Solutions Through Advanced Technology®
MAINSTREAM ENGINEERING

200 Yellow Place · Rockledge, FL 32955
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SAFETY DATA SHEET

REVISION DATE: 06/23/2016

SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

PRODUCT NAME: QwikSmoke™
USE: Functionality testing of smoke detectors
DESCRIPTION: Universal Smoke Detector Test Aerosol

MANUFACTURER: Mainstream Engineering Corporation
200 Yellow Place
Rockledge, Florida 32955

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

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS):
Aerosols (Category 3)
Eye Irritation (Category 2B)
Specific target organ toxicity, single exposure (Category 3)

HAZARD STATEMENT(S):
H229 Pressurized container: may burst if heated.
H320 Causes eye irritation.
H336 May cause drowsiness or dizziness.

PICTOGRAM(S):



SIGNAL WORD: Warning

PRECAUTIONARY STATEMENT(S):
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251 Do not pierce or burn, even after use.
P261 Avoid breathing mist/spray.
P264 Wash hands thoroughly after handling.
P304+340
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a doctor if you feel unwell.
P305+351+338
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P337+313
If eye irritation persists seek medical attention.
P403
Store in a well-ventilated place.
P410+412
Protect from sunlight. Do not expose to temperatures exceeding 122 °F.
P501 Dispose of contents/container in accordance with local/regional/national regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: The propellant for this product is *trans*–1,3,3,3-tetrafluoropropene (HFO 1234ze or R-1234ze). Spraying directly onto skin for a prolonged period may cause localized frostbite symptoms.

Misuse of this product leading to excessive inhalation may result in more severe respiratory irritation, headaches, dizziness, weakness, or nausea. Certain conditions of misuse could lead to asphyxiation.

SECTION 3 - PRODUCT COMPOSITION INFORMATION

COMPONENT	CAS #	AMOUNT
trans–1,3,3,3-tetrafluoropropene	29118-24-9	70-98%
Isopropanol	67-63-0	1-29%
Glycerol	56-81-5	0.5-5%

SECTION 4 - EMERGENCY & FIRST-AID PROCEDURES

EYE: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately, preferably from an ophthalmologist.
SKIN: Wash with soap and water. Seek medical attention if irritation persists.
INGESTION: Good personal hygiene procedures would prevent ingestion from being a potential route of exposure. If product gets into the mouth, rinse thoroughly with water and avoid swallowing any of the rinse. Seek medical attention if a significant amount of the product is ingested.

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INHALATION: If symptoms develop, remove victim to uncontaminated area. Apply artificial respiration if victim has stopped breathing. Seek medical attention immediately.

NOTICE TO PHYSICIANS: Patient may require oxygen in the event of excessive inhalation.

SECTION 5 – FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: As formulated, this material is *non flammable*. If a significant amount of propellant is lost through leakage, however, the remaining material may support combustion. In the event of a fire involving this product, please use alcohol resistant foam, CO_2 or dry chemical powder extinguishers. Do not use a water-jet style extinguisher.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide. Decomposition of propellant may also form small amounts of toxic and irritating compounds such as hydrogen fluoride.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contents are under pressure. In the event of fire, spray the container(s) with water to cool and prevent the pressure from increasing to the point at which the container(s) will bust. Move cans, if it can be safely done, away from the area of the fire. In general, the contents pose a simple asphyxiation hazard; however, container failure can lead to the projection of fragments.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and protective clothing.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Use personal protective equipment as outlined for normal handling of this material. Ensure adequate ventilation and minimize exposure to contents.

ENVIRONMENTAL PRECAUTIONS: This material is not expected to pose a significant environmental hazard.

MATERIALS FOR CONTAINMENT AND CLEAN-UP: In the event of a leak remove the container to fresh air until empty. Ventilate any areas exposed to the leaking container and evacuate areas until clear. This material is not expected to require any special containment or clean-up equipment.

SECTION 7 – HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:

- Use good personal hygiene practices in accordance with this material.
- Use product only as directed.
- Contents are under pressure; do not puncture can even when empty.
- Keep away from heat and flame.
- Please wear appropriate personal protective equipment for handling of this product as outlined in Section 8.

STORAGE:

- Store in accordance with good industrial practices.
- Store in ventilated areas.
- Store out of direct sunlight.
- Do not expose to temperatures exceeding 50 °C/122 °F.

SPECIAL HANDLING CONSIDERATIONS:

Under an ambient temperature of 30°C, there is no flammable mixture of R-1234ze which can be formed with air. Thus, R-1234ze is classified as non flammable for handling and storage. At temperatures above 30°C, pressurized mixtures of R-1234ze and air can be ignited by strong ignition sources, such as open flames. Thus, R-1234ze is classified in safety group *A2L*, the lower segment of the mildly flammable refrigerants.

Cans which are assumed to be empty may still contain residual liquid or vapors which may, in the absence of propellant, be flammable.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION MEASURES

EXPOSURE LIMITS:

R-1234ze: Although no official limits have been set for this material, OSHA recommends a workplace exposure limit of 1000 ppm and a preliminary recommended acute consumer exposure limit of 420 ppm..

Isopropanol: The OSHA TWA 8-hour exposure limit for isopropanol is 400 ppm.

Glycerol (mist): The OSHA PEL 8-hour exposure limit for glycerol mist is 15 mg/m^3.

ENGINEERING CONTROLS: Ensure exhaust ventilation is operational during use of this product, particularly in smaller enclosed spaces.

PERSONAL PROTECTIVE EQUIPMENT: Please wear appropriate personal protective equipment for handling of this product.

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SECTION 9 - PHYSICAL AND CHEMICAL DATA

APPEARANCE:	Colorless Aerosol
ODOR:	Slight, sweet
ODOR THRESHHOLD:	No data available
pH:	No data available
FLASH POINT:	No data available
AUTOIGNITION TEMPERATURE:	No data available
FLAMMABILITY:	Nonflammable
EXPLOSION LIMITS:	No data available
MELTING POINT:	No data available
BOILING POINT (760 mm Hg):	No data available
VAPOR PRESSURE:	62 PSIG (68 °F)
VAPOR DENSITY (AIR = 1):	> 1.0
SPECIFIC GRAVITY (WATER = 1):	1.14 (liquid portion)
SOLUBILITY:	Soluble
PARTITION COEFFICIENT: (N-OCTANOL/WATER)	No data available
DECOMPOSITION TEMPERATURE:	No data available
VISCOSITY:	No data available
EVAPORATION RATE: (N-BUTYL ACETATE = 1)	No data available

SECTION 10 – STABILITY AND REACTIVITY

REACTIVITY: No data available.
CHEMICAL STABILITY: Stable when handled or stored under the recommended conditions.
HAZARDOUS POLYMERIZATION: Product will not undergo hazardous polymerization.
CHEMICAL INCOMPATIBILITY: Store and use away from alkaline earth metals, finely divided metals and strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning of this product will form oxides of carbon. Thermal decomposition of the propellant may also form small amounts of toxic and irritating compounds such as hydrogen fluoride.

SECTION 11 - TOXICOLOGICAL INFORMATION

PRIMARY ROUTES OF ENTRY: Inhalation, eye contact, skin contact.
ACUTE TOXICITY
There is no evidence of acute toxicity when this product is used as directed. In the event of excessive exposure to this material there can be irritation of the skin, eyes and sinus membranes.

ACUTE SYMPTOMS: Skin, eye and nasal irritation. Inhalation of large quantities may cause nausea and headaches.
DELAYED EFFECTS: None.
CHRONIC EFFECTS: No data available.
MUTAGENICITY: No evidence of a mutagenic effect.
TERATOGENICITY: No evidence of a teratogenic effect (birth defect).
SENSITIZATION: No evidence of a sensitization effect.
REPRODUCTIVE: No evidence of negative reproductive effects.
CHRONIC SYMPTOMS: None.
CARCINOGENICITY

IARC	No component of this product is identified as probable, possible or confirmed human carcinogen by IARC.
NTP	No component of this product is identified as a known or anticipated carcinogen by NTP.
EPA/OSHA	No component of this product is identified as a carcinogen or potential carcinogen by EPA/OSHA.

SECTION 12 - ECOLOGICAL INFORMATION

TOXICITY: The components of this product are gaseous or highly volatile. In the quantities present these do not pose a threat of toxicity to aquatic or other wildlife.
PERSISTENCE AND DEGRADABILITY: This product biodegrades rapidly after use.
BIOACCUMULATION: No data available
SOIL TO GROUNDWATER MOBILITY: No data available
OTHER ADVERSE EFFECTS: No data available

This product is a gas with 0 ODP and GWP < 1.

SECTION 13 – DISPOSAL CONSIDERATIONS

DISPOSAL METHODS: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer to assure compliance. Empty containers should be recycled or disposed of through an approved waste management facility.
SPECIAL CONSIDERATIONS FOR DISPOSAL: Any residual product should be emptied from the container in a well ventilated area prior to taking disposal actions. Do not incinerate or puncture the container, even if it is believed to be void of any product.

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SECTION 14 – TRANSPORT INFORMATION

This product is shipped under an ORM-D classification and is packaged in an approved DOT-2Q container.

SECTION 15 – REGULATORY INFORMATION

U.S. Toxic Substances Control Act: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

Federal/State/Local Regulations: To the best of our knowledge, this product does not contain chemicals at levels which require reporting.

California Proposition 65 (*Safe Drinking Water and Toxic Enforcement Act of 1986*): This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the conditions of the statute.

SECTION 16 – OTHER INFORMATION

NFPA RATING:
Health: 1
Flammability: 0
Reactivity: 1

The information contained herein is believed to be accurate and is offered in good faith. The above information is, in part, based on material safety data sheets supplied by the vendors of the raw materials used in this product. Because product use is beyond our control, no warranty is given, expressed, or implied. Mainstream Engineering Corporation cannot assume any liability for the use of information contained herein or from damage resulting from handling or contact with the above product. To determine applicability or effect of any law or regulation with respect to the product, users should consult a legal advisor or appropriate governmental agency.

PREPARATION INFORMATION
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