Repeated	*(Test species listed below)* *NOAEL (Rat; OECD TG 422; Oral; up to 1000 mg/kg/day) ≥ 1000 mg/kg/day* *NOAEL (Rabbit; OECD TG 410; Dermal; up to 1000 mg/kg) ≥ 1000 mg/kg bw/day* *Reference: ECHA (2012).*
9011-53-4 Poly(Butyl Methacrylates)	
STOT-Repeated	*(No data available)*

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

· ***Aspiration Hazard***	
7440-22-4 Silver	
Aspiration Hazard	*(No data available)*
1330-20-7 Xylene	

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Aspiration Hazard	*(Test species: n/a)* *There was description that the substance may cause aspiration and chemical pneumonia when swallowed. Meanwhile, the substance was a mixture of xylenes with calculated kinematic viscosities ranging from 0.67 to 0.87 mm²/s at 25 ℃, the substance was therefore classified as a Category 2 aspiration hazard.* *Reference: GHS-J (2006).*
108-65-6 Methoxy Propyl acetate	
Aspiration Hazard	*(No data available)*
9011-53-4 Poly(Butyl Methacrylates)	
Aspiration Hazard	*(No data available)*

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

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

SECTION 12. ECOLOGICAL INFORMATION

· ***Aquatic Environmental Toxicity***	
7440-22-4 Silver	
Algae Toxicity	*4.1E-4 mg/l (Pseudokirchneriella subcapitata) (EC10 (growth rate; 24 hrs))* *1.2 µg/l (Champia parvula) (NOEC (14 days); Silver element)*
Crustacean Toxicity	*2.2E-4 mg/l (Daphnia magna (water flea)) (LC50 (48 hrs); Read-across from AgNO3)* *2.14 µg/L (Daphnia magna) (EC10 (21 days); ASTM standard method; Read-across from AgNO3)* *2.48 µg/L (Ceriodaphnia dubia) (Read-across from AgNO3; EC10 (7 days); USEPA standard method)*
Fish Toxicity	*0.001- 0.01 mg/l (Pimephales promelas (fathead minnow)) (LC50 (96 hrs); EPA-821/R-02-012)* *LC50 (96 hrs) varies with age and size of fishes: 1.2 µg/l (1-4 day old fishes); 3.37 µg/l (7 day old fishes); 5.9 µg/l (27 day old fishes); 10.4 µg/l (41 day old fishes).* *0.17 µg/l (Oncorhynchus mykiss) (Read-across from AgNO3; EC10 (196 days); OECD TG 210)* *0.19 µg/l (Salmo trutta) (Read-across from AgNO3; EC10 (217 days); OECD TG 210)* *Based on the chronic EC10 < 0.1mg/l and the non-rapid degradability, the substance is classified as a chronic-1 environmental hazard.* *Reference: ECHA (2011).*
1330-20-7 Xylene	
Algae Toxicity	*(Selenastrum capricornum)* *EC50 (72 hrs) = 4.7 mg/L (o-xylene), 4.9 mg/L (m-xylene), and 3.2 mg/L (p-xylene).* *(Skeletonema costatum)* *EC50 (72 hrs) = 10 mg/L (mixed-xylenes)*
Crustacean Toxicity	*(Daphnia magna (water flea))* *EC50 (48 hrs) = 3.2 mg/L (o-xylene), 9.56 mg/L (m-xylene), and 8.5 mg/L (p-xylene).* *(Crangon franciscorum)* *EC50 (48 hrs) = 1.3 mg/L (o-xylene), 3.7 mg/L (m-xylene), and 2 mg/L (p-xylene).* *Based on the acute EC50 < 10 mg/L and the fast degradability, the substance is classified as an Acute-2 environmental hazard.*
Fish Toxicity	*26.7 mg/l (Pimephales promelas (fathead minnow)) (LC50 (96 hrs); mixed-xylenes)* *13.5 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs); mixed-xylenes)* *>1.3 mg/L (chronic-NOEC; mixed-xylenes)* *Reference: OECD SIAM (2003).*

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SECTION 12. ECOLOGICAL INFORMATION (CONTINUED)

108-65-6 Methoxy Propyl acetate	
Algae Toxicity	*> 1000 mg/l (Selenastrum capricornum) (EC50 (96 hrs); OECD TG 201)*
Crustacean Toxicity	*> 500 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); EU Method C2)* *≥ 100 mg/l (NOEC (21 days); OECD TG 211)*
Fish Toxicity	*> 500 mg/l (Salmo gairdneri) (EC50 (48 hrs); EU Method C2)* *≥ 100 mg/l (Oryzias latipes) (NOEC (21 days); OECD TG 211)* *Reference: ECHA (2012).*
9011-53-4 Poly(Butyl Methacrylates)	
Algae Toxicity	*(No data available)*
Crustacean Toxicity	*(No data available)*
Fish Toxicity	*(No data available)*

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

· ***Degradability and Stability***	
7440-22-4 Silver	
Biodegradation	*non-biodegrad. (Test species: n/a) (As a metal element, no degradation is possible)*
Persistence	*(Test species: n/a) (As a metal element, the substance is persistent)* *Reference: Canada DSL (2007).*
Photodegradation	*(Test species: n/a) (As a metal element, no degradation is possible)*
Stability in water	*stable (Test species: n/a) (As a metal element, it is stable in water)*
1330-20-7 Xylene	
Biodegradation	*(Test species: n/a) (OECD TG 301C)* *Biodegradation (m-xylene (108-38-3): 100 mg/L; 4 weeks; Direct analysis from GC) = 100%* *Biodegradation (m-xylene (108-38-3): 100 mg/L; 4 weeks; Indirect analysis from BOD) = 100%* *The substance is readily biodegradable.* *Reference: CHRIP (2011).*
Persistence	*(Test species: n/a)* *The substance is not persistent.* *Reference: Canada DSL (2007).*
Photodegradation	*1.87E-11 cm³/molecule-sec (OH radical)* *Half-life = 19.7 hours (o-xylene), 9.47 hours (m-xylene), and 19.7 hours (p-xylene); however, photolysis is negligible in water.* *Reference: ChemID Full Record (2011) and OECD SIAM (2003).*
Stability in water	*(Test species: n/a)* *Half-life (25 °C) = 0.23 days* *Reference: EnviChem (2011).*
108-65-6 Methoxy Propyl acetate	
Biodegradation	*(Test species: n/a)* *Degradation (DOC removal; 28 days; OECD TG 301F) = 99%; the substance is readily biodegradable.* *Reference: ECHA (2012).*
Persistence	*(Test species: n/a)* *The substance is not persistent.* *Reference: Canada DSL (2007).*

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Photodegradation	*1.19E-11 cm³/molecule-sec (OH radical)* *Reference: NLM Toxnet (2012).*
Stability in water	*(No data available)*
9011-53-4 Poly(Butyl Methacrylates)	
Biodegradation	*(No data available)*
Persistence	*(Test species: n/a)* *The substance is persistent.* *Reference: Canada DSL (2007).*
Photodegradation	*(No data available)*
Stability in water	*(No data available)*

· ***Bioaccumulation and Distribution***

7440-22-4 Silver	
BCF	*70 (Cyprinus carpio) (The substance is not bioaccumulative)* *Reference: ECHA (2011) and Canada DSL (2007).*
Koc	*(No data available)*
LogPow	*(Test species: n/a) (As a metal element, LogPow test is not applicable)*
1330-20-7 Xylene	
BCF	*(Test species: n/a) (Calculated from LogPow)* *50 (o-xylene), 58 (m-xylene), and 53 (p-xylene)* *The substance is not or low bioaccumulative.* *Reference: OECD SIAM (2003).*
Koc	*(No data available)*
LogPow	*(Test species: n/a)* *3.12 (o-xylene), 3.2 (m-xylene), and 3.15 (p-xylene)* *Reference: OECD SIAM (2003).*
108-65-6 Methoxy Propyl acetate	
BCF	*(No data available)* *The substance is not bioaccumulative.* *Reference: Canada DSL (2007).*
Koc	*(No data available)*
LogPow	*1.2 (Test species: n/a) (at 20 °C)* *Reference: ECHA (2012).*
9011-53-4 Poly(Butyl Methacrylates)	
BCF	*(Test species: n/a)* *The substance is not bioaccumulative.* *Reference: Canada DSL (2007).*
Koc	*(No data available)*
LogPow	*(No data available)*

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

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

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SECTION 13. DISPOSAL CONSIDERATIONS

· **Hazardous Waste List**

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

· RCRA Waste:			
7440-22-4	Silver	D011	50-60%
1330-20-7	Xylene	U239	≤20%
108-65-6	Methoxy Propyl acetate	D001	10-20%

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

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

· **Unused and Uncontaminated Packagings**

· **Recommendation** Dispose of according to your local waste regulations.

SECTION 14. TRANSPORT INFORMATION

· **UN-Number**
· **DOT, ADR, IMDG, IATA** UN1133

· **UN Proper Shipping Name**
· **DOT, ADR, IMDG, IATA** Adhesives

· **Transport hazard class(es)**

· **DOT**

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

· **ADR**

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

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SECTION 14. TRANSPORT INFORMATION (CONTINUED)

· **IMDG**

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

· **IATA**

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

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

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

· **Special Precautions:** Warning: Flammable liquids
· **Danger Code (Kemler):** 30
· **EMS Number:** F-E,S-D

· **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: 60 L
On cargo aircraft only: 220 L

· **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":** UN1133, Adhesives, 3, III

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SECTION 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)**

7440-22-4	Silver	50-60%
1330-20-7	Xylene	≤20%

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

1330-20-7	Xylene	A, C, F	≤20%

· **Hazard Abbreviations for SARA 311/312**

A - Acute Health Hazard
C - Chronic Health Hazard
F - Fire Hazard
R - Reactive Hazard
S - Sudden Release of Pressure Hazard

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

7440-22-4	Silver
1330-20-7	Xylene
108-65-6	Methoxy Propyl acetate
9011-53-4	Poly(Butyl Methacrylates)
128-37-0	2,6-di-tert-butyl-p-cresol

· **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)**

7440-22-4	Silver	D
1330-20-7	Xylene	I

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

1330-20-7	Xylene	3
128-37-0	2,6-di-tert-butyl-p-cresol	3

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SECTION 15. REGULATORY INFORMATION (CONTINUED)

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

1330-20-7	Xylene	A4
128-37-0	2,6-di-tert-butyl-p-cresol	A4

· **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%)**

7440-22-4	Silver

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

All ingredients are listed.

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

7440-22-4	Silver
1330-20-7	Xylene
108-65-6	Methoxy Propyl acetate
9011-53-4	Poly(Butyl Methacrylates)
128-37-0	2,6-di-tert-butyl-p-cresol

· **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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SECTION 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.

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
ChemID (Full Record): US NLM Chemical Information Database (or its Full Record) designed to help search for information by chemical name or structure
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
ESIS: European Chemical Substances Information System
HMIS: US National Paint & Coatings Association (NPCA) Hazardous Materials Identification System
HSDB: US NLM TOXNET Hazardous Substances Databank
HSNO CCID: New Zealand Hazardous Substances and New Organisms Chemical Classification Information Database
IARC: International Agency for Research on Cancer developed by United Nations World Health Organisation (WHO)
IATA-DGR: Dangerous Goods Regulations (DGR) by the International Air Transport Association (IATA)
ICAO-TI: Technical Instructions (TI) by the International Civil Aviation Organization (ICAO)
ICSC: International Chemical Safety Cards
IMDG: International Maritime Dangerous Goods; the principal international rules for International Carriage of Dangerous Goods by SEA under the Recommendations on the Transport of Dangerous Goods by United Nations (RTDG)
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
OECD SIAM: OECD Initial Assessment Meetings(Reports)
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

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SECTION 16. OTHER INFORMATION (CONTINUED)

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