

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

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

- **Product identifier**
- **Trade name: MR® 311 - R Penetrant red**
- **Type of packaging** Aerosol
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation**
Testing material for nondestructive surface crack detection
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Hersteller:
MR-Chemie GmbH
Nordstr. 61-63
D-59427 Unna
Tel. +49 (0)2303/95151-0
Fax +49 (0)2303/95151-10
- **Further information obtainable from:**
MR® Chemie GmbH, Development, Tel.: 0049-(0)2303/95151-18, QS@mr-chemie.de
- **Emergency telephone number:**
24h- Emergency Contact Phone Number
For Chemical Emergency, Spill, Leak, Fire, Exposure or Accident

Call Day or Night within USA and Canada: 1 800 424 9300
Outside USA and Canada: 001 703 527 3887 (FMO Cargo Services GmbH)

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Aerosol 1 H222 Extremely flammable aerosol.



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R36: Irritating to eyes.



F+; Extremely flammable

R12: Extremely flammable.

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

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.

- **Classification system:**

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

- **Label elements**

- **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

(Contd. on page 2)

Safety data sheet

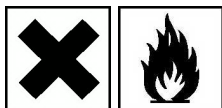
according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 1)

· **Code letter and hazard designation of product:**

Xi Irritant
F+ Extremely flammable

· **Risk phrases:**

12 Extremely flammable.
36 Irritating to eyes.

· **Safety phrases:**

23 Do not breathe fumes/aerosol.
24/25 Avoid contact with skin and eyes.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
33 Take precautionary measures against static discharges.
51 Use only in well-ventilated areas.
60 This material and its container must be disposed of as hazardous waste.

· **Special labelling of certain preparations:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C.
Do not pierce or burn, even after use.
Do not spray on a naked flame or any incandescent material.
Buildup of explosive mixtures possible without sufficient ventilation.
Keep out of the reach of children.

· **Classification in accordance with Directive 75/324/EEC:** Extremely flammable· **Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**· **Description:** Mixture of substances listed below with nonhazardous additions.· **Dangerous components:**

CAS: 112-34-5 EINECS: 203-961-6	2-(2-butoxyethoxy)ethanol Xi R36 GHS07 Eye Irrit. 2, H319	25-50%
CAS: 74-98-6 EINECS: 200-827-9	propane F+ R12 GHS02 Flam. Gas 1, H220; GHS04 Press. Gas, H280	10-25%
CAS: 106-97-8 EINECS: 203-448-7	butane F+ R12 GHS02 Flam. Gas 1, H220; GHS04 Press. Gas, H280	10-25%
CAS: 69011-36-5	substituierter Polyglykolether Xn R22; Xi R41 GHS05 Eye Dam. 1, H318; GHS07 Acute Tox. 4, H302	1-5%
CAS: 770-35-4 EINECS: 212-222-7	1-Phenoxypropan-2-ol Xi R36 GHS02 Flam. Liq. 3, H226; GHS07 Eye Irrit. 2, H319	1-5%
CAS: 111-76-2 EINECS: 203-905-0	2-butoxyethanol Xn R20/21/22; Xi R36/38 GHS07 Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 1.0%

· **Propellant:** Propane-Butane

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 2)

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

4 First aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Not relevant - aerosol can.
Do not induce vomiting; call for medical help immediately.
- **Information for doctor:**
Grease with skin-cream to restore fat film in order to prevent skin inflammation.
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **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 arising from the substance or mixture**
In case of fire, the following can be released:
Carbon monoxide (CO)
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **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.

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 3)

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, e.g. electric lights. Do not pierce or burn, even after use.

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
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:** Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

Ingredients with limit values that require monitoring at the workplace:

112-34-5 2-(2-butoxyethoxy)ethanol

IOELV (EU)	Short-term value: 101.2 mg/m ³ , 15 ppm Long-term value: 67.5 mg/m ³ , 10 ppm
WEL (Great Britain)	Short-term value: 101.2 mg/m ³ , 15 ppm Long-term value: 67.5 mg/m ³ , 10 ppm
AGW (Germany)	Long-term value: 100 mg/m ³ 1(I);DFG, Y

74-98-6 propane

AGW (Germany)	Long-term value: 1800 mg/m ³ , 1000 ppm 4(II);DFG
---------------	---

106-97-8 butane

WEL (Great Britain)	Short-term value: 1810 mg/m ³ , 750 ppm Long-term value: 1450 mg/m ³ , 600 ppm Carc (if more than 0.1% of buta-1,3-diene)
AGW (Germany)	Long-term value: 2400 mg/m ³ , 1000 ppm 4(II);DFG

770-35-4 1-Phenoxypropan-2-ol

MAK (Germany)	vgl. Abschn. IIb
---------------	------------------

111-76-2 2-butoxyethanol

IOELV (EU)	Short-term value: 246 mg/m ³ , 50 ppm Long-term value: 98 mg/m ³ , 20 ppm Skin
WEL (Great Britain)	Short-term value: 50 ppm Long-term value: 25 ppm Sk
AGW (Germany)	Long-term value: 98 mg/m ³ , 20 ppm 4(II);DFG, H, Y

- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
- **Respiratory protection:** Use suitable respiratory protective device in case of insufficient ventilation.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 4)

- **Protection of hands:**

Protective gloves

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 through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:** Tightly sealed goggles

- **Body protection:** Protective work clothing

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Aerosol

Colour:

Red

- **Odour:**

Characteristic

- **Odour threshold:**

Not determined.

- **pH-value:**

Not determined.

- **Change in condition**

Melting point/Melting range:

Undetermined.

Boiling point/Boiling range:

Not applicable, as aerosol.

- **Flash point:**

-97°C

Basis: propellant

- **Ignition temperature:**

Not determined - aerosol.

- **Decomposition temperature:**

Not determined.

- **Self-igniting:**

Product is not selfigniting.

- **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

- **Explosion limits:**

Lower:

0.9 Vol %

Upper:

10.9 Vol %

- **Vapour pressure at 20°C:**

8300 hPa

Basis: propellant

- **Density at 20°C:**

0.97 g/cm³

Basis: active substance

- **Relative density**

Not determined.

- **Vapour density**

Not determined.

- **Evaporation rate**

Not applicable.

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 5)

- | | |
|---|--|
| · Solubility in / Miscibility with water: | Not miscible or difficult to mix. |
| · Segregation coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| Organic solvents: | 94.0 % |
| VOC (EU) | 51 % |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
Danger of bursting of the aerosol can during overheating
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

12 Ecological information

- **Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Water hazard class 1: weakly water-endangering
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 6)

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

07 07 04*	other organic solvents, washing liquids and mother liquors
15 01 10*	packaging containing residues of or contaminated by dangerous substances

· **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):** -· **UN-Number:** 1950· **Packaging group:** -· **Hazard label** 2.1· **UN proper shipping name:** 1950 AEROSOLS· **Tunnel restriction code** D· **Maritime transport IMDG:**· **IMDG Class:** 2.1· **UN Number:** 1950· **Label** 2.1· **Packaging group:** -· **EMS Number:** F-D,S-U· **Marine pollutant:** No· **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

(Contd. on page 8)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.05.2011

Revision: 03.05.2011

Trade name: MR® 311 - R Penetrant red

(Contd. of page 7)

- **UN "Model Regulation":** UN1950, AEROSOLS, 2.1
- **Special precautions for user** Warning: Gases.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations:**
- **Waterhazard class:**
Water hazard class 1: slightly hazardous for water. (In accordance with classification VwVwS, appendix 4)
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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 phrases**

- H220 Extremely flammable gas.
- H226 Flammable liquid and vapour.
- H280 Contains gas under pressure; may explode if heated.
- H302 Harmful if swallowed.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.

- R12 Extremely flammable.
- R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
- R22 Harmful if swallowed.
- R36 Irritating to eyes.
- R36/38 Irritating to eyes and skin.
- R41 Risk of serious damage to eyes.

- **Recommended restriction of use**

Existing national and local laws concerning chemicals are to be considered.

- **Department issuing MSDS:** MR® Chemie GmbH, Development

- **Contact:** MR® Chemie GmbH, Tel.: 0049(0)2303/95151-0

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
 ICAO: International Civil Aviation Organization
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 VOC: Volatile Organic Compounds (USA, EU)

- *** Data compared to the previous version altered.**