Section 1. Identification of the substance/preparation and of the company/undertaking

1.1 Product identifiers

Product Name: PERCHLOROETHYLENE TECHNICAL

Chemical Name: Tetrachloroethylene
CAS-No. 127-18-4
EC-No. 204-825-9
REACH Registration Number: 01-2118475326-28-0000

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

Identified uses

1.3 Details of the supplier of the safety data sheet

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400
Local Emergency Contact: 00 31 115 69 4982

® (TM) * Trademark
Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification - REGULATION (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Substance</th>
<th>Category</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 2</td>
<td>H351</td>
<td>Suspected of causing cancer.</td>
</tr>
<tr>
<td>Specific target organ toxicity</td>
<td>Category 3</td>
<td>H336</td>
<td>May cause drowsiness or dizziness.</td>
</tr>
<tr>
<td>(Narcotic effects.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Inhalation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 2</td>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

Classification according to EU Directives 67/548/EEC or 1999/45/EC

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R40</td>
<td>Limited evidence of a carcinogenic effect.</td>
</tr>
<tr>
<td>R43</td>
<td>May cause sensitization by skin contact.</td>
</tr>
<tr>
<td>Xi</td>
<td>Irritating to skin.</td>
</tr>
<tr>
<td>R67</td>
<td>Vapours may cause drowsiness and dizziness.</td>
</tr>
<tr>
<td>N</td>
<td>Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</td>
</tr>
</tbody>
</table>

2.2 Label elements

Labelling - REGULATION (EC) No 1272/2008

Hazard pictograms

|| Signal Word: Warning

Hazard statements:

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements:

P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.
P273 Avoid release to the environment.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P391 Collect spillage.
P405 Store locked up.
P502 Refer to manufacturer/supplier for information on recovery/recycling.

2.3 Other Hazards

No information available.
Section 3. Composition/information on ingredients

3.1 Substance

This product is a substance.

<table>
<thead>
<tr>
<th>CAS-No. / EC-No. / REACH No.</th>
<th>Amount</th>
<th>Component</th>
<th>Classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 99.9%</td>
<td>Tetrachloroethylene</td>
<td>REGULATION (EC) No 1272/2008</td>
</tr>
<tr>
<td>CAS-No. 127-18-4</td>
<td></td>
<td></td>
<td>Carc., 2, H351</td>
</tr>
<tr>
<td>EC-No. 204-825-9</td>
<td></td>
<td></td>
<td>Aquatic Chronic, 2, H411</td>
</tr>
<tr>
<td>Index 602-028-00-4</td>
<td></td>
<td></td>
<td>STOT SE, 3, H336</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Irrit., 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Sens., 1, H317</td>
</tr>
</tbody>
</table>

CAS-No. / EC-No. / Index

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Amount</th>
<th>Component</th>
<th>Classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>127-18-4</td>
<td>&gt; 99.9%</td>
<td>Tetrachloroethylene</td>
<td>REGULATION (EC) No 1272/2008</td>
</tr>
</tbody>
</table>

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin Contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed
 Maintain adequate ventilation and oxygenation of the patient. If burn is present, treat as any thermal burn, after decontamination. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Alcohol consumed before or after exposure may increase adverse effects. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

Section 5. Fire Fighting Measures

5.1 Extinguishing Media
This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

5.2 Special hazards arising from the substance or mixture

Hazards Combustion Products: Fire conditions may cause this product to decompose. Refer to section 10 - Thermal Decomposition.
Unusual Fire and Explosion Hazards: Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. This material does not burn. Fight fire for other material that is burning. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area.
Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Material will sink in water. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Bentonite. Sawdust. Clay. Large spills: Contain spilled material if possible. Recover spilled material if possible. Collect in suitable and properly labeled containers. Suitable containers include: Metal drums. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.1 Precautions for safe handling
Handling

General Handling: Avoid breathing vapor. Avoid contact with skin and clothing. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Do not enter confined spaces unless adequately ventilated. To avoid uncontrolled emissions, vent vapor from container to storage tank. Vapors of this product are heavier than air and lethal concentrations of vapors can collect in low, confined and unventilated spaces such as tanks, pits, small rooms and even in equipment (degreasers) that is used for degreasing metal parts. Do not enter these confined spaces where vapors of this product are suspected unless special breathing apparatus is used and an observer is present for assistance. When using do not eat, drink or smoke. When appropriate, unique handling information for containers can be found on the product label. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Store under cover in a dry, clean, cool, well ventilated place away from sunlight. Do not handle or store near an open flame, heat, or sources of ignition. Keep container tightly closed when not in use. Do not store in: Zinc, Aluminum, Aluminum alloys, Plastic. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

Storage Period: 24 Months

7.3 Specific end uses

See the technical data sheet on this product for further information.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>List</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>Ireland OELV</td>
<td>TWA</td>
<td>170 mg/m3 25 ppm</td>
</tr>
<tr>
<td></td>
<td>Ireland OELV</td>
<td>STEL</td>
<td>1,000 mg/m3 150 ppm</td>
</tr>
<tr>
<td></td>
<td>UK WEL</td>
<td>TWA</td>
<td>345 mg/m3 50 ppm</td>
</tr>
<tr>
<td></td>
<td>UK WEL</td>
<td>STEL</td>
<td>689 mg/m3 100 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA</td>
<td>25 ppm BEI</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>100 ppm BEI</td>
</tr>
</tbody>
</table>

A BEI notation following the exposure guideline refers to a guidance value for assessing biological monitoring results as an indicator of the uptake of a substance from all routes of exposures.

Derived No Effect Level (DIMEL)

Workers

<table>
<thead>
<tr>
<th>Potential Health Effects</th>
<th>Possible route(s) of exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute - systemic effects</td>
<td>Skin contact</td>
<td>Not available</td>
</tr>
<tr>
<td>Acute - systemic effects</td>
<td>Inhalation</td>
<td>275 mg/m3</td>
</tr>
<tr>
<td>Acute - local effects</td>
<td>Skin contact</td>
<td>Not available</td>
</tr>
<tr>
<td>Acute - local effects</td>
<td>Inhalation</td>
<td>275 mg/m3</td>
</tr>
<tr>
<td>Long-term - systemic effects</td>
<td>Skin Contact</td>
<td>39.4 mg/kg bw/day</td>
</tr>
<tr>
<td>Long-term - systemic effects</td>
<td>Inhalation</td>
<td>138 mg/m3</td>
</tr>
<tr>
<td>Long-term - local effects</td>
<td>Skin contact</td>
<td>Not available</td>
</tr>
<tr>
<td>Long-term - local effects</td>
<td>Inhalation</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Predicted No Effect Concentration (PNEC)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh water</td>
<td>0.051 mg/l</td>
<td></td>
</tr>
<tr>
<td>Marine water</td>
<td>0.0051 mg/l</td>
<td></td>
</tr>
<tr>
<td>Intermittent releases</td>
<td>0.0364 mg/l</td>
<td></td>
</tr>
<tr>
<td>STP</td>
<td>11.2 mg/l</td>
<td></td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>0.903 mg/kg d.w.</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.0903 mg/kg d.w.</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>0.01 mg/kg d.w.</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C)

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>27 ppm</td>
<td>Literature</td>
</tr>
<tr>
<td></td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>
Melting Point: -22 °C (Literature)
Freezing Point: -22 °C (Literature)
Boiling Point (760 mmHg): 121 °C (Literature)
Flash Point - Closed Cup: ASTM D56, None
Evaporation Rate (Butyl Acetate = 1): 1.5 (Literature)
Flammability (solid, gas): No
Flammable Limits In Air:
- Lower: Literature, None
- Upper: Literature, None
Vapor Pressure: 1.7 kPa @ 20 °C (Literature)
Vapor Density (air = 1): 5.76 (Literature)
Specific Gravity (H2O = 1): 1.619 at 25 °C / 25 °C (Literature)
Solubility in water (by weight): 0.015 % @ 25 °C (Literature)
Partition coefficient, n-octanol/water (log Pow): 2.53 (Measured)
Autoignition Temperature: Literature, None
Decomposition: No test data available
Temperature
Kinematic Viscosity: 0.521 mm²/s @ 25 °C (Calculated)
Evaporation Rate (Butyl Acetate = 1): 1.5 (Literature)
Flammability (solid, gas): No
Flammable Limits In Air:
- Lower: Literature, None
- Upper: Literature, None
Vapor Pressure: 1.7 kPa @ 20 °C (Literature)
Vapor Density (air = 1): 5.76 (Literature)
Specific Gravity (H2O = 1): 1.619 at 25 °C / 25 °C (Literature)
Solubility in water (by weight): 0.015 % @ 25 °C (Literature)
Partition coefficient, n-octanol/water (log Pow): 2.53 (Measured)
Autoignition Temperature: Literature, None
Decomposition: No test data available
Temperature
Kinematic Viscosity: 0.521 mm²/s @ 25 °C (Calculated)
Explosive properties: No
Oxidizing properties: No

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 conditions. See Storage, Section 7.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to Avoid:
- Exposure to elevated temperatures can cause product to decompose.
- Avoid open flames, welding arcs, or other high temperature sources which induce thermal decomposition.
- Avoid direct sunlight or ultraviolet sources.

10.5 Incompatible Materials:
- Avoid contact with: Strong bases, Strong oxidizers.
- Avoid contact with metals such as: Zinc powders, Zinc, Aluminum powders, Magnesium powders, Potassium, Sodium.
- Avoid unintended contact with: Amines.

10.6 Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include trace amounts of: Hydrogen chloride. Decomposition products can include trace amounts of: Chlorine, Phosgene.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Molecular Weight: 165.8 g/mol (Literature)
Henry's Law Constant (H): 2.11E+03 Pa m³/mole (Calculated)

Page 7 of 11
Acute Toxicity

Ingestion
Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
LD₅₀, Rat > 3,000 mg/kg

Aspiration hazard
Based on physical properties, not likely to be an aspiration hazard.

Dermal
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
LD₅₀, Rabbit > 10,000 mg/kg

Inhalation
In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death. Dizziness may occur at 200 ppm perchloroethylene; progressively higher levels may also cause nasal irritation, nausea, incoordination, drunkenness, and over 1000 ppm, unconsciousness and death. A single brief (minutes) inhalation exposure to levels above 6000 ppm perchloroethylene may be immediately fatal. Based on structural analogy and/or equivocal data in animals, excessive exposure may potentially increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Alcohol consumed before or after exposure may increase adverse effects.
LC₅₀, 4 h, Vapor, Rat > 20 mg/l

Eye damage/eye irritation
May cause pain disproportionate to the level of irritation to eye tissues. May cause slight temporary eye irritation. Low vapor concentrations may cause eye irritation; these concentrations are easily attainable at room temperature.

Skin corrosion/irritation
Brief contact may cause moderate skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. Prolonged or repeated exposure may cause defatting of the skin leading to drying or flaking of skin.

Sensitization
Skin
Has demonstrated the potential for contact allergy in mice.

Respiratory
No relevant data found.

Repeated Dose Toxicity
In humans, effects have been reported on the following organs: Central nervous system. In animals, effects have been reported on the following organs: Central nervous system. Kidney. Liver.
Observations in animals include: Anesthetic or narcotic effects.

Chronic Toxicity and Carcinogenicity
Perchloroethylene has been shown to increase the incidence of tumors in certain strains of mice and rats. Other long-term inhalation studies in rats failed to show tumorigenic response. Human data are limited and have not established an association between perchloroethylene exposure and cancer. Perchloroethylene is not believed to pose a measurable carcinogenic risk to man when handled as recommended.

Developmental Toxicity
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive Toxicity
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, did not interfere with fertility.

Genetic Toxicology
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity
Material is toxic to aquatic organisms (LC₅₀/EC₅₀/ICₕ₀ between 1 and 10 mg/L in the most sensitive species).
Fish Acute & Prolonged Toxicity
LC50, rainbow trout (Oncorhynchus mykiss), flow-through, 96 h: 5 mg/l
LC50, dab (Limanda limanda), flow-through, 96 h: 5 mg/l

Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, static, 48 h, immobilization: 8.5 mg/l

Aquatic Plant Toxicity
EC50, Chlamydomonas reinhardtii, Growth rate inhibition, 72 h: 3.64 mg/l
NOEC, Chlamydomonas reinhardtii, Growth rate inhibition, 72 h: 1.77 mg/l

Toxicity to Micro-organisms
IC50; Nitrosomonas sp., 24 h: 112 mg/l

Toxicity to Soil Dwelling Organisms
EC50, Eisenia fetida (earthworms), 24 h: 113.4 mg/kg

12.2 Persistence and Degradability

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable: however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Biodegradation may occur under anaerobic conditions (in the absence of oxygen). Biodegradation rate may increase in soil and/or water with acclimation.

Indirect Photodegradation with OH Radicals

<table>
<thead>
<tr>
<th>Rate Constant</th>
<th>Atmospheric Half-life</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.05E-13 cm3/s</td>
<td>50 d</td>
<td>Estimated.</td>
</tr>
</tbody>
</table>

Theoretical Oxygen Demand: 0.19 mg/mg

12.3 Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (Log Pow): 2.53 Measured
Bioconcentration Factor (BCF): 49; bluegill (Lepomis macrochirus); Measured

12.4 Mobility in soil

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient, soil organic carbon/water (Koc): 141 Estimated.
Henry’s Law Constant (H): 2.11E+03 Pa*m3/mole. Calculated

Distribution in Environment: Mackay Level 1 Fugacity Model:

<table>
<thead>
<tr>
<th>Air</th>
<th>Water</th>
<th>Biota</th>
<th>Soil</th>
<th>Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.69 %</td>
<td>0.23 %</td>
<td>0.01 %</td>
<td>0.07 %</td>
<td>0.01 %</td>
</tr>
<tr>
<td>76.39 %</td>
<td>23.3 %</td>
<td></td>
<td>0.06 %</td>
<td>0.23 %</td>
</tr>
</tbody>
</table>

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Section 13. Disposal Considerations

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water. DISPOSAL OF CONTACT WATER: Process water in contact with solvent and/or water separators of cleaning or
Section 14. Transport Information

ROAD & RAIL
Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN 1897 Packing Group: PG III

Hazard identification No: 60
Tremcard Number: 6151897
Environmental Hazard: Yes

OCEAN
Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN 1897 Packing Group: PG III
EMS Number: F.A.S.
Marine pollutant.: Yes

AIR
Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN 1897 Packing Group: PG III
Cargo Packing Instruction: 663
Passenger Packing Instruction: 655
Environmental Hazard: Yes

INLAND WATERWAYS
Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN 1897 Packing Group: PG III
Hazard identification No: 60
Tremcard Number: 6151897
Environmental Hazard: Yes

Section 15. Regulatory Information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)
This product is on the EINECS inventory.

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance.

Section 16. Other Information

Hazard statement in the composition section
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.

Risk-phrases in the Composition section

R38 Irritating to skin.
R40 Limited evidence of a carcinogenic effect.
R43 May cause sensitization by skin contact.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67 Vapours may cause drowsiness and dizziness.

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure. Additional information on this and other products may be obtained by visiting our web page.

Revision

Identification Number: 54684 / 1001 / Issue Date 2011/03/24 / Version: 8.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

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