

Material Safety Data Sheet

According to 91/155 EEC

Printing date 29.03.2006

Reviewed on 27.08.2004

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Trade name:** **Silano Pen - Refill Cartridge** · **Article number:** 320 0047 0, 320 0047 1, 540 0083 0
- **Application of the substance / the preparation** Bonding system
- **Manufacturer/Supplier:**
Bredent
Weißenhorner Straße 2
D-89250 Senden
Tel.: +49 (0) 7309/872-0
Fax: +49 (0) 7309/872-24
- **Further information obtainable from:** R & D
- **Information in case of emergency:** Tel.: +49 (0) 6132-84436 (24 h)

2 Composition/information on ingredients

- **Chemical characterization**
- **Description:** Mixture of substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 106-97-8	butane	F+; R 12	50-100%
EINECS: 203-448-7			

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard description:**



F+ Extremely flammable

- **Information concerning particular hazards for human and environment:**

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.

Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided. The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Warning! Pressurized container.

R 12 Extremely flammable.

- **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
In cases of frost bites, rinse with plenty of water. Do not remove clothing.
Cover wound with a sterile dressing.
If skin irritation continues, consult a doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.

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5 Fire-fighting measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards caused by the substance, its products of combustion or resulting gases:** Carbon monoxide (CO)
- **Protective equipment:** No special measures required.
- **Additional information** Cool endangered receptacles with water spray.

6 Accidental release measures

- **Person-related safety precautions:** Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:** Ensure adequate ventilation.

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
Handle with care. Avoid jolting, friction and impact.
Open and handle receptacle with care.
- **Information about fire - and explosion protection:**
Do not spray onto a naked flame or any incandescent material.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store only in the original receptacle.
Store in a cool location.
Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Do not seal receptacle gas tight.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

· **Ingredients with limit values that require monitoring at the workplace: 106-97-8 butane**

OES Short-term value: 1810 mg/m ³ , 750 ppm
Long-term value: 1450 mg/m ³ , 600 ppm

74-98-6 propane

OES Asphyxiant

- **Additional information:** The lists valid during the making were used as basis.

- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.

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- **Respiratory protection:**

Not necessary if room is well-ventilated.

Use suitable respiratory protective device in case of insufficient ventilation.

- **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **For the permanent contact gloves made of the following materials are suitable:** Leather gloves

- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **General Information**

Form: Compressed liquefied gas
Colour: Colourless
Odour: Characteristic

- **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: -44°C

- **Flash point:** -97°C

- **Ignition temperature:** 365°C

- **Self-igniting:** Product is not selfigniting.

- **Danger of explosion:** In use, may form flammable/explosive vapour-air mixture. Heating may cause an explosion.

- **Explosion limits:**

Lower: 1.5 Vol %

Upper: 10.9 Vol %

- **Vapour pressure at 20°C:** 8300 hPa

- **Density at 20°C:** 0.809 g/cm³

- **Solubility in / Miscibility with water:**

Not miscible or difficult to mix.

- **Solvent content:**

Organic solvents: 100.0 %

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10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** Stable at environment temperature.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

12 Ecological information

- **General notes:** Generally not hazardous for water

13 Disposal considerations

- **Product:**
- **Recommendation**
Must be specially treated adhering to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID class:** 2 5F Gases.
- **Danger code (Kemler):** 23
- **UN-Number:** 1950
- **Packaging group:** -
- **Hazard label:** 2.1
- **Description of goods:** 1950 AEROSOLS

- **Maritime transport IMDG:**



- **IMDG Class:** 2.1
- **UN Number:** 1950
- **Label:** 2.1
- **Packaging group:** -
- **EMS Number:** F-D,S-U
- **Marine pollutant:** No

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- **Proper shipping name:** AEROSOLS
- **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 2.1
- **UN/ID Number:** 1950
- **Label:** 2.1
- **Packaging group:** -
- **Proper shipping name:** AEROSOLS, flammable

15 Regulatory information

- **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.
- **Code letter and hazard designation of product:** F+ Extremely flammable
- **Risk phrases:**
12Extremely flammable.
- **Safety phrases:**
3 Keep in a cool place.
9 Keep container in a well-ventilated place. 16Keep away from sources of ignition - No smoking.
60This material and its container must be disposed of as hazardous waste.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant R-phrases**
12Extremely flammable.
- **Department issuing MSDS:** R & D
- **Contact:** R & D

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