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MATERIAL SAFETY DATA SHEET

PREPARATION DATE: 01/21/2005
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SECTION 1 - PRODUCT & COMPANY INFORMATION

PRODUCT NAME: QwikDetect-HE
PRODUCT NO.: QT4510
DESCRIPTION: High Efficiency Furnace Leak Detector
USE: Leak Detector Spray
APPEARANCE: Clear liquid in aerosol can

MANUFACTURER: Mainstream Engineering Corp.
200 Yellow Place
Rockledge, Florida 32955

INFORMATION TELEPHONE: 321-631-3550
EMERGENCY TELEPHONE: 800-424-9300

SECTION 2 - PRODUCT COMPOSITION INFORMATION

COMPONENT*	% BY WEIGHT	OSHA PEL
[1] 1,1,1,2-tetrafluoroethane	85%	NE
[2] Leak detection enhancer*	15%	NE

NE= none established

* TRADE SECRET - PROPRIETARY FORMULA. Specific chemical identities are withheld as a trade secret under the provisions of OSHA hazard communication standard 29 CFR 1910.1200.

SECTION 3 - HAZARDS IDENTIFICATION

EXPOSURE LIMITS: [1] No OSHA PEL or STEL established; ACGIH 1000 ppm; DuPont AEL 1000 ppm 8 & 12 hr TWA.
[2] No OSHA PEL or STEL established; Recommended NIOSH PEL is 2 ppm; United Kingdom, 50 ppm time-weighted average; Sweden, STEL 20 ppm.

PRECAUTIONARY STATEMENTS:

Can cause frostbite.
Can cause eye/skin irritation.
Inhalation can cause irritation of the mouth and throat.
Inhalation of high, prolonged concentrations can lead to unconsciousness and death.

NFPA RATINGS:

	Health	Flammability	Reactivity
[1]	1	0	0
[2]	0	0	0

POTENTIAL HEALTH EFFECTS: Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse or deliberate inhalation may cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite. Inhalation of excessive amounts of [2] can cause drowsiness, irritability, depression, headache, fatigue and problems of judgment and coordination. [2] Can also cause irritation to the mouth and throat.

CANCER INFORMATION: Component [1] not listed as a carcinogen; for component [2], animal studies have thus far revealed no significant evidence carcinogenicity. Component [2] not regulated as a carcinogen by OSHA.

PRIMARY ROUTE(S) OF ENTRY: Inhalation.

SECONDARY ROUTE(S) OF ENTRY: Skin absorption, skin contact, eye contact.

SECTION 4 - EFFECTS OF OVEREXPOSURE

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness or death. Vapors reduce oxygen available for breathing and can also produce an anesthetic effect. Consult a physician.

SECTION 5 - EMERGENCY & FIRST-AID PROCEDURES

SKIN: If frostbite occurs, flush affected areas with lukewarm water. Do not use hot water.

EYES: Immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart.

INGESTION: Not a probably route. In case of accidental ingestion, wash out mouth with water provided person is conscious. Call a physician.

INHALATION: Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.



SECTION 6 - PHYSICAL AND CHEMICAL DATA

BOILING POINT (760 mm Hg): approx. -26 C
MELTING POINT: approx. -100 C
VAPOR PRESSURE: 96 psig @ 25 C
VAPOR DENSITY (AIR = 1): >1
SPECIFIC GRAVITY (WATER = 1): 1.2-1.5
PERCENT VOLATILES: approx. 100%
APPEARANCE: colorless liquid
ODOR: ethereal odor
SOLUBILITY IN WATER: negligible

SECTION 7 - REACTIVITY DATA

STABILITY: Stable under ordinary conditions of use and storage.
HAZARDOUS DECOMPOSITION: Decomposition products are hazardous. Can be decomposed by temperatures (open flame or glowing metal surface) forming halogen acids and possibly carbonyl halides.
HAZARDOUS POLYMERIZATION: Has not been reported.
INCOMPATIBILITY: Avoid contact with strong acids, oxidizing agents, peroxides, heat, flame, oxygen. Avoid contact with reactive metals such as sodium, potassium, or finely divided zinc, aluminum or magnesium, especially at high temperature. Avoid alkali and alkaline earth metals, and molten salts
CONDITIONS TO AVOID: Stable under ordinary conditions of use and storage.

SECTION 8 - FIRE AND EXPLOSION INFORMATION

FLASH POINT: >93 C
AUTOIGNITION TEMPERATURE:
EXTINGUISHING MEDIA: Use what is appropriate for surrounding fire, preferably dry chemical, carbon dioxide, or foam.
HAZARDOUS DECOMPOSITION PRODUCTS:
Decomposition products are hazardous. Can be decomposed by temperatures (open flame or glowing metal surface) forming halogen acids and possibly carbonyl halides.
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus in positive pressure mode with confined facepiece.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Never use welding or cutting torch on or near contents or pressurized container. Heat could generate toxic fumes or cause can to explode. Experimental data have also been reported which indicate combustibility of [1] in the presence of chlorine.

SECTION 9 - HANDLING, STORAGE, AND DISPOSAL

HANDLING: Avoid prolonged or repeated breathing of vapors. Avoid liquid contact with eyes and skin. Use in a well ventilated area. If exposure limit to product is suspected to be exceeded, use of a NIOSH/MSHA approved respirator is advised. Provide sufficient mechanical, general, and/or local exhaust to maintain exposure below recommended exposure limits.
STORAGE: Store in a cool, dry location. Do not store near heat, flame, strong oxidants. Maintain adequate ventilation.
SPILL AND LEAK PROCEDURES: Ventilate area using forced ventilation, especially in lower enclosed places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills or releases.
DISPOSAL: Dispose of in accordance with all federal, state & local regulations. Waste not considered hazardous under EPA (RCRA) definitions.

SECTION 10 - TOXICOLOGICAL INFORMATION

LD50, LC50, CARDIAC SENSITIZATION:
Component [1]:
Mouse: inhalation LC50 1,700 g/m3 (~400,000 ppm) / 2 hr
Rat: inhalation LC50 1,500 g/m3 (~350,000 ppm) / 4 hr
Dog: cardiac sensitization 300,000 ppm
Component [2]:
Rat: oral LD50 4.8 g/kg
Rat: inhalation LC50 15,300 ppm / 3 hrs
Rat: inhalation LC50 26,500 ppm / 1 hr
Rat: intraperitoneal LD50 4,280 mg/kg
Mouse: oral LD50 5080 mg/kg
Mouse: inhalation LC50 16,800 ppm / 3 hrs
Mouse: intraperitoneal LD50 3,030 mg/kg
Reproductive: Reproductive effects (RTECS)

Inhalation of [2] at a concentration of 5,000-30,000 ppm can induce general anesthesia in 7 to 10 minutes, with analgesia, muscle relaxation, and loss of consciousness. Isoflurane is mildly pungent and may cause coughing, laryngospasm and breath holding in an unconscious individual; secretions may be slightly stimulated and pharyngeal and laryngeal reflexes may be obtunded. Isoflurane is a severe respiratory depressant, causing a decreased tidal volume that may produce hypercapnia. Blood pressure is depressed with an initial decrease in



systemic vascular resistance, heart rate and cardiac output, although rate and output may increase due to compensatory mechanisms. Arrhythmias can occur, and the myocardium may be slightly sensitized to epinephrine.

CARCINOGENICITY: No present evidence demonstrates that [1] is a mutagen, teratogen or carcinogen. For component [2], animal studies have thus far revealed no significant evidence for mutagenicity, genotoxicity, or carcinogenicity. No teratogenic effects have been observed except for decreased fetal weight in the offspring of mice. Component [2] not regulated as a carcinogen by OSHA.

REPRODUCTIVE EFFECTS: Component [1]: Animal data show slight fetotoxicity but only at exposure levels producing other toxic effects in the adult animal. Reproductive data on male mice show no change in reproductive performance.

ECOTOXICITY:

Component [1]:

96-hour LC50, Rainbow trout: >40 mg/L
48-hour EC50, Daphnia magna: 980 mg/L
96-hour LC50, Rainbow trout: 450 mg/L

Component [2]:

Not available.

SECTION 11 - ADDITIONAL INFORMATION

Shipping Name: Aerosols, Non-flammable

Identification Number: UN1950

DOT SHIPPING CLASS: Components [1] and [2]: hazard class 2.2 (nonflammable gas). Component [2] not regulated by DOT.

EPA TSCA: Component [1] listed on the TSCA Inventory.
Component [2] not listed on inventory

OTHER REGULATIONS:

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

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