

MATERIAL SAFETY DATA SHEET

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MSDS NO.: 5512
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1. PRODUCT NAME & HAZARD SUMMARY

5512 FRONTIER FOR PERCHLOROETHYLENE
 PRIMARY USE: DETERGENT FOR PERCHLOROETHYLENE

NFPA HAZARD	RATING	SARA TITLE III, SECTION 313	CANADA (WHMIS)
HEALTH	2 MODERATE	APPLICABLE ()	B: FLAMMABLE, COMBUSTIBLE
HRE	2 MODERATE	NOT APPLICABLE (X)	
REACTIVITY	0 MINIMAL		

2. HAZARDOUS COMPONENTS	%	OSHA (PPM)	ACGIH (PPM)	LD 50 (MG/KG)
ALIPHATIC HYDROCARBON C.A.S. #64742-88-7	≤ 35.0	PEL 500	TWA STEL 100 N.A.V.	N.A.V.
HEXYLENE GLYCOL C.A.S. #107-41-6	≤ 10.0	N.A.V.	N.A.V., N.A.V.	3,700 ORAL-RAT
ETHOXYLATED NONYLPHENOL	≤ 15.0			
INGREDIENTS NOT IDENTIFIED ARE NON-HAZARDOUS.				

3. PHYSICAL & CHEMICAL DATA

APPEARANCE: AMBER, VISCOUS LIQUID	EVAPORATION RATE (ETHER = 1): LESS THAN WATER
ODOR: PLEASANT, GREEN FLORAL	VAPOR DENSITY (AIR = 1): N.A.V.
BOILING PT.: > 380 °F (182 °C)	VAPOR PRESSURE (MM): N.A.V.
FREEZING PT.: 20 °F (-6 °C)	SOLUBILITY IN WATER: NEGLIGIBLE
pH: 8-9 (H ₂ O, ALCOHOL MIX)	SPECIFIC GRAVITY (WATER = 1): 0.91
% VOLATILE: < 30%	CO-EFFICIENT OF WATER/OIL DISTRIBUTION: N.A.V.
ODOR THRESHOLD (PPM): N.A.V.	

4. FIRE & EXPLOSION HAZARDS

FLASH POINT: ≥ 144 °F (62 °C)
 FLAMMABLE LIMITS IN AIR, % BY VOLUME: For Aliphatic Hydrocarbon LEL: 1.0 (25 °C), UEL: 6.0 (25 °C)
 FIRE FIGHTING MEDIA (1980 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.6): Dry chemical, CO₂, water spray or foam spray
 SPECIAL FIRE-FIGHTING PROCEDURES: Wear self-contained breathing apparatus.
 UNUSUAL FIRE AND EXPLOSION HAZARDS: None
 HAZARDOUS COMBUSTION PRODUCTS: Oxides of Carbon
 CONDITIONS OF FLAMMABILITY: High heat and sources of ignition
 AUTO IGNITION TEMP. (°C): N.A.V.
 EXPLOSION DATA: - SENSITIVITY TO MECHANICAL IMPACT: N.A.V.
 SENSITIVITY TO STATIC DISCHARGE: N.A.V.

5. REACTIVITY HAZARD DATA

STABILITY (CONDITIONS TO AVOID): Stable
 INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing agents
 HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may release Oxides of Carbon
 HAZARDOUS POLYMERIZATION (CONDITIONS TO AVOID): Will not occur

6. HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: INHALATION ___ SKIN ___X___ INGESTION ___X___

WARNING! MAY CAUSE EYE, SKIN AND RESPIRATORY IRRITATION. VAPORS ARE HARMFUL. MAY BE HARMFUL IF SWALLOWED.

SIGNS & SYMPTOMS OF EXPOSURE: (ACUTE & CHRONIC)

EYES: Liquid and vapors may cause irritation.
 SKIN: Prolonged contact may cause defatting of skin, which can lead to irritation, dermatitis, folliculids, oil acne, melanosis, and rarely warts.
 INGESTION: May cause gastrointestinal disturbances such as nausea, vomiting and diarrhea. Aspiration into lungs from vomiting will cause lung damage, which could be fatal.

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6. HEALTH HAZARD DATA (cont'd)

INHALATION: Low hazard unless heated or misted. May cause irritation of throat and nose, dizziness and lung edema with chest tightness.

IRRITANCY OF PRODUCT: N.A.V.

SENSITIZATION TO PRODUCT: N.A.V.

CARCINOGENICITY, REPRODUCTIVE TOXICITY, TERATOGENICITY, MUTAGENICITY: N.A.V.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: N.A.V.

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Remove contact lenses, if worn. Flush with water for at least 15 min. Call a physician.

SKIN: Flush with water. Remove contaminated clothing.

INHALATION: Remove to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen, if available. Get medical help.

INGESTION: If conscious, give large amounts of water. Do NOT induce vomiting, get medical help. If vomiting occurs, keep head below hips to prevent aspiration into lungs.

7. SPILL AND LEAK PROCEDURES

Remove sources of ignition.

LARGE SPILLS: Contain and transfer to drums for use or disposal.

SMALL SPILLS: Absorb onto rags. Clean rags in cleaning unit.

WASTE DISPOSAL METHOD: May be considered a hazardous waste, dispose of according to all applicable regulations. Incineration in permitted facilities or disposal in permitted land fill are preferred disposal methods.

HANDLING PROCEDURES & EQUIPMENT: Avoid direct contact.

STORAGE REQUIREMENTS: Keep away from heat and sources of ignition.

8. SPECIAL PROTECTION, PREVENTATIVE MEASURES IN CASE OF LARGE SPILL OR FIRE

ENGINEERING CONTROLS/VENTILATION: Local exhaust system sufficient to maintain exposure level below TWA values

RESPIRATOR: THE FOLLOWING RESPIRATORS ARE RECOMMENDED & RANKED IN ORDER FROM MIN. TO MAX. PROTECTION:

CHEMICAL CARTRIDGE RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE WITH A FULL FACE PIECE.

GAS MASK WITH ORGANIC VAPOR CANISTER WITH A FULL FACE PIECE.

TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH FULL FACE PIECE.

SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE PIECE OPERATED IN PRESSURE-DEMAND.

PERSONAL PROTECTIVE EQUIPMENT: Wear goggles when handling product, petroleum solvent resistant gloves.

9. TRANSPORTATION DATA

DOT HAZARD CLASSIFICATION 49 CFR 172.101: None, not regulated

DOT LABEL: None

U.N./ATA: Not regulated

10. STATE RIGHT TO KNOW INFORMATION

ALIPHATIC HYDROCARBON-C.A.S. #64742-88-7, ETHOXYLATED NONYLPHENOL-C.A.S. #9018-45-9 OLEYL IMIDAZOLINE BETAINE-C.A.S. #67892-37-9, OLEYLISOPROPANOLAMIDE-C.A.S. #111-06-7, HEXYLENE GLYCOL-C.A.S. #107-41-6

ABBREVIATIONS:

OSHA = Occupational Safety & Health Administration

TWA = Time Weighted Average for 8 Hours

Mg/M³ = Milligrams per Cubic Meter of Air

NFPA = National Fire Protection Agency

(C) = Ceiling, Limit for Exposure

DOT = Department of Transportation

MG/KG = Milligrams per Kilogram (1,000 grams)

WHMIS = Workplace Hazardous Materials Information System - Canada

ACGIH = American Conference of Government Industrial Hygienists

R.Q. = Amount of spill that must be reported to EPA

SARA Title III, Sec. 313 = Superfund Amendments and Reauthorization Act

C.A.S. = Chemical Abstract Service Number

LD 50 = Lethal Dose for 50% Test Animals

PEL = Permissible Exposure Level

STEL = Short Term Exposure Level (15 min)

ppm = parts per million

SKN = Skin Effects

IATA = International Air Transport Association

N.A.V. = Not Available

N.A.P. = Not Applicable

U.N. = United Nations

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