

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT IDENTIFICATION**Product Name: FluoSolv[™] EX Product #: N/A CAS Number: Blend**COMPANY IDENTIFICATION****NuGeneration Technologies, LLC** www.nugentec.com
1155 Park Avenue, Emeryville, CA 94608 USA
(888) 996-8436 (For product information) or (510) 962-9551 (NuGenTec Safe-T-Chem: For emergencies)**2. COMPOSITION/INFORMATION ON INGREDIENTS:**

Components	CAS-No.	Concentration
trans-Dichloroethylene	156-60-5	60 - 90%
Proprietary blend of hydro-fluorocarbon & hydrofluoroethers	n/a	10 - 30%
Ethanol	64-17-5	5 - 10%

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW - WARNING! FLAMMABLE LIQUID AND VAPOR.
VAPOURS ARE HEAVIER THAN AIR AND CAN CAUSE SUFFOCATION BY REDUCING
OXYGEN AVAILABLE FOR BREATHING.**

POTENTIAL HEALTH EFFECTS**EYE:** Vapors cause eye irritation. Splashes cause severe irritation. May cause: Pain, tearing, swelling, redness, or temporary visual impairment.**SKIN:** Causes skin irritation. May cause: Pain, burning sensation, itching, redness, swelling, or rash.**INHALATION:** Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Effects of breathing high concentrations of vapor may include: tiredness or drowsiness, convulsions. May cause: narcosis, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, the feeling of fainting, dizziness or weakness.**INGESTION:** Can cause drowsiness, unconsciousness, and vomiting. Gastrointestinal pain, cramps, nausea, vomiting, and diarrhea may also result. Causes damage to the kidneys/ liver/ eyes/ brain/ digestive system/ central nervous system if swallowed.**TARGET ORGANS:** Central nervous system and eyes.**CHRONIC EFFECTS:** Prolonged/repeated contact may produce mild skin irritation.**CARCINOGENICITY INFORMATION:** No known cancer hazards.*None of the components present in this material at concentrations equal to or greater than 0.1% is listed by IARC, NTP, or OSHA, as a carcinogen.***4. FIRST AID MEASURES****EYE CONTACT FIRST AID:** Flush eyes with plenty of water for at least 15 minutes. Get medical attention.**SKIN CONTACT FIRST AID:** Wash skin with water and remove contaminated clothing.**INHALATION FIRST AID:** Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.**INGESTION FIRST AID:** Do not induce vomiting without medical advice. Never give anything by mouth to an

unconscious person. Drink 1 or 2 glasses of water. If vomiting occurs, have victim lean forward to reduce the risk of aspiration. Consult a physician.

STATEMENT OF PRACTICAL TREATMENT: Never give anything by mouth to an unconscious person.

Victim to lie down in the recovery position, cover and keep him warm. Give oxygen or artificial respiration if needed. When symptoms persist or in all cases of doubt seek medical advice.

NOTES TO PHYSICIAN: Do not give adrenaline or similar drugs.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: NON-FLAMMABLE

FLASH POINT: NONE

Method : Pensky-Martens Closed Cup (ASTM D 93)

Method: Tag Open Cup (ASTM D 1310)

FLAMMABLE LIMITS IN AIR: (% by Volume) LEL: 5.1% UEL: 12.7%

AUTOIGNITION TEMPERATURE:

Has not been determined for "FluoSolv[®] EX" which is non-flammable.

Hydrofluorocarbons and other fluorocarbons are known for fire suppression, and this blend of fluorinated compounds suppresses the flammability of trans-1,2-dichloroethylene and Ethanol mixture

FIRE & EXPLOSION HAZARDS: Fire or intense heat may cause violent rupture of packages. Hazardous combustion products: Hydrogen fluoride Fluorinated hydrocarbons Carbonyl fluoride Carbon oxides Hydrogen chloride. The product is not flammable. Vapors may form flammable mixture with air.

FIREFIGHTING INSTRUCTIONS: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire. Exposure to decomposition products may be a hazard to health. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Evacuate personnel to safe areas. Cool containers / tanks with water spray. Fire residues and contaminated fire extinguish.

EXTINGUISHING MEDIA: Use media suitable for surrounding materials.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL): Evacuate personnel to safe areas. Ventilate area, especially low or enclosed places where heavy vapors might collect. In case of insufficient ventilation, wear suitable respiratory equipment. Refer to protective measures listed in sections 7 and 8.

SPILL CLEANUP: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

ACCIDENTAL RELEASE MEASURE: Prevent further leakage or spillage. Prevent spreading over a wide area (e.g. by containment or oil barriers). Should not be released into the environment.

7. HANDLING AND STORAGE

RECOMMENDED STORAGE TEMPERATURE: <52°C (<126°F)

HANDLING (PERSONNEL): Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mist. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8. Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday.

HANDLING (PHYSICAL ASPECTS): Material should not be dispensed from its container by pouring, except for small sample containers where fume hoods or where other ventilation is used to manage the exposure limits. The use of a drum pump is recommended for dispensing from shipping containers.

STORAGE PRECAUTIONS: Protect from contamination. Keep container tightly closed in a dry and well ventilated place. Store in original container. Avoid freezing temperatures. If stored below -10°C (14°F), mix prior to use. No materials to be especially mentioned.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Under normal use conditions, with adequate ventilation, no special handling equipment is required.

EYE/FACE PROTECTION REQUIREMENTS: Safety glasses with side-shields. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

RESPIRATORY PROTECTION REQUIREMENTS: For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing.

SKIN PROTECTION REQUIREMENTS: Wear protective gloves to minimize skin contamination.

EXPOSURE GUIDELINES: No occupational exposure limits have been established by OSHA for this product.

Exposure Limit Values

trans-Dichloroethylene	TLV (ACGIH)	200 ppm	TWA
Hydrofluorocarbon blend	AEL*	400 ppm	8 & 12 hr. TWA
Ethanol	TLV (ACGIH)	1,000 ppm	TWA

**Calculated value of the blend based on available data for individual components as established by various governmental agencies and manufacturers recommendations.*

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Liquid
ODOR: Slight
DENSITY: 1.33 g/cm³ at 25°C (77°F)
pH= 6.9 - 7.8
SOLUBILITY IN WATER = <1%

COLOR: Clear, Colorless
BOILING POINT: 40°C (104°F)
VAPOR DENSITY =4.7 (Air=1), heavier than air
VISCOSITY= 0.49 cps @ 25 C

10. STABILITY AND REACTIVITY

STABILITY: Stable under ordinary conditions of use and storage.

POLYMERIZATION: Hazardous polymerization will not occur.

INCOMPATIBILITY: Alkali metals, alkaline earth metals, powdered metals, powdered metal salts, and strong bases.

DECOMPOSITION: Hazardous decomposition products formed under fire conditions: fluorinated hydrocarbons, hydrogen fluoride, carbon dioxide (CO₂), carbon monoxide.

11. TOXICOLOGICAL INFORMATION

trans-Dichloroethylene
Dermal LD50: > 5,000 mg/kg , rabbit

Oral LD50: 1,275 mg/kg , rat
 Inhalation 4 h LC50: 96.4 mg/l , rat. Target Organs: Central nervous system narcosis; cardiac sensitization
 Skin irritation: Moderate skin irritation, rabbit
 Eye irritation: Severe eye irritation, rabbit
 Repeated dose toxicity: Inhalation, rat. No toxicologically significant effects were found. Organ weight changes, Liver, Kidney, altered blood chemistry
 Mutagenicity: Did not cause genetic damage in animals. Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
 Teratogenicity: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity. Reduced embryo-fetal viability.

Hydrofluorocarbon blend:

Dermal LD50: > 5,000 mg/kg, rabbit
 Oral LD50: > 5,000 mg/kg, rat
 Inhalation 4 h LC50: 114 mg/l, rat
 Skin irritation: No skin irritation, rabbit
 Eye irritation: No eye irritation, rabbit
 Skin sensitization: Did not cause sensitization on laboratory animals, guinea pig. Repeated dose toxicity: Inhalation, rat. No toxicologically significant effects were found.
 Mutagenicity: Did not cause genetic damage in animals. Did not cause genetic damage in cultured mammalian cells. Did not cause genetic damage in cultured bacterial cells. Reproductive toxicity: Animal testing showed no reproductive toxicity.
 Teratogenicity: Animal testing showed no developmental toxicity.
 Reproductive toxicity: Evidence suggests the substance is not a reproductive toxin in animals.
 Teratogenicity: Evidence suggests the substance is not a developmental toxin in animals.

Ethanol

LD50/LC50:
 Draize test, rabbit, eye: 500 mg Severe;
 Draize test, rabbit, eye: 500 mg/24H Mild;
 Draize test, rabbit, skin: 20 mg/24H Moderate;
 Inhalation, mouse: LC50 = 39 gm/m³/4H;
 Inhalation, rat: LC50 = 20000 ppm/10H;
 Oral, mouse: LD50 = 3450 mg/kg;
 Oral, rabbit: LD50 = 6300 mg/kg;
 Oral, rat: LD50 = 9000 mg/kg;
 Oral, rat: LD50 = 7060 mg/kg;
 Skin sensitization: Did not cause sensitization on laboratory animals., guinea pig
 Carcinogenicity: Overall weight of evidence indicates that the substance is not carcinogenic.
 Mutagenicity: Overall weight of evidence indicates that the substance is not mutagenic. Did not cause genetic damage in animals. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others. Genetic damage in cultured bacterial cells was observed in some laboratory tests but not in others.
 Reproductive toxicity: Evidence suggests the substance is not a reproductive toxin in animals.
 Teratogenicity: Evidence suggests the substance is not a developmental toxin in animals.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

Hydrofluorocarbons and other fluorinated compounds:

Biodegradability: Not readily biodegradable.
 Bioaccumulation: Bioaccumulation is unlikely.

Ethanol:

Biodegradability: Readily biodegradable.
 Bioaccumulation: Bioaccumulation is unlikely.

AQUATIC TOXICITY:

trans-Dichloroethylene

96 h LC50 Lepomis macrochirus (Bluegill sunfish) 135 mg/l

96 h EC50 Pseudokirchneriella subcapitata (green algae) 560 mg/l

Information given is based on data obtained from similar substances.

48 h LC50 Daphnia magna (Water flea) 220 mg/l

Hydrofluorocarbons and other fluorinated compounds

96 h LC50 Oncorhynchus mykiss (rainbow trout) 13.9 mg/l

96 h LC50 Pimephales promelas (fathead minnow) 27.2 mg/l

96 h LC50 Danio rerio (zebra fish) 13 mg/l

72 h EC50 Pseudokirchneriella subcapitata (green algae) > 120 mg/l

48 h LC50 Daphnia magna (Water flea) 11.7 mg/l

21 d NOEC Daphnia magna (Water flea) 1.72 mg/l

Ethanol

Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) ria: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water it will volatilize and probably biodegrade. It would not be expected to adsorb the sediment or bioconcentrate in fish.

ADDITIONAL ECOLOGICAL INFORMATION: No data is available on the product itself.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Can be used after re-conditioning. The product should not be allowed to enter drains, water courses or the soil. If recycling is not practicable, dispose of container and unused contents in accordance with federal, state and local requirements.

CONTAMINATED MATERIALS: Wash contaminated clothing before reuse.

CONTAINER DISPOSAL: Clean out containers prior to disposal.

14. TRANSPORTATION INFORMATION

Not classified as dangerous in the meaning of transport regulations.

DOT only - when shipped in packages with > 1470 lbs., use: UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Dichloroethylene), 9, PGIII RQ (Dichloroethylene)

15. REGULATORY INFORMATION

U.S. Federal Regulations: *All Components Are Listed on the TSCA Public Inventory*

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute: Yes

Chronic: No

Fire: No

Reactivity: No

Pressure: No

SARA 313 Regulated Chemical(s): trans-Dichloroethylene

CERCLA Reportable Quantity: 1,471 lbs.

Based on the percentage composition of this chemical in the product: trans-Dichloroethylene

California Prop. 65: none known

PA Right to Know Regulated Chemical(s): Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): trans-Dichloroethylene

NJ Right to Know Regulated Chemical(s): Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): trans-Dichloroethylene

16. OTHER INFORMATION

PREPARED BY: Donato Polignone
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SUPERCEDES DATE: January 12, 2012

The data in this Material Safety Data Sheet relates only to the specific material designated herein. It does not relate to use in combination with any other material or in any process.

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