

NEXT[®] 5408

Preparation Date: May 1, 2019 Rev. 1

1. Product and Company Identification

Product Name: *Next 5408* USA and International Patents Pending
Synonyms: None
Identified Uses: Industrial solvent for aerospace vapor degreasing, ultrasonic cleaning and other uses where worker exposure is controlled. **NOT FOR CONSUMER SALE OR USE.**
Manufacturer: Enviro Tech International, Inc.
1800 N. 25th Ave.
Melrose Park, IL 60160 708-343-6641
www.envirotechint.com
Emergency Contact: CHEM-TEL 24-HR EMERGENCY
U.S, Canada, Puerto Rico, U.S. Virgin Islands (800) 255-3924
INTERNATIONAL CALLS: +01-813-248-0585
Non-emergency
Contact: 708-343-6641

2. HAZARD IDENTIFICATION

Classification

Skin irritation	Category 2
Eye irritation	Category 2B
Specific target organ toxicity (single exposure)	Category 3 – (H332)
Ingestion (Acute Toxicity)	Category 4

Emergency Overview

NEXT 5408 has no flash point and is non-flammable per OSHA and DOT regulations. *NEXT 5408* does exhibit flammable limits in a range of vapor to air concentration of 4.9% to 13.5% if exposed to a high energy ignition source.

Signal Word: Warning

Hazard Statements

H332 Harmful if inhaled.
H302 Harmful if swallowed.
H313 May be harmful in contact with skin
H315 Causes skin irritation.
H320 Causes eye irritation.
H336 May cause drowsiness or dizziness.



Precautionary Statements

P102	Keep out of reach of children.
P103	Read label before use.
P233	Keep container tightly closed.
P234	Keep only in original container.
P202	Do not handle until all safety precautions have been read and understood.
P262	Do not get in eyes, on skin, or on clothing.
P271	Use in a well-ventilated area.
P273	Avoid release to the environment.
P261	Avoid breathing vapor/spray.
P280	Wear protective gloves/eye protection/face protection
P281:	Use personal protective equipment as required.
P403 + P233	Store in well-ventilated place. Keep container tightly closed.

Response

P308 + P314	IF EXPOSED or concerned: Get medical advice/attention
P305 + P351 + P338 + P337 + P313	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.
P302 + P361 + P353 + P352 + P363 P333 + P313	IF ON SKIN: remove immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
P304 + P340 + P342 + P311	IF INHALED: Remove individual to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P306 + P361 + P363	IF ON CLOTHING: Remove immediately all contaminated clothing. Wash contaminated clothing before reuse.

Storage:

P403 + P235 + P404 + P233	Store in a well-ventilated place. Keep Cool. Store in a closed container.
---------------------------	---

Disposal:

P501	Dispose of contents/containers in accordance with all local/regional/national/international regulations.
------	--

3. COMPOSITION / INFORMATION ON INGREDIENTS

1,1,1,3,3-Pent afluorobutane	CAS 406-58-6	50-70% by weight
Synonym: HFC-365mfc		
Molecular Formula: C ₄ H ₅ F ₅		

1,2 trans-dichloroethylene Synonym: trans-Acetylene dichloride Molecular Formula: C ₂ H ₂ Cl ₂	CAS 156-60-5	25-50 % by weight
1,1,2,2-Tetrafluoroethyl-2,2,2 trifluoroethyl ether	CAS 406-78-0	1-8 % by weight

The exact percentage concentration of compounds included in the NEXT 5408 mixture has been withheld as a trade secret per USC 1920.1200(i)(1).

4. FIRST AID MEASURES

Inhalation: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention if any discomfort continues.

Ingestion: Do not induce vomiting. Never give liquid to an unconscious person.

Skin Contact: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Eye Contact: Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

Flash point (°C): None - ASTM D56 & ASTM D93

Flammable Limits: 4.9% to 13.5% vapor to air concentration if exposed to a high energy ignition source.

Extinguishing Media: Use extinguishing measures appropriate to local circumstances and surroundings.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Hazardous combustion products: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases/vapors such as gaseous hydrogen fluoride.

Special Fire Fighting Procedures: Avoid breathing fire vapors. Keep run-off water out of sewers and water sources. Dike for water control.

Protective Equipment: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear protective clothing as described in Section 8 of this Safety Data Sheet.

Environmental Precautions: Do not discharge into drains, water courses or onto the ground. Contain spillages with sand, earth or any suitable adsorbent material.

Spill Clean Up Methods: Provide ventilation and confine spill. Do not allow runoff to sewer. Dam and absorb spillage with sand, sawdust or otabsorbent. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

Reference to other sections: For personal protection, see Section 8. For waste disposal, see Section 13.

7. HANDLING AND STORAGE

Handling: Avoid spilling, skin and eye contact. Avoid inhalation of vapors and spray mists. Use with sufficient ventilation. In use, may form flammable/explosive vapor-air mixture.

Storage: Store in tightly closed original container in a dry, cool and well ventilated place. Keep out of direct sunlight.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION



Component	CAS/EC Number	Exposure Limits
1,1,1,3,3-Pentafluorobutane	CAS 406-58-6 EC 430-250-1	1,000 ppm Manufacturer Recommended Exposure Limit
1,2 trans-dichloroethylene	CAS 156-60-5 EC 205-860-2	ACGIH 200 ppm TLV Remarks: Central Nervous System impairment. Eye irritation
1,1,2,2-Tetrafluoroethyl 2,2,2-trifluoroethyl ether	CAS 406-78-0 EC 609-858-6	500 ppm 8h-TWA Manufacturer Recommended Exposure Limit

Engineering Controls: Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Vapors are heavier than air. Use with adequate ventilation to prevent vapor buildup in low lying areas.

Protective

Process Conditions: Provide eyewash, quick drench.

Engineering Measures: Provide adequate general and local exhaust ventilation.

Respiratory Equipment: Suitable respiratory protection should be provided if exposure limits may be or are exceeded. Self-contained breathing apparatus (SCBA) is required if a large spill occurs.

Hand Protection: Always use Viton or neoprene gloves for long term protection. Nitrile glove are acceptable only for splash protection.

Eye Protection: Wear full face shield or approved safety goggles. Respirator is recommended if exposure is a concern.

Hygiene Measures: When using do not eat, drink or smoke. Wear apron or protective clothing in case of splashes.

Skin Protection: Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly with soap & water if skin becomes contaminated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Color :	Liquid, Colorless.
Odor:	Slight
Surface Tension:	0.0141N/m
Specific Gravity:	1.255 kg/l @ 25°C
Initial boiling point and boiling range:	34.4° C - 94° F
Viscosity:	0.41 cPs
Heat Capacity:	1.23 kJ/(kg °C)
Vapor Pressure:	223.4 torr
Flash Point:	None. ASTM D56. ASTM D93
Explosion Limits LL/UL:	4.9% / 13.5% ASTM E681

10. STABILITY AND REACTIVITY

Stability:	Stable under normal temperature conditions and recommended use. Forms an azeotrope and will not flash.
Conditions to Avoid:	Avoid heat, flames and other sources of ignition. Does not support combustion and will decompose when exposed to extreme conditions of heat at elevated temperatures, naked flames or incompatible materials.
Materials to Avoid:	Strong oxidizing substances. Incompatible with alkali or alkaline earth metals-powdered Al, Zn, Be, etc.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides, hydrochloric and hydrofluoric acids, possibly carbonyl halides and other toxic gases or vapors.

11. TOXICOLOGICAL INFORMATION

1,2 trans-dichloroethylene

Acute toxicity:	LD ₅₀ Oral - Rat: 1,235 mg/kg LD ₅₀ Oral - Mouse: 2,122 mg/kg
Remarks:	Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Somnolence (general depressed activity). Behavioral: Ataxia.
Remarks:	Behavioral: LC ₅₀ Inhalation -Rat: 24,100 ppm Somnolence (general depressed activity). A 90 day inhalation study in rats reported no adverse effects on body weight, clinical observations, food consumption, clinical or anatomical pathology parameters, or liver cell proliferation and an NOEL of 4000 ppm.
LD50 Dermal - Rabbit:	> 5,000 mg/kg
Remarks:	Prolonged skin contact may cause skin irritation and/or dermatitis.
Nutritional/Gross Metabolic:	Weight loss or decreased weight gain.
Skin:	Corrosion/Irritation
Skin - Rabbit:	Skin irritation - 24 h.

Eyes - Rabbit:	Serious eye damage/eye irritation
Carcinogenicity:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, OSHA or NTP.
Mutagenesis:	Not mutagenic to E-coli or S. Typhimurium when tested with microsomal activation. Did not produce mutations in Saccharomyces cerevisiae with or without microsomal activation. No genetic effects were reported in a vivo host mediated mutagenic assay.
Developmental Toxicity:	In an inhalation study in rats, significant fetal toxicity was observed only at maternally toxic concentrations (12,000 ppm). Based on the results of this study, trans-1, 2-dichloroethylene would not be considered to be a developmental toxicant.

1,1,1,3,3-Pentafluorobutane

Acute oral toxicity	LD ₅₀ : > 2,000 mg/kg - Rat
Acute inhalation toxicity	LC ₅₀ - 4 h : > 100000 ppm - Rat
Skin corrosion/irritation	Rabbit - none
Serious eye damage/eye irritation:	Rabbit - None
Respiratory or skin sensitization:	Guinea Pig - None
Genotoxicity in vitro:	Did not show mutagenic effects
Genotoxicity in vivo:	Did not show mutagenic effects
	Ames Assay: Negative (OECD 471 & 472)
	Chromosomal Aberration Test: Negative (CHL Cell) (OECD 473)
Asphyxiation Hazard:	Simple asphyxiant
Acute dermal toxicity:	No data available
Acute toxicity (other routes of administration):	No data available
Toxicity to reproduction/fertility:	NOAEC parent: 29,971 ppm(m). Effects on fertility. NOAEC parent: 29,971 ppm(m). Developmental Toxicity

1,1,2,2-Tetrafluoroethyl-2,2,2-trifluoroethyl ether

Acute Toxicity

Oral LD ₅₀ (rat):	>2000mg/kg
Inhalation LC ₅₀ (rat):	>24.8mg/L (301 Oppm)
Dermal LD ₅₀ (rat):	>2000mg/kg
Skin and eye irritation:	Slight irritation to eye and mucous membranes
Skin irritation (rabbit):	None
Eye irritation (rabbit):	slight
Sensitization:	Skin (rat): None
Genetic Studies:	Ames Assay: Negative (OECD 471 & 472) Chromosomal Aberration Test: Negative (CHL Cell) (OECD 473)
Repeated Dose Oral Toxicity (28 Day):	NOEL 1,000 mg/kg/d
Repeated Dose Inhalation Toxicity (5 day):	NOEL 1800 ppm Rats exposed to 2500 or 5000 ppm for 6 hours per day for 5 days showed convulsions.

Repeated Dose Inhalation Toxicity (90 day):	NOEL 1,000 ppm Rats exposed to 1,000 ppm for 6 hours per day, 5 days per week for 90 days showed no adverse effects.
---	---

NEXT 5408 Mixture:

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

12. ECOLOGICAL INFORMATION

1,2 trans-dichloroethylene

Invertebrate Toxicity:	<110000 ug/L 48 hour(s) (Mortality) Water flea (Daphnia magna)
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available
Results of PBT & vPvB assessment:	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
USEPA SNAP (Ozone depletion)	Acceptable.
Other adverse effects:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

1,1,1,3,3-Pentafluorobutane

Biodegradability:	Not biodegraded (OECD 301 C) N/D
Bioaccumulation:	N/D
Activated Sludge Study:	100mg/L (OECD 209)
Fish Toxicity: C50 (96hr) (Carp):	>76mg/L
Other Information:	Algal growth inhibition: ErC50>213mg/L EbC ₅₀ >213mg/L. Mobility inhibition (Daphnia magna): 48hr-EC ₅₀ >94mg/L

Aquatic Compartment

Acute toxicity to fish:	LC ₅₀ - 96 h : > 200 mg/l - Brachydanio rerio (zebrafish) LC ₀ - 96 h : ca. 200 mg/l - Brachydanio rerio (zebrafish) LC ₅₀ - 96 h : 450 mg/l - Fishes, Salmo gairdneri semi-static test Fresh water LC ₅₀ - 96 h : > 100 mg/l - Oncorhynchus mykiss (rainbow trout) semi-static test
Acute toxicity to daphnia and other aquatic invertebrates:	EC ₅₀ - 48 h : 980 mg/l - Daphnia magna (Water flea)

Toxicity to aquatic plants:	NOEC - 72 h : 13.2 mg/l - <i>Selenastrum capricornutum</i> (green algae) static test Fresh water EC ₅₀ - 72 h : > 114 mg/l - <i>Selenastrum capricornutum</i> (green algae) static test Fresh water
Chronic toxicity to fish:	NOEC: ca. 38.2 mg/l - 30 Days - <i>Pimephales promelas</i> (fathead minnow)
Toxicity to terrestrial plants:	NOEC: >= 6,000 g/l Endpoint: Growth rate
Stability in water:	Hydrolysis not significant, Medium, Water, Soil, Photolysis. Not significant, Medium, Water
Photodegradation:	Indirect photo-oxidation. Half-life indirect photolysis: ca. 10.8 y Air
Biodegradability:	Aerobic. Method: ready biodegradability/MITI 2 % - 28 Days. Not readily biodegradable.
Bioconcentration factor (BCF):	Does not bioaccumulate.
Adsorption potential (Koc):	Adsorption Soil/sediments Koc: ca. 9 not significant
Results of PBT & vPvB assessment:	No data available Other adverse effects:
Ozone-Depletion Potential:	USEPA SNAP Approved.
Acute aquatic toxicity:	Low toxicity for aquatic organisms.

1,1,2,2-Tetrafluoroethyl-2,2,2-trifluoroethyl ether

Biodegradability:	Not biodegraded (OECD 301 C)
Bioaccumulation:	N/D
Activated Sludge Study:	>100mg/L (OECD 209)
Fish Toxicity:	LC ₅₀ (96 hr) (Carp) >76 mg/L
Other Information:	Algal growth inhibition: ErC ₅₀ >213mg/L EbC ₅₀ >213mg/L
Mobility inhibition:	(Daphnia magna): 48hr-EC ₅₀ >94mg/L
Ozone Depletion:	USEPA SNAP - Acceptable.

13. DISPOSAL CONSIDERATIONS

Disposal Methods: Dispose of waste and residues in accordance with federal, state and local authority requirements. Confirm disposal procedures with environmental engineer and local regulations. Do not allow runoff into sewer, waterway or ground.

14. TRANSPORTATION INFORMATION

General: This product is not hazardous for transportation per USA DOT regulations.

Proper Shipping Name: Fluorinated Solvent

The above transportation information is valid as of the date of publication of this SDS. Given that regulatory changes are made on an ongoing basis, ETI recommends checking new transportation regulations regularly.

15. REGULATORY INFORMATION:

1,2 trans-dichloroethylene

USA TSCA:	Listed
USA SARA 302:	None
USA SARA 313:	None
USA Massachusetts Right To Know:	Listed
USA Pennsylvania Right To Know:	Listed
USA New Jersey Right To Know:	Listed
USA California Directors List of Hazardous Substances:	Listed
USEPA SNAP (Ozone depletion):	Acceptable
Global Warming:	GWP: 1
REACH:	EC 205-860-2
Europe EINECS:	Listed in inventory listed on or meet the polymer definition. (205-860-2)
Canada Domestic Substances List (DSL):	Listed
Australia AICS:	Listed
Korea KECI:	Listed
Japan Miti (ENCS):	Listed
Philippines PICCS:	Not Listed
USA CERCLA:	Reportable quantity - 1,000 LBS (454 Kilograms)

1,1,1,3,3-Pentafluorobutane

USA TSCA:	Listed
USA SARA 302:	None
USA SARA 313:	None
USEPA SNAP (Ozone depletion):	Acceptable
Europe EINECS:	Listed
Canada Domestic Substances List (DSL):	Listed
Korea KECI:	Listed
Japan Miti (ENCS):	Listed
Australia:	Listed
New Zealand:	Listed.

1,1,2,2-Tetrafluoroethyl-2,2,2-trifluoroethyl ether

USA TSCA:	Listed
USA SARA 302:	None
USA SARA 313/312:	None
USEPA SNAP (Ozone depletion):	Acceptable
USA CERCLA:	Not regulated.
Global Warming:	GWP: 580
Europe EINECS:	Listed
Canada DSL/NDSL:	Not yet Listed. In process.
Australia AICS:	Listed
Korea KECI:	Does not Comply
Japan (ENCS):	Listed

Philippines PICCS:
China - IECSC

Does not Comply
Listed

16. OTHER INFORMATION

Only trained personnel should use this material. Since empty containers retain product residue, follow label warnings, even after container is emptied. Each user of this product should study this SDS carefully and consult appropriate expertise as necessary to become aware of and understand the data contained in this SDS and any hazards that may be associated with this product. The information provided in this Safety Data Sheet relates only to the specific material designated herein. The user is responsible for determining the conditions of safe use of this product and for complying with all Federal, State and Local governmental laws and regulations concerning its use. Enviro Tech International, Inc. makes no warranty, express or implied, including the warranty of merchantability and fitness for a particular purpose, and assumes no liability or responsibility for the accuracy, completeness, timeliness or usefulness of this information. Enviro Tech International, Inc assumes no liability for any damages incurred, whether directly or indirectly, as a result of any errors, omissions or discrepancies in this information. Enviro Tech International, Inc. assumes no liability for reliance on this data and assumes no liability for damages related to the use or misuse of this product.