

Safety Data Sheet

in accordance with directives 91/155/EEC, 93/112/EEC and 2001/58/EEC

REF 8-S Test Gas

1. Product and Company Identification, Use, Information
 - product name : REF 8-S Test Gas
 - product code : Art. Nr. A5Q00011688
 - supplier : Siemens Schweiz AG, Building Technologies Group, Fire Safety & Security Products, Gubelstrasse 22, CH-6301 Zug, Schweiz
 - use : testing of smoke detectors
 - information : Customer Support Center, Richard-Strauss-Straße 76, 81679 München
 - telefon/telefax : +49 89 9221 8000 / +49 89 9221 6000
 - email : fsp.support@siemens.com

2. Composition / Information on Ingredients
 - information on ingredients : propellant mixture in pressurized cylinder, combustible, ozone destruction potential = 0
 - description : aluminium container for compressed gas = can with 250 ml (+20°C) or 135 g of mixture, self-closing valve
 - components contributing to possible hazard : Isobutane, CAS Nr. 75-28-5, 58 - 66 % (w/w), R-clause: R 12, Symbol: F⁺
Butane, CAS Nr. 106-97-8, 0 - 2 % (w/w), R-clause: R 12, Symbol: F⁺
Propane, CAS Nr. 74-98-6, 34 - 42 % (w/w), R-clause: R 12, Symbol: F⁺

3. Hazards Identification
 - skin contact : local freezing possible if jet of liquid gas is directed to the open skin for too long a time
 - inhalation : vapours are heavier than air and can accumulate at floor level in high concentrations; where such gas accumulates, breathing is made more difficult because oxygen is displaced and causes drowsiness
 - flammability : extremely flammable liquefied gas; mixtures of gas-air are explosible

4. First Aid Measures
 - general : if parts of the body are greatly undercooled by a jet of REF 8-S liquid gas or burned, rinse with cold water for about 15 minutes
 - inhalation : inhalation of large quantities of gas can cause drowsiness; move victims into the fresh air, possibly provide oxygen or artificial respiration; in serious cases call a physician
 - skin contact : see "general", change clothes wetted with REF 8-S
 - eye contact : see "general", then consult physician
 - ingestion : not possible
 - note to physician : see "general" or "inhalation"

5. Fire-Fighting Measures
 - general : REF 8-S is combustible, can might burst at high temperatures; use explosion-proof and solvent-proof equipment; remove ignition sources
 - extinguishing agent : carbon dioxide, sand, foam; protect cans from heat with water, foam, sand
 - specific hazard : if lots of cans burst: forming of explosible gas-air mixtures possible
 - protective clothing : if lots of cans burst: flame proof and antistatic gas protection suit with oxygen mask

6. Accidental Release Measures
 - personal precautions : with very high concentrations (content of many cans released into closed room): remove ignition sources, evacuate and ventilate room, alarm people
 - environmental precautions : do not allow liquid gas to enter into sewers or low-lying rooms; remove ignition sources

- cleaning up : unnecessary, liquid gas vaporizes immediately
 additional hints : extinguish open flames, remove glowing objects, do not smoke
7. Handling and Storage
 safe handling : store cans protected in cartons; protect cans from direct sunlight; use only with RE6 test device; do not smoke during use; do not puncture pressurized cans
 storage : store in a cool, dry, well-ventilated place; maximal storage temperature +50°C
8. Exposure Controls / Personal Protection
 general : no precautions
 breathing apparatus : unnecessary
 gloves : unnecessary
 goggles : unnecessary
 special clothing : unnecessary
9. Physical and Chemical Properties
 physical state : liquid/gaseous
 form : liquid gas under pressure
 colour : colourless
 odour : nearly no odour
 change of state : not applicable
 flashpoint : -40°C
 ignition temperature : 365°C
 self-ignitable : no
 fire promoting : no
 explosion limit : 1.5-9.5 Vol %
 vapour pressure : +20°C: ca. 5.3 bar* ; +50°C: ca. 10.7 bar*
 density : +20°C: 0.55 g/cm³
 solubility in water : ca. 0 g/l bei +18°C
 pH dissolved in water : neutral
 viscosity : not determined
 other data : test pressure of the can is 18 bars*
 leakage rate of can < 10 g/year
 *overpressure against atmospheric pressure
10. Stability and Reactivity
 conditions to be avoided : heating above +100°C can cause the cans to burst; do not aim gas jet onto ignition sources
 materials to be avoided : do not aim gas jet onto strong oxidizing agent
 thermal decomposition : none, if used according to instructions
 dangerous products of disintegration : none, if used according to instructions
 dangerous reactions : none, if used according to instructions
 chemical stability of composition : >> 5 years, if stored according to instructions
11. Toxicological Information
 acute toxicity : very high concentrations of REF 8-S can lead to drowsiness; occupational exposure limits: butane and isobutane 1000 ml/m³ (ppm) 2400 mg/m³, propane 1000 ml/m³ (ppm) 1800 mg/m³
 long-term toxicity : tests on animals show that the ingredients do not cause cancer or genetic changes or do not harm foetuses

12. Ecological Information
 general : only small quantities are required; one can is sufficient to test several hundred smoke detectors
 water pollution : no water pollutant
 ozone layer, global : REF 8-S does not contain substances which could damage the ozone layer;
 layer;
 climate ozone depletion potential = 0, global warming potential/100 yr = ca. 20.
13. Disposal Considerations
 general : empty the can via the valve and pass on for aluminium re-cycling.
 EAK-key of empty can : chapter 15, subchapter 1501 04
14. Transport Information
 UN 1950 : AEROSOLS, flammable, content per inner packing less than 1 litre
 IMDG code : UN 1950, AEROSOLS, Class 2.1, EmS F-D, S-U
 ICAO-TI/IATA-DGR : UN 1950 Aerosols, flammable, 2.1, Packing Instruction 203
 ADR/RID : UN 1950 AEROSOLS, flammable, class 2, classification code 5F, label 2.1, transport possible according to LQ2
15. Regulatory Information
 hazard symbol : red label "flammable gas"
 hazard description : extremely flammable
 R clauses : R 12 "extremely flammable"
 S clauses : S 2 "Keep out of reach of children"
 S 9 "Keep container in a well-ventilated place"
 S 16 "Keep away from sources of ignition – No smoking"
16. Other Information
 general : Pressurized container, protect from sunlight. Keep away from heat. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material. Keep at temperature not exceeding +50°C. Avoid contact with skin and eyes.

 Read the text on the can. The content of the can must only be sprayed using the RE6 detector test device. Keep cans packed in cartons.

 service personnel : Transport the cans by car in a heat-proof case is recommended. Do not expose cans to direct sunlight. Do not spray the gas against skin or eyes. Use only in accordance with directions.