

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking**1.1 Product identifier**

- Product Name** • **Troop-Balas #50100, 50200 & 50400 One-Dip Hair Spring Cleaner**
- Synonyms** • Trichloroethene; Trichlorethylene; Trichlor; C₂HCl₃

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified use(s)** • Solvent. Metal degreaser.
- Use(s) advised against** • None identified

1.3 Details of the supplier of the safety data sheet

- Manufacturer** • Axiall, LLC
1000 Abernathy Rd. NE, Suite 1200
Atlanta, GA 30328
United States
www.axiall.com
msdsinfo@axiall.com

Telephone (General) • +1 225-685-1240

- Responsible Party - EU** • Intertek France
12 Rue Alfred Kastler
71530 Fragnes
France

Telephone (General) • christian.gimenez@intertek.com
33 (0) 385 99 1274

Telephone (General) • 33 385 99 1288

1.4 Emergency telephone number

- Manufacturer** • +1 304-455-6882

Section 2: Hazards Identification**EU/EEC**

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

- CLP**
- Aspiration 1 - H304
 - Carcinogenicity 1A - H350
 - Eye Irritation 2 - H319
 - Germ Cell Mutagenicity 2 - H341
 - Hazardous to the aquatic environment Chronic 3 - H412
 - Skin Irritation 2 - H315

DSD/DPD

- Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336
- Irritant (Xi)
- Carcinogenic Substances - Category 2
- Mutagenic Substances - Category 3
- R36/38, R45, R67, R68, R52, R53

2.2 Label Elements

CLP

DANGER



- Hazard statements**
- H304 - May be fatal if swallowed and enters airways
 - H315 - Causes skin irritation
 - H319 - Causes serious eye irritation
 - H336 - May cause drowsiness or dizziness
 - H341 - Suspected of causing genetic defects.
 - H350 - May cause cancer.
 - H412 - Harmful to aquatic life with long lasting effects

Precautionary statements

- Prevention**
- P201 - Obtain special instructions before use.
 - P202 - Do not handle until all safety precautions have been read and understood.
 - P261 - Avoid breathing mist/vapours/spray.
 - P264 - Wash thoroughly after handling.
 - P271 - Use only outdoors or in a well-ventilated area.
 - P273 - Avoid release to the environment.
 - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 - P281 - Use personal protective equipment as required.
- Response**
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
 - P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
 - P362 - Take off contaminated clothing and wash before reuse.
 - P332+P313 - If skin irritation occurs: Get medical advice/attention.
 - P321 - Specific treatment, see supplemental first aid information.
 - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P337+P313 - If eye irritation persists: Get medical advice/attention.
 - P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 - P331 - Do NOT induce vomiting.
 - P308+P313 - IF exposed or concerned: Get medical advice/attention.

- Storage/Disposal**
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
 - P405 - Store locked up.
 - P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD



- Risk phrases**
- R36/38 - Irritating to eyes and skin.
 - R45 - May cause cancer.
 - R67 - Vapours may cause drowsiness and dizziness.
 - R68 - Possible risk of irreversible effects.
 - R52 - Harmful to aquatic organisms.
 - R53 - May cause long-term adverse effects in the aquatic environment.

- Safety phrases**
- S53 - Avoid exposure - obtain special instructions before use.
 - S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S61 - Avoid release to the environment. Refer to special instructions/ Safety Data Sheets.

2.3 Other Hazards

- CLP**
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.
- DSD/DPD**
- This product is considered dangerous according to the European Directive 67/548/EEC.

UN GHS

According to: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2.1 Classification of the substance or mixture

- UN GHS**
- Acute Toxicity Oral 5
Aspiration 1
Carcinogenicity 1A
Eye Irritation 2
Germ Cell Mutagenicity 2
Hazardous to the aquatic environment Acute 3
Reproductive Toxicity 2
Skin Irritation 2
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects

2.2 Label elements

UN GHS

DANGER



- Hazard statements**
- May be harmful if swallowed
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause drowsiness or dizziness
Suspected of causing genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Harmful to aquatic life with long lasting effects

Precautionary statements

- Prevention**
- Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing mist/vapours/spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.
- Response**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN: Wash with plenty of soap and water.
Take off contaminated clothing and wash before reuse.
If skin irritation occurs: Get medical advice/attention.
Specific treatment, see supplemental first aid information.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.

- IF exposed or concerned: Get medical advice/attention.
- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed. Store locked up.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

UN GHS

- According to the Globally Harmonized System for Classification and Labeling (GHS) this product is considered hazardous.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Aspiration 1
- Carcinogenicity 1A
- Eye Irritation 2
- Germ Cell Mutagenicity 2
- Reproductive Toxicity 2
- Skin Irritation 2
- Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements**
- May be fatal if swallowed and enters airways
 - Causes skin irritation
 - Causes serious eye irritation
 - May cause drowsiness or dizziness
 - Suspected of causing genetic defects.
 - May cause cancer.
 - Suspected of damaging fertility or the unborn child.

Precautionary statements

- Prevention**
- Obtain special instructions before use.
 - Do not handle until all safety precautions have been read and understood.
 - Avoid breathing mist/vapours/spray.
 - Wash thoroughly after handling.
 - Use only outdoors or in a well-ventilated area.
 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - Call a POISON CENTER or doctor/physician if you feel unwell.
 - IF ON SKIN: Wash with plenty of soap and water.
 - Take off contaminated clothing and wash before reuse.
 - If skin irritation occurs: Get medical advice/attention.
 - Specific treatment, see supplemental first aid information.
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - If eye irritation persists: Get medical advice/attention.
 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 - Do NOT induce vomiting.
 - IF exposed or concerned: Get medical advice/attention.

- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed. Store locked up.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Toxic - D1B
- Other Toxic Effects - D2A
- Other Toxic Effects - D2B

2.2 Label elements

WHMIS



- Toxic - D1B
- Other Toxic Effects - D2A
- Other Toxic Effects - D2B

2.3 Other hazards

WHMIS

- Aspiration hazard if swallowed; can enter lungs and cause damage. In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Trichloroethylene	CAS:79-01-6 EC Number:201-167-4 EU Index:602-027-00-9	> 99%	Inhalation-Rat LC50 • 140700 mg/m ³ 1 Hour (s) Ingestion/Oral-Rat LD50 • 4920 mg/kg Skin-Rabbit LD50 • 20 mL/kg	UN GHS: Carc. 1A; Muta. 2; Eye Irrit. 2; Skin Irrit. 2; STOT SE 3: Narc.; Repr. 2; Aquatic Acute 3; Asp. Tox. 1; Acute Tox. 5 (Oral) EU DSD/DPD: Annex VI, Table 3.2: Xi; R36/38 Carc.Cat.2; R45 R52-53 R67 Muta.Cat.3; R68 EU CLP: Annex VI, Table 3.1: Carc. 1B; H350 Muta. 2; H341 Eye Irrit. 2; H319 Skin Irrit. 2; H335 STOT SE 3: Narc.,H336; Aquatic Chronic 3 H412 OSHA HCS 2012: Carc. 1A; Muta. 2; Eye Irrit. 2; Skin Irrit. 2; STOT SE 3: Narc.; Repr. 2; Asp. Tox. 1;
Stabilizer	Proprietary	0.3% TO 0.4%	NDA	UN GHS: Flam. Liq. 2; Carc. 2; Acute Tox. 4 (Oral); Acute Tox. 4 (Skn); Acute Tox. 3 (Inhl); Skin Irrit. 3; Eye Irrit. 2; STOT SE 3: Narc. EU DSD/DPD: Annex VI, Table 3.2: F; R11; Carc. Cat. 3; R40; Xn; R20/21/22; Xi; R36/37/38; R52-53 EU CLP: Annex VI, Table 3.1: Flam. Liq. 2, H225; Carc. 2, H351; Acute Tox. 3, H331; Acute Tox. 4, H312; Acute Tox. 4, H302; Eye Irrit. 2, H319; STOT SE 3: Resp. Irrit., H335; Skin Irrit. 2, H315; Aquatic Chronic 3, H412 OSHA HCS 2012: Flam. Liq. 2; Carc. 2; Acute Tox. 4 (Oral); Acute Tox. 4 (Dermal); Acute Tox. 3 (Inhl); Eye Irrit. 2; STOT SE

Stabilizer	Proprietary	0.13% TO 0.175%	Ingestion/Oral-Rat LD50 • 1870 mg/kg Inhalation-Mouse LC50 • 48 g/m ³ Skin-Rabbit LD50 • 5040 mg/kg	3: Narc. UN GHS: Flam. Liq. 2; Eye irrit. 2; STOT SE 3: Resp. Irrit. & Narc.; Acute Tox. 4 (Oral); Skin Irrit. 3; EU DSD/DPD: Annex VI, Table 3.2: F; R11 Xi; R41 R67 EU CLP: Annex VI, Table 3.1: Flam. Liq. 2, H225; Eye Dam. 1, H318; STOT SE 3: Narc., H336; OSHA HCS 2012: Flam. Liq. 2; Eye Irrit. 2; STOT SE 3: Resp. Irrit. & Narc.; Acute Tox. 4 (Oral)
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3.2 Mixtures

- Material does not meet the criteria of a mixture in accordance with Regulation (EC) No 1272/2008.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Skin

- For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove contaminated clothing and shoes. If irritation develops and persists, get medical attention.

Eye

- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.

Ingestion

- If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- Only administer adrenaline after careful consideration following overexposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to this product. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media • Use water spray, dry chemical powder or carbon dioxide.

Unsuitable Extinguishing Media • Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Containers may explode when heated. Emits toxic fumes under fire conditions. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars etc.)

Vapors may travel to source of ignition and flash back.

Vapor concentration in a confined or poorly ventilated area can be ignited upon contact with a high energy spark, flame, or high intensity source of heat. This can occur at concentrations ranging between the upper and lower explosion limits (by volume). In a fire or if heated, a pressure increase will occur and the container may burst.

Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous Combustion Products

5.3 Advice for firefighters

- Depending on conditions, decomposition products may include the following materials: carbon oxides, halogenated compounds, carbon halides, hydrogen chloride, and possible traces of phosgene.
- Structural firefighters' protective clothing will only provide limited protection. Wear positive pressure self-contained breathing apparatus (SCBA). Move containers from fire area if you can do it without risk.
LARGE FIRES: Cool containers with flooding quantities of water until well after fire is out.
LARGE FIRES: Dike fire control water for later disposal; do not scatter the material.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not breathe mist, vapors, spray. Avoid contact with skin, eyes, and clothing.

Emergency Procedures

- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet) ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

6.2 Environmental precautions

- Avoid release to the environment. Avoid contamination of water supplies. Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. A vapor suppressing foam may be used to reduce vapors.
LARGE SPILLS: Dike far ahead of liquid spill for later disposal.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Handle and open with care. Use only with adequate ventilation. Avoid contact with heat and ignition sources. All equipment used when handling the product must be grounded. Use only non-sparking tools. Take precautionary measures against static charges. Wear appropriate personal protective equipment; avoid direct contact. Avoid breathing mist, vapors and/or spray. Avoid contact with skin, eyes, and clothing. Do not ingest. This material or its vapors when in contact with flames, hot glowing surfaces or electric arcs, depending on conditions, can decompose to form hydrogen chloride gas and possible traces of phosgene. Do not use cutting or welding torches on drums that

contained this product unless properly purged and cleaned. Do not ship lightly stabilized grades in aluminum trailers. Do not ship in containers made of zinc, aluminum, or copper due to product incompatibility. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

- Storage**
- Keep container tightly closed. Keep from direct sunlight. Store in a cool, dry, well-ventilated place. Do not store above the following temperature: 35°C (95°F). Do not store or stack aluminum in contact with this product to prevent possible solvent decomposition (stacking corrosion). Liquid oxygen or other strong oxidants may form explosive mixtures with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada British Columbia	Canada Ontario	Canada Quebec	NIOSH
Stabilizer (Proprietary)	TWAs	100 ppm TWA	100 ppm TWA	100 ppm TWA	200 ppm TWAEV; 492 mg/m3 TWAEV	200 ppm TWA; 500 mg/m3 TWA
	STELs	Not established	Not established	Not established	250 ppm STEV; 614 mg/m3 STEV	250 ppm STEL; 625 mg/m3 STEL
Trichloroethylene (79-01-6)	STELs	25 ppm STEL	25 ppm STEL	25 ppm STEL	200 ppm STEV; 1070 mg/m3 STEV	Not established
	TWAs	10 ppm TWA	10 ppm TWA	10 ppm TWA	50 ppm TWAEV; 269 mg/m3 TWAEV	Not established
Exposure Limits/Guidelines (Con't.)						
	Result	OSHA				
Stabilizer (Proprietary)	TWAs	200 ppm TWA; 500 mg/m3 TWA				
Trichloroethylene (79-01-6)	Ceilings	200 ppm Ceiling				
	TWAs	100 ppm TWA				

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, 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 Equipment

Respiratory

- If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Eye/Face

Skin/Body

- Wear chemical splash goggles and face shield.
- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. HANDS: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove

material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Environmental Exposure Controls

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

STEV = Short Term Exposure Value

NIOSH = National Institute of Occupational Safety and Health

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

OSHA = Occupational Safety and Health Administration

TWAEV = Time-Weighted Average Exposure Value

STEL = Short Term Exposure Limits are based on 15-minute exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Colorless liquid with an ethereal odor.
Color	Colorless	Odor	Ethereal odor.
Odor Threshold	No data available		
General Properties			
Boiling Point	86 to 90 C(186.8 to 194 F)	Melting Point	-86.4 C(-123.52 F)
Decomposition Temperature	No data available	pH	>= 6.7
Specific Gravity/Relative Density	1.46 to 1.47 @ 20 C(68 F) Water=1	Water Solubility	Slightly Soluble 0.1 to 1 %
Viscosity	0.55 Centipoise (cPs, cP) or mPas @ 25 C(77 F)	Explosive Properties	No data available
Oxidizing Properties:	No data available		
Volatility			
Vapor Pressure	57.8 mmHg (torr) @ 20 C(68 F)	Vapor Density	4.54 Air=1
Evaporation Rate	0.28 Ether = 1	Volatiles (Wt.)	100 %
Volatiles (Vol.)	100 %		
Flammability			
Flash Point	None (by DOT test method)	UEL	52 %
LEL	7.8 %	Autoignition	420 C(788 F)
Flammability (solid, gas)	Not relevant.		
Environmental			
Octanol/Water Partition coefficient	2.42 Kow		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under recommended storage and handling conditions.

10.3 Possibility of hazardous reactions

- Under normal conditions of storage and use, hazardous polymerization will not occur.

10.4 Conditions to avoid

- Keep away from ignition sources such as heat/sparks/open flame. - No smoking. When exposed to high temperatures may produce hazardous decomposition products. When this product is involved in fires, it can decompose to hydrogen chloride and possible traces of phosgene.

10.5 Incompatible materials

- Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids. Avoid contamination with caustic soda, caustic potash or oxidizing materials, shock sensitive compounds may be formed.

10.6 Hazardous decomposition products

- Depending on conditions, decomposition products may include the following materials: carbon oxides, halogenated compounds, carbon halides, hydrogen chloride, and possible traces of phosgene.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Trichloroethylene (> 99%)	79-01-6	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 4920 mg/kg; Inhalation-Rat LC50 • 140700 mg/m³ 1 Hour(s); Skin-Rabbit LD50 • 20 mL/kg;</p> <p>Irritation: Eye-Rabbit • 20 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 2 mg 24 Hour(s) • Severe irritation;</p> <p>Multi-dose Toxicity: Ingestion/Oral-Mouse TDLo • 22.4 mg/kg 32 Week(s)-Continuous; Liver:Hepatitis (hepatocellular necrosis), diffuse; Skin and Appendages:After systemic exposure: Dermatitis, other; Immunological Including Allergic:Autoimmune; Inhalation-Mouse TCLo • 500 ppm 4 Week(s)-Intermittent; Liver:Hepatitis (hepatocellular necrosis), zonal; Endocrine:Other changes; Immunological Including Allergic:Decrease in humoral immune response; Inhalation-Rat TCLo • 500 ppm 182 Day(s)-Intermittent; Kidney, Ureter, and Bladder:Interstitial nephritis; Kidney, Ureter, and Bladder:Renal function tests depressed;</p> <p>Mutagen: Sperm Morphology • Inhalation-Mouse • 100 ppm; Micronucleus test • Inhalation-Rat • 5 ppm 6 Hour (s)-Continuous;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 1140 mg/kg (14D pre-21D post); Reproductive Effects:Specific Developmental Abnormalities:Central nervous system; Inhalation-Rat TCLo • 100 ppm 4 Hour(s)(8-21D preg); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system;</p> <p>Tumorigen / Carcinogen: Inhalation-Rat TCLo • 150 ppm 7 Hour(s) 2 Year(s)-Intermittent; Tumorigenic:Carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration:Tumors; Skin and Appendages:Other:Tumors</p>
Impurities, Stabilizers, etc...		
Stabilizer (0.3% TO 0.4%)	Proprietary	<p>Acute Toxicity: Skin-Rabbit LD50 • 2100 µL/kg;</p> <p>Irritation: Eye-Rabbit • 100 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p> <p>Multi-dose Toxicity: Inhalation-Rat TCLo • 1600 ppm 6 Hour(s) 14 Day(s)-Intermittent; Related to Chronic Data:Death in the Other Multiple Dose data type field;</p> <p>Reproductive: Inhalation-Rabbit TCLo • 1000 ppm 7 Hour(s)(1-24D preg); Reproductive Effects:Effects on Fertility:Post-implantation mortality;</p> <p>Tumorigen / Carcinogen: Inhalation-Rat TCLo • 400 ppm 6 Hour(s) 5 Day(s); Tumorigenic:Carcinogenic by RTECS criteria; Sense Organs and Special Senses:Olfaction:Tumors; Lungs, Thorax, or Respiration:Tumors</p>
Stabilizer (0.13% TO 0.175%)	Proprietary	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 1870 mg/kg; Inhalation-Rat LCLo • 9800 mg/m³ 4 Hour(s); Behavioral:General anesthetic; Lungs, Thorax, or Respiration:Other changes; Skin-Rabbit LD50 • 5040 mg/kg;</p> <p>Irritation: Eye-Rabbit • 20 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg-Open • Mild irritation;</p> <p>Reproductive: Inhalation-Rat TCLo • 7000 ppm 7 Hour(s)(6W male); Reproductive Effects:Effects on Fertility:Male fertility index;</p>

Tumorigen / Carcinogen: Ingestion/Oral-Rat TDLo • 50 g/kg 81 Week(s)-Intermittent;
Tumorigenic: Carcinogenic by RTECS criteria; Liver: Tumors; Blood: Leukemia

GHS Properties	Classification
Acute toxicity	EU/CLP • Acute Toxicity - Dermal - Classification criteria not met; Acute Toxicity - Inhalation - Classification criteria not met; Acute Toxicity - Oral - Classification criteria not met OSHA HCS 2012 • Acute Toxicity - Dermal - Classification criteria not met; Acute Toxicity - Inhalation - Classification criteria not met; Acute Toxicity - Oral - Classification criteria not met UN GHS • Acute Toxicity - Dermal - Classification criteria not met; Acute Toxicity - Inhalation - Classification criteria not met; Acute Toxicity - Oral 5
Aspiration Hazard	EU/CLP • Aspiration 1 OSHA HCS 2012 • Aspiration 1 UN GHS • Aspiration 1
Carcinogenicity	EU/CLP • Carcinogenicity 1A OSHA HCS 2012 • Carcinogenicity 1A UN GHS • Carcinogenicity 1A
Germ Cell Mutagenicity	EU/CLP • Germ Cell Mutagenicity 2 OSHA HCS 2012 • Germ Cell Mutagenicity 2 UN GHS • Germ Cell Mutagenicity 2
Skin corrosion/Irritation	EU/CLP • Skin Irritation 2 OSHA HCS 2012 • Skin Irritation 2 UN GHS • Skin Irritation 2
Skin sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
STOT-SE	EU/CLP • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects UN GHS • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects
Toxicity for Reproduction	EU/CLP • Data lacking OSHA HCS 2012 • Toxic to Reproduction 2 UN GHS • Toxic to Reproduction 2
Respiratory sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Serious eye damage/Irritation	EU/CLP • Eye Irritation 2 OSHA HCS 2012 • Eye Irritation 2 UN GHS • Eye Irritation 2

Potential Health Effects

Inhalation

Acute (Immediate)

- May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death.

Chronic (Delayed)

- No data available

Skin

Acute (Immediate)

- Causes skin irritation. In a guinea pig maximization test, trichloroethylene was shown to produce skin sensitization. However, there is no evidence that trichloroethylene is a human skin sensitizer as sensitization has not been observed in workers in the occupational environment with many years of use.

Chronic (Delayed)

- Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Eye**Acute (Immediate)**

- Causes serious eye irritation.

Chronic (Delayed)

- No data available

Ingestion**Acute (Immediate)**

- May be harmful if swallowed. Material may be aspirated into lungs during ingestion and/or subsequent vomiting. Aspiration of this material will cause severe lung injury, chemical pneumonitis, pulmonary edema or death.

Chronic (Delayed)

- No data available

Other**Chronic (Delayed)**

- Prolonged exposure may result in liver and kidney damage as well as immunological effects. Prolonged exposure may result in liver and kidney damage as well as immunological effects. One immunological effect that has been reported in several studies linked occupational trichloroethylene exposure to a rare but severe immunological skin disorder and accompanying hepatitis (such as Stevens-Johnson syndrome) especially in people of Asian descent. The clinical features associated with these disorders include generalized severe dermatitis and shedding of the skin, fever, abnormal liver function, jaundice, and sometimes death due to liver failure and infection. The science involved in the understanding of this association between exposure to trichloroethylene and these severe immunological skin disorders is ongoing. Loss of auditory function (hearing loss) has also been observed in laboratory animals at high trichloroethylene exposure concentrations (> 2000 ppm). Prudent handling practices should be followed to minimize human exposure.

Mutagenic Effects

- When activated with microsomal enzymes, trichloroethylene has been shown to be weakly positive in certain microbial mutagen test systems.

Carcinogenic Effects

- Chronic exposure to trichloroethylene primarily produced renal toxicity and tumors in rats and liver and lung tumors in mice, with some reports of tumors at other sites. Extensive epidemiologic cohort studies of Trichloroethylene-exposed workers do not indicate significant increases in cancer incidence, but case-control studies suggest that prolonged exposure to high concentrations of Trichloroethylene can increase the incidence of renal cancer.

Carcinogenic Effects			
	CAS	IARC	NTP
Trichloroethylene	79-01-6	Group 1-Carcinogenic	Reasonably Anticipated to be Human Carcinogen

Reproductive Effects

- Trichloroethylene has not been shown to produce female reproductive toxicity. Damage to the epididymis and sperm integrity has been observed in male mice exposed to high levels of trichloroethylene (≥ 1000 ppm); however, there is very limited evidence existing for any male reproductive effect in rats or humans.

Key to abbreviations

LC = Lethal Concentration

LD = Lethal Dose

TC = Toxic Concentration

TD = Toxic Dose

Section 12 - Ecological Information**12.1 Toxicity**

TRI145 - Trichloroethylene Degreasing and General Solvent					
Dosage	Species	Duration	Results	Exposure Conditions	Comments
21900-28500 µg/L	Fish: Fathead minnow - Pimephales promelas	96 Hour(s)	EC50	NDA	Trichloroethylene
52000-64000 µg/L	Fish: Sheepshead minnow - Cyprinodon variegatus	96 Hour(s)	LC50	NDA	Trichloroethylene
18000-26000 µg/L	Water Flea: Daphnia magna	48 Hour(s)	LC50	NDA	Trichloroethylene
390000 µg/L	Algae: Green Algae	96 Hour(s)	EC50	NDA	Trichloroethylene
2200 µg/L	Water Flea: Daphnia magna	48 Hour(s)	NOEC	NDA	Trichloroethylene

- Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

- According to EC criteria: Not expected to be readily biodegradable.

12.3 Bioaccumulative potential

- This product shows a low bioaccumulation potential. The BCF for Trichloroethylene (79-01-6) ranged from 4.3, 17, 39 and up to 302, in carp, bluegill sunfish, rainbow trout, and green algae respectively.

12.4 Mobility in Soil

- No data available

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- Water polluting material. May be harmful to the environment if released in large quantities.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1710	Trichloroethylene	6.1	III	NDA
TDG	UN1710	TRICHLOROETHYLENE	6.1	III	NDA
IMO/IMDG	UN1710	TRICHLOROETHYLENE	6.1	III	NDA
IATA/ICAO	UN1710	Trichloroethylene	6.1	III	NDA

14.6 Special precautions for user

- Do not ship in containers made of zinc, aluminum, or copper due to product incompatibility. Do not ship lightly stabilized grades in aluminum trailers.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC

- Data lacking.

Code

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Acute, Chronic

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Stabilizer	Proprietary	Yes	No	Yes	No	Yes
Trichloroethylene	79-01-6	Yes	No	Yes	No	Yes
Stabilizer	Proprietary	Yes	No	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Stabilizer	Proprietary	B2, D2B
• Trichloroethylene	79-01-6	D1B, D2A, D2B
• Stabilizer	Proprietary	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Stabilizer	Proprietary	1 %
• Trichloroethylene	79-01-6	1 %
• Stabilizer	Proprietary	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Stabilizer	Proprietary	Not Listed
• Trichloroethylene	79-01-6	Priority Substance List 1 (substance considered toxic)
• Stabilizer	Proprietary	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Stabilizer	Proprietary	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	Proprietary	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Stabilizer	Proprietary	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	Proprietary	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Stabilizer	Proprietary	Not Listed
• Trichloroethylene	79-01-6	
• Stabilizer	Proprietary	

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	100 lb final RQ; 45.4 kg final RQ
• Stabilizer	<i>Proprietary</i>	100 lb final RQ; 45.4 kg final RQ

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	0.1 % de minimis concentration
• Stabilizer	<i>Proprietary</i>	0.1 % de minimis concentration

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

United States - California**Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	carcinogen, initial date 4/1/88
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	14 µg/day NSRL (oral); 50 µg/day NSRL (inhalation)
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Stabilizer	<i>Proprietary</i>	Not Listed
• Trichloroethylene	79-01-6	Not Listed
• Stabilizer	<i>Proprietary</i>	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H225 - Highly flammable liquid and vapour
- H302 - Harmful if swallowed
- H312 - Harmful in contact with skin
- H318 - Causes serious eye damage
- H331 - Toxic if inhaled
- H335 - May cause respiratory irritation
- H351 - Suspected of causing cancer.
- R11 - Highly flammable.
- R19 - May form explosive peroxides.
- R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed.
- R36/37 - Irritating to eyes and respiratory system.
- R36/37/38 - Irritating to eyes, respiratory system and skin.
- R40 - Limited evidence of a carcinogenic effect.
- R41 - Risk of serious damage to eyes.

Last Revision Date

- 18/May/2015

Preparation Date

- 18/May/2015

Disclaimer/Statement of Liability

- The technical data given herein is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. No guarantee is being given as to the end use performance. The product is sold on the basis that buyers test the product for their specific purposes. This information related to the material designated and may not be valid for such material used in combination with any other materials or in any process.

Key to abbreviations

NDA = No Data Available

