

MATERIAL SAFETY DATA SHEET

Prepared to Commission Directive 91/155/EEC, 1991 and US OSHA Standards

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WHAT IS THE PRODUCT AND WHAT INFORMATION IS REQUIRED IN AN EMERGENCY?

SECTION 1 – IDENTIFICATION OF SUBSTANCE AND OF THE COMPANY

Product Name: SOLO Aerosol Smoke Detector Tester

Part Number: SOLO A3 – XXX; SOLO A4 – XXX

Manufacturer: No Climb Products Ltd, Edison House, 163 Dixons Hill Road, Welham Green, Hertfordshire, AL9 7JE, UK
Tel +44 (0) 1707 282760; Fax +44 (0) 1707 282777

SECTION 2 – HAZARD IDENTIFICATION

OVER-EXPOSURE:

The most significant route of exposure for this product is by inhalation, eye or skin contact:

Inhalation:

- Inhalation of vapour mists or sprays of this product can cause mild to moderate irritation of the tissue of the nose, throat and upper respiratory system;
- Over-exposure (as a result of using several cans in a short period of time in a poorly ventilated area) can lead to headache, nausea, general anaesthetic effects and could result in an oxygen-deficient atmosphere due to the vapours of the spray being a lot heavier than air.

Skin and eyes:

- Eye contact with the spray may cause mild irritation;
- Sustained spraying directly onto skin may cause localised rapid cooling of tissue resulting in frostbite-type symptoms.

FIRE AND EXPLOSION HAZARDS:

- This product is classed as a non-flammable aerosol;
- As with all pressurised aerosol containers, cans may burst if heated to over 50°C (122°F).

SECTION 3 – COMPOSITION/INFORMATION ON COMPONENTS

| Components | CAS No. | Approx. wt. % | EC Risk phrase/class |
|--------------------------------------|----------|---------------|----------------------|
| Mixture of alcohols | Mixture | 1-20 | R36, R11, F |
| HFC 134a (1,1,1,2-Tetrafluoroethane) | 811-97-2 | 80-99 | None |
| % Flammable components | Mixture | ≤ 20% | |

WHAT SHOULD BE DONE IF A HAZARDOUS SITUATION OCCURS?

SECTION 4 – FIRST AID MEASURES

Eyes:

- Lifting eyelids, flush with plenty of water; Obtain medical assistance if irritation persists;

Skin:

- Wash with soap and water; If irritation persists, seek medical attention;

Ingestion:

- Unlikely to happen as the product is a vapour/mist at room temperature; If product enters mouth, rinse mouth out with water and avoid swallowing;

Inhalation:

- Get to supply of fresh air; If irregular breathing occurs, qualified personnel should administer artificial respiration; Seek medical assistance if symptoms persist.

SECTION 5 – FIRE FIGHTING MEASURES

Unusual Fire and Explosion hazards:

- Under the normal conditions of use and when subjected to various flame/explosion tests defined by the relevant EC Directives and US DOT criteria, this product does not readily support combustion and is as such, classed non-flammable. However, it does contain a maximum of 20% flammable substances. Consequently, the product may present a slight flammability hazard if the canisters are involved in a fire or the flammable components fractionate (through a leak), producing compositions that are flammable.

Extinguishing Media:

- For large fires, use alcohol resistant foam, CO₂ or dry chemical powder;

Unsuitable Extinguishing Agent:

- Water with full jets;

Special Fire Fighting Procedures:

- Use water sprays to keep containers that are near a fire cool and vapours down;
- Move cans way from fire area if it can be done without risk to personnel;
- Fire fighters must wear self-contained breathing apparatus to guard against being overwhelmed by the products of combustion.

Special exposure hazards:

- None.

SECTION 6 – ACCIDENTAL RELEASE (SPILL AND LEAK) MEASURES:

Person-related safety precautions:

- With uncontrollable releases (i.e., release from several cans at once), evacuate affected area and ventilate;

Environmental Protection:

- Prevent run-offs from entering public watercourses;

Measures for cleaning:

- Ensure adequate ventilation to allow for evaporation of volatile components;
- Eliminate all sources of ignition before spill clean-up begins;
- Monitor area for combustible vapours and the level of oxygen;
- Absorb any remaining liquid components with liquid binding material and place in suitable container.

HOW CAN HAZARDOUS SITUATIONS BE PREVENTED FROM OCCURRING?

SECTION 7 – PRECAUTIONS FOR SAFE HANDLING, STORAGE & USE

Safe handling:

- Good practices include keeping product away from heat, sparks and other ignition sources;
- Contents are under pressure- do not puncture or force open cans even when empty- cans may contain residual liquid or vapours which may be flammable;

Safe Storage:

- Observe official regulations on storing packaging with pressure containers;
- Store containers in cool, dry locations away from direct sunlight and do not store at temperatures exceeding 50°C (122°F) (e.g. passenger or back seat of a car in summer months);
- Do not store together with strong acids or oxidising agents;

Safe Use:

- As with all chemicals, avoid getting this product IN YOU- do not eat and drink whilst handling chemicals;
- Ensure good ventilation/mechanical exhaustion at workplace- if this is not possible, take regular breaks from use;
- Do not deliberately concentrate or inhale vapours;
- Follow label directions carefully; use only with **SOLO** dispenser.

SECTION 8 – EXPOSURE CONTROLS

Respiratory Protection:

- No protective device is required during normal use of product;
- Mechanical ventilation is recommended where product is used in confined spaces- if this is not possible, take regular breaks in fresh air.

Personal Protection:

- Wear PPE (personal protective equipment) appropriate to the task and the environment.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical & Chemical properties:

The following information is for 1,1,1,2- Tetrafluoroethane, the main component of this product:

| | |
|------------------------------------------|----------------------------------------------------|
| Vapour density (air = 1) | 5.26 kg/m ³ (0.328 lb/ft ³) |
| Solubility in water (25°C, 77 °F) | 0.15% wt |
| Melting point | -101°C (-149.8 °F) |
| Boiling point (760 mm Hg) | -26.5°C (-15.7 °F) |
| Flash point | Non-flammable |
| Vapour pressure (20°C, 68 °F) | 70 psig |

The information given immediately below is pertinent to the aerosol product as a whole:

| | |
|---------------------------------|------------------------------------------------------------------------|
| Form: | Aerosol (liquid released under pressure); |
| Colour: | Colourless, clear; |
| Residue formation: | Clean, non-greasy, fast evaporating; |
| Odour: | Faint sweet pleasant odour; |
| Pressure | @ 20°C (68 °F) ~6 bar (~ 87 psig); @ 50°C (122 °F)~11 bar (~159 psig); |
| Product Density | @ 20°C (68 °F)~1.02 g/ml (63.67 lb/ft ³); |
| Flashpoint of liquid | 12°C (~ 54 °F); |
| Vapour density (air = 1) | Greater than 1; |
| Solubility in water | Partly miscible; |
| Aerosol flammability | Not flammable; Not self-igniting. |

SECTION 10- STABILITY & REACTIVITY

Stability:

- Product is stable between 0 and 40°C (32 - 104 °F) and atmospheric pressures;

Conditions to avoid:

- Extreme heat, direct sunlight;

Materials to avoid:

- Strong oxidisers, strong acids, bases, alkali metals;

Hazardous decomposition products:

- On ignition, this product will decompose to produce oxides of carbon;

WHAT IS THE IMPACT OF THIS PRODUCT ON HEALTH AND THE ENVIRONMENT?

SECTION 11 – TOXICOLOGICAL INFORMATION

Under normal usage, this product should pose little risks to the health of the user.

PRIMARY IRRITANT EFFECT:

Skin, Eyes and Respiratory system:

- Irritant effect through absorption and rapid evaporation of liquid.

ACUTE TOXICITY:

- Over-exposure to this product can moderately irritate skin, eyes and mucus membranes;
- Inhalation over-exposure in poorly ventilated environments may cause nausea, headache, vomiting and general loss of co-ordination.

CHRONIC TOXICITY:

- Similarly, repeated inhalation over-exposure in poorly ventilated environments may cause some respiratory disorders such as pharyngitis;
- Pre-existing medical conditions in liver, kidney and heart may be aggravated by repeated over-exposure.

Additional information:

- 8 hr TWA (time weighted average) OEL (occupational exposure limit)UK for HFC 134a: 1000 ppm

SECTION 12 – ECOLOGICAL INFORMATION

Environmental Mobility:

- Over 90% of the product is volatile and is expected to dissipate rapidly into well ventilated areas; the rest is water soluble and will remain primarily in water;

Environmental Degradability:

- This product biodegrades rapidly once in the environment;
- The propellants do not contain chlorine, are readily degradable in the troposphere and do not deplete the ozone.

Eco-toxicity:

- Low acute toxicity to aquatic life is expected. There is no data for long term adverse effects on aquatic life.

Other information:

| | GWP 100 yr. time horizon Relative to CO₂= 1 | ODP | Atm. life time | VOC |
|-----------------|-------------------------------------------------------------------|------------|---------------------------|------------|
| HFC 134a | 1300 | 0 | 14 | No |

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste disposal method:

- Consult local and national regulations;
- Do not puncture or incinerate containers.

+The information provided here has been expanded upon from technical literature obtained from suppliers of the product's ingredients.

WHAT INFORMATION DO I NEED TO KNOW REGARDING THE TRANSPORTATION, CLASSIFICATION, PACKAGING AND LABELLING OF THIS PRODUCT?

SECTION 14 – TRANSPORT INFORMATION

Designation of goods/Proper shipping name:

- Aerosols, non-flammable; Aerosols, non-flammable, (USA); ORM-D when transported in limited quantities (< 30kg or 66lb gross weight). (USA only)

UN- Number:

- 1950;

Land Transport (ADR/RID):

- ADR/RID class: 2.2 gasses that are compressed, liquefied or dissolved under pressure;
- ADR Item Number/Letter: 5^oA;

Maritime Transport (IMDG)/Land-Sea Interface:

- IMDG Reference (Issue 2000) Vol.2 page 93, UN1950; Aerosols.

Air Transport (ICAO-TI/IATA):

- ICAO/IATA class: 2.2.

SECTION 15- REGULATORY INFORMATION

Designation according to EC Guidelines

This product has been classified and labelled in accordance with relevant EC Directives and national laws.

Code and hazard designation of product:

- Not applicable

Safety S- Phrases:

- 2 – Keep out the of reach of children;
- 3 – Keep in a cool place;
- 24/25 – Avoid contact with skin and eyes;
- 51 – Use only in well-ventilated areas.
- 26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Designation according to US Code of Federal Regulations

MSDS complies with OSHAs Hazard Communication Rule, 29 CFR 1910.1200.

U.S Superfund and Reauthorization Act (SARA) Title III, 1986 reporting requirements:

- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)/SUPERFUND – Reportable quantities (40 CFR 117,302). None of the chemicals used appear in 40 CFR table 117.3
- Section 302/304- Extremely Hazardous Substances (40 CFR 355). None of the ingredients are Section 302/304 hazards.
- Section 311/312- Material Safety Data Sheet Requirements (40 CFR 370). By our hazard evaluation, the product should be reported under the following EPA Hazard:
 - Immediate (acute) Health Hazard (irritant);
 - Sudden Release of Pressure (compressed gas).
- Section 313- Toxic Chemical Release Reporting (Specific chemical toxic listings 40 CFR 372). This product does not contain any chemicals found on the list of toxic chemicals.

U.S Toxic Substances Control Act (TSCA).

All ingredients are TSCA listed.

Federal Water Pollution Control Act (40 CFR 401.15).

This product does not contain any chemicals found on the list of toxic pollutants.

Marine Pollutant (49 CFR 172.101, Appendix B).

The components of this aerosol are not classified by the DOT as marine pollutants.

California Proposition 65.

None of the ingredients of this product is on the California Proposition 65 list.

NFPA Hazard rating.

(1) Fire; (1) Health; (1) Reactivity

SECTION 16 – OTHER INFORMATION

References:

Commission Directive 91/155/EEC, 1991; Statutory Instruments- The Chemicals (Hazard Information and Packaging for Supply) CHIP 3 Regulations July 2002; COSHH Regulations 1989; Hazard Communication Rule, 29 CFR 1910.1200; DOT 49 CFR; 40 CFR - Protection of the Environment; NFPA 704- Standard System for the Identification of Hazards of Materials for Emergency Response 1996

Revision Status:

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. New Material Safety Data Sheet | 17/01/01 |
| 2. Composition information, Maritime transport information corrected | 06/07/01 |
| 3. Flash point corrected | 24/07/01 |
| 4. a/Deletion of reference 20 and n.o.s. to section 14 (IATA revision 43) b/IMDG (section 14) amended to state Vol: 2 page 93, UN1950; Aerosols c/Addition of country code suffix to MSDS Reference No | 25/04/02 |
| 5. CHIP 3 amendment review (section 16) | 25/06/03 |
| 6. Change of Address | 10/12/03 |
| 7. Section 2 deletion of reference to R38 Section 8 Include PPE statement Section 15 R phrases remove irritating to skin. S phrases add reference S26 | 18/08/05 |
| 8. Section 9 Solubility in water amended to 0.15% Melting & Boiling Points revised. Section 11: TWA / OEL terms, descriptive text added. | 06/11/06 |
| 9. Reference to R36 and R37 is removed from Section 15 as applicable. Sections 2 and 3 reversed in accordance with REACH directive. | 22/05/08 |

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