SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PerSec

OTHER MEANS OF IDENTIFICATION: Not applicable. GENERAL USE: For professional drycleaning use only. PRODUCT DESCRIPTION: Drycleaning Solvent

MANUFACTURER

R. R. Street & Co. Inc. 215 Shuman Boulevard/Suite 403 Naperville, IL 60563

60563 Transporta

Product Information: 800-323-7206 (USA

& Canada only) or 630-416-4244

24 HR. EMERGENCY TELEPHONE NUMBERS

Medical Emergency: 866-303-6947 (USA & Canada only) **or** 651-632-9272

Transportation Emergency: 800-424-9300 (USA & Canada only) **or** 703-527-3887

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Aspiration Hazard: Category 1 Skin Irritation/Corrosion: Category 2 Acute Toxicity, Inhalation: Category 4 Specific Target Organ Toxicity, (STOT-SE) Narcotic Effects: Category 3 Carcinogenicity: Category 2

GHS LABEL ELEMENTS

Symbol(s):



Signal Word: Danger

Hazard Statements:

- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H332 Harmful if inhaled.
- H336 May cause drowsiness or dizziness.
- H351 Suspected of causing cancer:

Precautionary Statements:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing dust, fume, gas, mist, vapor, spray.
- P264 Wash skin thoroughly after handling.
- P271 Use only outdoors or in well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.
- P301+P310+P331 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.

P302+P352 – IF ON SKIN: wash with plenty of soap and water.

P304+P340+P312- IF INHALED: Remove affected person to fresh air and keep in a position

comfortable for breathing. Call a POISON CENTER or doctor/physician IF you feel unwell. P308+P313 – IF exposed or concerned, get medical advice/attention.

P332+P313 – IF SKIN irritation occurs: Get medical advice/attention.

P362+P364 – Take off contaminated clothing and wash before reuse.

P403+P233 – Store in a well-ventilated place and keep container tightly closed.

P501 – Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

Other Hazards: Not available. Unknown Acute Toxicity: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

The specific identity of one or more components of this product are withheld as a trade secret.

Chemical Name	<u>Wt.%</u>	CAS#
Perchloroethylene, stabilized	>99	127-18-4

COMMENTS: None.

4. FIRST AID MEASURES

EYES: Hold the eyelids apart and flush the eye gently with eyewash solution or a large amount of water. After initial flushing remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation persists or if there are any effects on vision.

SKIN: Wash exposed skin well with plenty of soap and water. Remove contaminated clothing and shoes. Wash clothing and thoroughly clean shoes before reuse. If symptoms develop get medical attention.

INGESTION: Do not induce vomiting --- this material is an aspiration hazard. Get immediate medical attention. Never give anything by mouth to an unconscious person.

INHALATION: Remove individual to fresh air and get immediate medical attention. DO NOT walk patient about. Keep warm and at rest. If breathing is difficult, give oxygen. If breathing stops or shows signs of failing, give artificial respiration. During resuscitation, care must be taken to avoid contamination by the substance from the patient.

NOTES TO PHYSICIAN: No specific antidote. Treat patient symptomatically in accordance with clinical condition. Maintain adequate ventilation and oxygenation of the patient. If burn is present treat as any thermal burn. This material is an aspiration hazard. Risk of aspiration must be weighed against possible toxicity of the material (see "ingestion") when determining whether to induce emesis or to perform gastric lavage. Gastric lavage may be effective and should preferably be undertaken within 1 hour. This material sensitizes the heart to the effects of sympathomimetic amines. Adrenaline, epinephrine and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest. Following ingestion adsorbents such as activated charcoal may be of value.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Tearing, redness, stinging or burning sensation.

SKIN: Repeated or prolonged contact may cause redness, burning, and blisters.

SKIN ABSORPTION: Can be absorbed through skin but not in sufficient amounts to cause adverse effects.

INGESTION: May cause gastrointestinal irritation, nausea, vomiting. Large amounts may lead to drowsiness and unconsciousness.

INHALATION: Excessive exposure to mists or vapors generated by heat may cause respiratory irritation, headaches, loss of consciousness, and even death. Excessive exposure may increases sensitivity to epinephrine and cause irregular heartbeats.

OTHER: Depending upon level and duration of exposure, other possible signs and symptoms from breathing, swallowing, and/or entry of this material though the skin may include: irritation of the nose, throat, airways, and lungs with cough, stomach or intestinal upset with pain, nausea, vomiting, and/or diarrhea, central nervous system depression with nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness, anesthesia, confusion, temporary changes in mood or behavior, irregular heartbeats (which may lead to loss of consciousness and death) and visual disturbances.

ADDITIONAL INFORMATION: After emergency actions, call the emergency medical information number on page 1 or a physician immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE CLASS: Not applicable.

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Hydrogen chloride, phosgene, chlorine.

OTHER CONSIDERATIONS: Contain fire water run-off if possible. Fire water run-off, if not contained may cause environmental contamination.

FIRE FIGHTING EQUIPMENT: Keep people away. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Do not use direct water stream. May spread fire. Use flooding quantities of water as fog or spray to keep fire-exposed containers of perchloroethylene cool. Containers may burst if overheated. Firefighters should wear self-contained, positive-pressure breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Evacuate the area, ventilate, and avoid breathing vapors. If spill occurs indoors, turn off heating and/or air conditioning systems to prevent vapors from contaminating entire building. Provided it is safe to do so, dike area to contain spill. Ensure suitable personal protection (including respiratory protection) during removal of spills.

SMALL SPILL: Absorb spills onto absorbent material. Transfer to a container for disposal or recovery.

LARGE SPILL: Evacuate area. Contain spills. Transfer to properly labeled, closed metal containers. Do not allow to enter drains, sewers, soil, ditches, ground water or waterways. Material is heavier than water and has limited water solubility. It will collect on the lowest surface. Only trained and properly protected personnel must be involved in clean-up operations.

All spills or leaks of this material must be handled and disposed of in accordance with Federal, state, and local regulations.

Notify National Response Center (800/424-8802), and any state and local agencies as applicable, of uncontained releases to the environment in excess of the EPA Reportable Quantity (RQ). See Section 15 for regulatory information.

For all transportation accidents, call CHEMTREC at 800/424-9300.

Perchloroethylene released into the environment through spills or through improper handling, storage or disposal of drycleaning process wastes containing perchloroethylene can cause contamination. Such contamination may require expensive remediation under Federal, state or local laws.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Carefully monitor handling, use and storage to avoid spills and leaks. Follow protective controls set forth in Section 8 when handling this product. Do not use in poorly ventilated or confined spaces. The vapor is heavier than air and may reach dangerously high concentrations in tanks, and other confined spaces. Do not enter confined spaces without following proper entry procedures as required by 29 CFR 1910.46

HANDLING: Avoid contact with eyes, skin and clothing. Do not breathe vapor. Do not taste or swallow. Do not eat, drink or smoke in work area. Wash hands prior to eating, drinking, or using restroom. Any

clothing or shoes that become contaminated with perchloroethylene should be removed immediately and thoroughly cleaned before wearing again. Avoid contact with open flames and hot surfaces as toxic and corrosive decomposition products (hydrogen chloride) can be formed. To avoid uncontrolled emissions vent vapor from container to storage tank. Containers, even those that have been emptied, can contain residues and vapors. Follow all SDS/label precautions even after container is emptied. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

STORAGE AND DELIVERY: PerSec perchloroethylene is sold and is to be delivered only in sealed CAREFfillTM drums, and introduced into the drycleaning machine via the CAREfill closed loop delivery system and custom fittings installed on the drycleaning machine.

Store labeled, sealed drums in a cool, dry, well-ventilated area away from direct sunlight or ultraviolet sources, and sources of ignition. Keep drums tightly closed when not in use. Do not store in open, unlabeled or mislabeled drums. Do not remove or deface label. Do not allow water or moist air to enter storage tanks or drums.

Empty CAREfill drums must not be reused or refilled except by R. R. Street & Co. Inc.'s authorized filling facilities. Do not use cutting or welding torches, open flames, or electric arcs on empty or full containers. Do not use aluminum or its alloys in the construction of storage vessels, pipe work and ancillary equipment including internal components, e.g. pump impellers. Use of galvanized components should be avoided because of the risk of producing highly toxic dichloroacetylene.

Perchloroethylene has an indefinite shelf life when stored under recommended conditions.

ELECTROSTATIC ACCUMULATION HAZARD: Not applicable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION EXPOSURE GUIDELINES: OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

EXPOSURE LIMITS

		OSHA PEL ACGIH TLV		Supplier OEL		
		ppm mg/m ³	<u>ppm</u>	mg/m ³	<u>ppm</u>	mg/m ³
Tetrachloroethylene	TWA	25 ^[1]	25 ^[2]			
	STEL	NE ^[3]	100			

TABLE FOOTNOTES:

- 1. PEL is in accord with that recommended by OSHA, as in the 1989 revision of PELs.
- 2. A3: Confirmed animal carcinogen with unknown relevance to humans.
- **3.** NE=Not established.

ACHIH BIOLOGICAL EXPOSURE INDICIES: Exhaled Air: 5 ppm, Blood: 0.5 mg/L, Urine: 3.5 mg/L

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): 150 ppm

ENGINEERING CONTROLS: VENTILATION – Do not use in poorly ventilated or confined spaces. Open doors and/or windows. Use ventilation to maintain exposure levels below 25 ppm time-weighted average (TWA). Lethal concentrations may exist in areas with poor ventilation.

Monitoring should be performed regularly to determine exposure level(s). See Exposure Guidelines below.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses. Contact lenses should not be worn without chemical goggles or safety glasses with side shields. Facial protection, such as chemical goggles and face shields, should be worn where splashing is possible. If vapor exposure causes eye discomfort, use a full-face respirator.

SKIN: Viton[®], PVA, or Barrier[™] gloves.

RESPIRATORY: Where vapor concentration exceeds or is likely to exceed 25 ppm, a NIOSH approved organic vapor type half-mask respirator is acceptable. A NIOSH approved self-contained breathing apparatus or airline respirator, with full-facepiece, is required for vapor concentrations above 150 ppm, for spills and/or emergencies, or where concentrations are unknown. Follow all applicable respirator use standards or regulations.

PROTECTIVE CLOTHING: Where contact is likely, wear the appropriate chemical resistant equipment, which depending on circumstances may include gloves, a chemical suit, solvent-resistant boots, and chemical safety goggles plus a face shield.

WORK HYGIENIC PRACTICES: Wash thoroughly after handling. Do not eat or drink in work area.

OTHER USE PRECAUTIONS: Have eye wash station available. Do not wear contact lenses without eye protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless, clear. **PHYSICAL STATE:** Liquid. COLOR: Colorless. **ODOR:** Mildly sweet, ethereal odor. **ODOR THRESHOLD:** No data available. **pH:** Not applicable. **FREEZING POINT:** -8.3°F (-22.4°C) **INITIAL BOILING POINT: 250°F (121.1°C)** FLASHPOINT: None (TCC) EVAPORATION RATE: 0.1 (ether =1) FLAMMABILITY (Solid, Gas): Not applicable, this product is a liquid at room temperature. FLAMMABLE LIMITS: None. VAPOR PRESSURE: 14.7 mm Hg @ 20°C. VAPOR DENSITY: 5.83 (Air=1). **RELATIVE DENSITY: 1.623** SOLUBILITY IN WATER: 0.015 g/100g @ 25°C. **PARTITION COEFFICIENT (Log Kow): 2.88 AUTOIGNITION TEMPERATURE:** None. **DECOMPOSITION TEMPERATURE:** No data available. **VISCOSITY:** No data available **PERCENT VOLATILE: 100**

10. STABILITY AND REACTIVITY

REACTIVITY: No.

CHEMICAL STABILITY: Stable under recommended conditions.

POSSIBILITY OF HAZARDOUS REACTIONS: Polymerization will not occur.

CONDITIONS TO AVOID: Avoid contact with open flame, electric arcs, or other hot surfaces that may cause thermal decomposition.

INCOMPATIBLE MATERIALS: May react violently with metals such as sodium, potassium, magnesium, zinc, lithium, barium, strong bases, and strong oxidizers, particularly if they are finely divided. May react with freshly galvanized surfaces to produce highly toxic dichloroacetylene. Avoid unintended contact with amines. Avoid prolonged contact with or storage in aluminum or its alloys. May corrode cast iron unless inhibitors are present. Moisture causes gradual hydrolysis. Decompresses with activated carbon at 1292°F (700°C).

HAZARDOUS DECOMPOSITION PRODUCTS: Contact with red hot surfaces, sparks or open flames may generate toxic fumes of hydrogen chloride, phosgene, chlorine, and also hexachloroethane and hexachlorobenzene.

11. TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE: Inhalation and skin.

ACUTE TOXICITY (ATE)

DERMAL LD₅₀: > 3,228 mg/kg (rabbit)

ORAL LD₅₀: > 2,629 mg/kg (rat).

INHALATION LC₅₀: 34,200 mg/m³ (rat/8 hr).

Exposure to 100-200 ppm has been reported to cause irritation to the eyes, throat and nose, headache, light-headedness, and dizziness after several hours exposure. Exposure to concentrations of the order of 500 ppm for short periods of time (e.g. 5 minutes) may lead to lightheadedness or dizziness. Exposure to levels of 1000 ppm or higher may cause intense respiratory irritation and anesthetic effects. Exposure to high concentrations or prolonged over-exposure (500 ppm or greater) has caused unconsciousness and death. Deaths are generally attributed to ventricular fibrillation and central nervous system depression. Liver and kidney damage have been reported in cases of accidental excessive overexposure to perchloroethylene. Acute and short-term over-exposure to perchloroethylene has been associated with changes in electroencephalographic scores.

CHRONIC TOXICITY

TARGET ORGANS: Repeated exposure to levels well above the occupational exposure limit may produce adverse effects on the liver and kidneys.

SENSITIZATION: Has demonstrated the potential for contact allergy in mice.

CARCINOGENICITY

IARC: Tetrachloroethylene is classified as 2A (Probably carcinogenic to humans).

NTP: Tetrachloroethylene is classified as reasonably anticipated to be a human carcinogen.

OSHA: Not listed as a carcinogen.

OTHER: 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. While perchloroethylene is not believed to pose a measurable carcinogenic risk to man when handled as recommended, and while human data are limited and inconclusive and have not established an association between exposure and cancer, perchloroethylene should be considered to pose a cancer risk pending the availability of further scientific evidence.

An increased incidence of some forms of cancers have been observed in various epidemiology studies of workers in the dry cleaning industry and other workers potentially exposed to chemicals including perchloroethylene. Smoking, alcohol consumption, diet and other factors are known to increase the risk of cancer and may have been confounding factors in these studies. These studies were also limited by the lack of exposure measurements or other valid indicators of potential exposure to perchloroethylene, and potential exposure to other chemicals. The current epidemiological evidence does not support a conclusion that occupational exposure to perchloroethylene is a risk factor for cancer of any specific site.

Animal studies have shown increases in liver cancer in mice, and renal cancer and mononuclear cell leukemia in rats. The relevance of these observations to humans is not clear at this time.

The International Agency for Research on Cancer (IARC) has concluded there is sufficient evidence of carcinogenicity to experimental animals and limited evidence of carcinogenicity to humans (Group 2A a substance probably carcinogenic to humans). NTP has classified perchloroethylene as reasonable anticipated to be a human carcinogen. The

ACGIH classifies perchloroethylene in category A3 – Confirmed Animal Carcinogen with Unknown Relevance to Humans.

OTHER: Repeated exposure to levels well above the occupational exposure limit may produce adverse effects on the lungs, liver, kidneys and skin. Observations in animal studies include: endocrine system effects, immune system effects, and blood disorders. The relevance of these observations to humans is not clear at this time. Perchloroethylene has been associated with cancer in rodents. Extensive evaluations of possible mechanisms have led to the conclusion that they are of little, if any, relevance to man even at high exposure levels.

Immunological effects related specifically to perchloroethylene exposure have not been reported in humans. One study, severely limited by technical deficiencies, suggests an association between long-term exposure to solvent-contaminated well water, and changes in immune parameters, and increased infections. The well water was also contaminated with other chemicals in addition to perchloroethylene. Enhanced susceptibility to infection was reported in one animal study but this study was compromised by high mortality among control animals. Other studies have not shown adverse effects on the immune system in animals exposed to perchloroethylene.

A study of human volunteers associated repeated exposure to 100 ppm perchloroethylene with changes in electroencephalographic scores. Some studies have associated repeated exposure with changes in visual-evoked potential and changes in color vision. Overall, studies in dry cleaning workers have not shown evidence of adverse effects on the nervous system. Several studies suggestive of adverse neurological effects in dry cleaning workers were limited by small group size, as well as biased and subjective measurement methods. In view of these shortcomings the significance of these observations is questionable.

One animal study associated perchloroethylene exposure with increased latency in visual-evoked potential. Findings from animal studies have shown alterations in the biochemistry of some neurological tissues following repeated exposure but no evidence of pathology (brain lesions). The relevance of these observations to humans is not clear at this time.

Repeated exposure to levels well above the occupational exposure limit may produce adverse effects on the liver and kidneys. Exposure to perchloroethylene has been associated with changes in urinary and serum indicators of renal function and liver function. Findings from animal studies indicate the liver and kidney are target organs. Elevated prolactin levels were reported in some female workers exposed to perchloroethylene but these levels were within the normal clinical range. It is unlikely that these observations are biologically relevant. Changes in some blood parameters and evidence of reduced erythropoiesis have been observed in subchronic animal studies. Forestomach ulcers were observed in one animal study following prolonged exposure to perchloroethylene. Other animal studies indicated no evidence of adverse effects on the blood, stomach or adrenal glands.

REPRODUCTIVE EFFECTS: One study reported a slight increase in miscarriages for operators of dry cleaning equipment but study authors concluded the increased miscarriages could not be specifically attributed to perchloroethylene exposure. Occupational exposure to perchloroethylene has been associated with taking slightly longer for women to become pregnant and with menstrual disorders. These studies were limited by other potential risk factors and small sample size. Other studies have not found an association between miscarriages and exposure to perchloroethylene. One study suggested that it may take slightly longer for wives of laundry and dry cleaning workers to become pregnant. Sample size for this study was very small and most of the workers were not exposed to perchloroethylene. Animal studies have not shown evidence of adverse effect on reproductive parameters following repeated exposure to perchloroethylene levels up to 300 ppm.

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. Increased resorptions, minor skeletal anomalies and subcutaneous edema have been reported in rodent studies. Hyperactivity was observed in adult mice exposed to perchloroethylene in utero. Findings from animal studies indicate perchloroethylene is not teratogenic.

MUTAGENICITY: A few tests have shown positive findings, but the overall weight of evidence indicates that perchloroethylene is not mutagenic or genotoxic.

SYNERGISTIC MATERIALS: Consumption of alcoholic beverages may increase potential for development of toxic effects resulting from exposure to this product.

POTENTIAL HEALTH EFFECTS

EYES: Liquid splashes and high concentrations of vapor may cause irritation with tearing, redness, or a stinging or burning feeling. Effects may become more serious with repeated or prolonged contact.

SKIN: Irritating to skin. Will remove the natural skin oils resulting in dryness, cracking and dermatitis. Repeated and/or prolonged skin contact may cause reddening, burning and blisters. Permanent damage is unlikely. Can be absorbed through skin but not in sufficient amounts to cause adverse effects.

SKIN ABSORPTION: Insufficient data available.

INGESTION: May be harmful if ingested. The swallowing of small amounts is unlikely to cause any adverse effects. Large amounts may cause internal irritation, nausea, vomiting and may lead to drowsiness and unconsciousness. This material can get into the lungs during swallowing or vomiting. Small amounts in the lungs may cause lung damage, possibly leading to death.

ASPIRATION HAZARD: Yes.

INHALATION: Harmful by inhalation. High exposures by inhalation will cause anesthetic effects. This may result in loss of consciousness and could prove fatal if exposure has been severe. In susceptible individuals, cardiac sensitization to circulating epinephrine-like compounds can result in sudden, fatal cardiac arrhythmias. In confined or poorly ventilated areas vapors 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).

MEDICAL CONDITIONS AGGRAVATED: Preexisting disorders of the following organs or systems which may be aggravated by exposure to this material include: liver, kidney, heart, and nervous system.

GENERAL COMMENTS: Refer to Section 3 of this SDS for additional information on potential health effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Acute LC50 (96 Hours, flow-through) for Fathead Minnow:	18.4 ppm
Acute LC50 (96 Hours, static) for Bluegill:	12.9 ppm
Acute LC50 (96 Hours, static) for Rainbow Trout:	5 ppm
Acute LC50 (96 Hours, static) for Mysid:	10.2 ppm
Acute LC50 (96 Hours) for Sheepshead Minnow:	29.4 – 52.2 ppm

PERSISTENCE AND DEGRADABILITY: Biodegradation under aerobic conditions is below detectable limits. Theoretical oxygen demand (ThOD) is calculated to be 0.19 p/p. Biodegradation may occur under anaerobic conditions (in the absence of oxygen). Degradation is expected in the atmospheric environment within days to weeks. Biodegradation rate may increase in soil and/or water with acclimation. Persists in ground water. Will not significantly hydrolyze in soil or water under normal environmental conditions, but slow biodegradation may occur in groundwater where acclimated populations of microorganisms exist. Perchloroethylene in water is subject to volatilization, with half-life estimates ranging from less than one day to several weeks. Log air/water partition coefficient (log Kaw) is estimated to be -0.30 to 0.37.

The substance is degraded fairly rapidly in the lower atmosphere (troposphere). Vapors in air are subject to photooxidation, but do not contribute to tropospheric ozone formation. Half-life estimates ranges from 2

months to less than 1 hour. Henry's Law Constant (H) is 1.49E-02 atm-m3/mol. Does not deplete ozone layer (stratosphere).

The product is anticipated to be substantially removed in biological treatment processes.

BIOACCUMULATIVE POTENTIAL: Bioconcentration factor (BCF) is 38.9 in trout. Perchloroethylene does not significantly bioconcentrate in aquatic organisms or adsorb to sediment.

MOBILITY IN SOIL: Perchloroethylene can leach rapidly through soil to reach groundwater. Soil adsorption potential is low. Potential for mobility in soil is medium (Koc between 150 and 500). Log soil organic carbon partition coefficient (log Koc) is estimated to be 2.1-3.2.

OTHER ADVERSE EFFECTS: Perchloroethylene released into the environment through spills or through improper handling, storage or disposal of drycleaning process wastes containing perchloroethylene can cause contamination. Such contamination may require expensive remediation under Federal, state or local laws.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Drycleaning equipment using perchloroethylene generates process waste streams that contain perchloroethylene thereby rendering them hazardous wastes under various Federal, state and local laws. These hazardous wastes include but are not limited to spent filter cartridges, filter powder, distillation residues and contact water. Transfer solvent residues to a labeled, sealed container for disposal or recovery. Solvent residues must not be allowed to enter drains, sewers, or watercourses or to contaminate the ground. Recovered liquids may be sent to an EPA permitted reclaimer or incineration facility. Contaminated material must be disposed of in a permitted waste management facility.

EMPTY CONTAINER: Not applicable.

RCRA/EPA WASTE INFORMATION: Contains material(s) listed by RCRA as a hazardous waste. All disposals of these wastes must be done in accordance with Federal, state and local regulations. Regulations may vary in different locations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator. However, in no event should these hazardous wastes be placed onto land or into drains, sewers or septic tank systems.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION) PROPER SHIPPING NAME: Tetrachloroethylene TECHNICAL NAME: None. PRIMARY HAZARD CLASS/DIVISION: 6.1 UN/NA NUMBER: UN1897 **PACKING GROUP: III** LABEL: Poison **REPORTABLE QUANTITY (RQ) UNDER CERCLA: 100 lb (7.4 gal) OTHER SHIPPING INFORMATION: Marine Pollutant CANADA TRANSPORT OF DANGEROUS GOODS PROPER SHIPPING NAME:** Tetrachloroethylene PRIMARY HAZARD CLASS/DIVISION: 6.1 UN/NA NUMBER: UN1897 **PACKING GROUP: III** LABEL: Poison PLACARD: Poison, 1897, Class 6.1 **OTHER SHIPPING INFORMATION:** No data available. AIR (ICAO/IATA) **PROPER SHIPPING NAME:** Tetrachloroethylene PRIMARY HAZARD CLASS/DIVISION: 6.1 UN/NA NUMBER: UN1897

PACKING GROUP: III LABEL: Toxic PLACARD: Consult applicable regulations governing air shipments. SEA (IMO/IMDG) PROPER SHIPPING NAME: Tetrachloroethylene PRIMARY HAZARD CLASS/DIVISION: 6.1 UN/NA NUMBER: UN1710 PACKING GROUP: III

LABEL: Toxic

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EmS No.: 6.1-02

ROAD/RAIL

ADR/RID Class: 6.1

ADR Sin: 1897

15. REGULATORY INFORMATION

UNITED STATES

TSCA (TOXIC SUBSTANCES CONTROL ACT

Listed on TSCA Inventory.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT) 311/312 HAZARD CATEGORIES:

FIRE: No. PRESSURE GENERATING: No. REACTIVITY: No. ACUTE: Yes. CHRONIC: Yes.

313 REPORTABLE INGREDIENTS: Perchloroethylene is subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA RQ: This material is listed in Table 302.4 of 40 CFR Part 302 as a hazardous substance with a Reportable Quantity of 100 lbs. Releases to air, land or water which exceed the RQ must be reported to the National Response Center, 800-424-8802.

REPORTABLE SPILL QUANTITY: 7.4 gals

RCRA STATUS: See section 13.

OSHA HAZARD COMMUNICATION STANDARD

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADA

WHMIS CLASS: Hazardous under WHMIS/GHS classifications.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All components of this product are on the Domestic Substances List (DSL)

MEXICO

Hazardous for transportation.

STATE REGULATIONS

CALIFORNIA

PROPOSITION 65 STATEMENT: The State of California has listed perchloroethylene under Proposition 65 as a chemical known to the state to cause cancer.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

US GHS

CHEMICAL NAME

PERCHLOROETHYLENE

CAS NUMBER 000127-18-4 <u>LIST</u> MA NJ1 NJ2 NJ3 PA1 PA2 PA3

MA=Massachusetts Substance List (present at greater than or equal to 1.0%) NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%). NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%). NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%). PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%). PA2=Pennsylvania Special Hazardous Substance (present at greater than or equal to 0.01%). PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 0.01%).

16. OTHER INFORMATION

R.R. Street & Co. Inc. only approves the use of this product in professional drycleaning applications where there is no likelihood of:

- Soil or ground water contamination (direct applications to the ground, sink drains, sewers, or septic tanks).
- Overexposure (small rooms or confined space, or where there would be inadequate ventilation).
- Skin contact (adhesive tape removal from skin or as hand cleaner to remove oils and greases).
- Direct food contact.
- Vapor concentrations in the flammable range.
- Disposal of waste that would pose an environmental or health risk.
- Chemical reactivity that poses a danger (contact with strong alkali, or in areas where welding is done).

HMIS RATINGS	
HEALTH:	3
FLAMMABILITY:	0
REACTIVITY:	0
PERSONAL PROTECTION:	Н



SDS Revision Date: September, 28, 2016