Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.11.2023 Version number 1 Revision: 23.11.2023

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

· **1.1 Product identifier**
· **Trade name: MR® 68 H Penetrant red and fluorescent (Aerosol)**
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
· **Life cycle stages**
F Formulation or re-packing
IS Use at industrial Sites
· **Sector of Use**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
· **Product category** PC14 Metal surface treatment products
· **Process category**
PROC7 Industrial spraying
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC13 Treatment of articles by dipping and pouring
· **Environmental release category**
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
· **Article category** AC7 Metal articles
· **Application of the substance / the mixture**
Testing material for nondestructive surface crack detection

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
MR Chemie GmbH
Nordstr. 61-63
59427 Unna (Germany)
Tel. +49 (0)2303 95151 0
Fax: +49 (0)2303 95151 10
post@mr-chemie.de
www.mr-chemie.de

· **Further information obtainable from:**
MR Chemie GmbH, Dep. safety data sheets, Tel.: +49/(0)2303/95151-38, QS@mr-chemie.de
· **1.4 Emergency telephone number:**
24h- Emergency Contact Phone Number For Chemical Emergency, Spill, Leak, Fire, Exposure or Accident (WISAG FMO Cargo Service GmbH & CO.KG)
Call Day or Night within USA and Canada: 1 800 424 9300
Outside USA and Canada: 001 703 527 3887
In-Country Emergency Number for:

Germany:	0800-181-7059	
China:	4001 204937	(Mandarin)
Hong Kong:	800 968 793	(Cantonese)
India:	000 800 100 7141	(Hindi)
South Africa:	0 800 983 611	(English)

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
The mixture is classified according to Regulation (EC) No 1272/2008 according to the most recent ATP.
Aerosol 1 H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.

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· **Hazard pictograms**



GHS02

· **Signal word** Danger
· **Hazard statements**
H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.
· **Precautionary statements**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Additional information:**
Buildup of explosive mixtures possible without sufficient ventilation.
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

*
SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 115-10-6 EINECS: 204-065-8 Reg.nr.: 01-2119472128-37-XXXX	dimethyl ether Flam. Gas 1A, H220 Press. Gas (Comp.), H280	30 - 40%
CAS: 509-34-2 EINECS: 208-096-8 Reg.nr.: 01-2120225998-40-XXXX	3',6'-Bis(diethylamino)spiro(isobenzofuran-1(3H),9'-(9H)xanthen)-3-on Aquatic Chronic 2, H411 Acute Tox. 4, H302; Eye Irrit. 2, H319	≥ 1 - < 2.5%

· **Propellant:** Dimethyl ether
· **Additional information:**
Wording of the listed hazard phrases are indicated in section 16 and relate to individual raw components.

SECTION 4: First aid measures

· **4.1 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.
· **Information for doctor:**
Grease with skin-cream to restore fat film in order to prevent skin inflammation.

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· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2 Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Carbon monoxide (CO)
· **5.3 Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
· **6.4 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.

SECTION 7: Handling and storage

· **7.1 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.
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.
Protect against electrostatic charges.

· **7.2 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 pressurised containers.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Protect from heat and direct sunlight.
· **Recommended storage temperature:** 5 - 45°C, 41 - 113 °F
· **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Additional information about design of technical facilities:** No further data; see section 7.

· **Ingredients with limit values that require monitoring at the workplace:**	
74-98-6 propane	
AGW (Germany)	Long-term value: 1800 mg/m³, 1000 ppm 4(II);DFG
106-97-8 butane (containing < 0,01 % butadiene (203-450-8))	
WEL (Great Britain)	Short-term value: 1810 mg/m³, 750 ppm Long-term value: 1450 mg/m³, 600 ppm Carc (if more than 0.1% of buta-1.3-diene)
AGW (Germany)	Long-term value: 2400 mg/m³, 1000 ppm 4(II);DFG
112-80-1 Ölsäure	
MAK (Germany)	vgl.Abschn. IIb und Xc

· **DNELs**		
102-71-6 2,2',2''-nitrilotriethanol		
Dermal	Long-term - systemic effects, worker	6.3 mg/kg bw/day (worker)
Inhalative	Long-term - systemic effects, worker	5 mg/m³ (worker)
	Long-term - local effects, worker	5 mg/m³ (worker)
509-34-2 3',6'-Bis(diethylamino)spiro(isobenzofuran-1(3H),9'-(9H)xanthen)-3-on		
Dermal	Long-term - systemic effects, worker	3.46 mg/kg bw/day (worker)
Inhalative	Long-term - systemic effects, worker	12.2 mg/m³ (worker)

· **DNEL (Derived No Effect Level) for the general population**		
102-71-6 2,2',2''-nitrilotriethanol		
Oral	Long term - systemic effects, general population	13 mg/kg bw/day (general population)
Dermal	Long term - systemic effects, general population	3.1 mg/kg bw/day (general population)
Inhalative	Long term - systemic effects, general population	1.25 mg/m³ (general population)
	Long term - local effects, general population	1.25 mg/m³ (general population)
509-34-2 3',6'-Bis(diethylamino)spiro(isobenzofuran-1(3H),9'-(9H)xanthen)-3-on		
Oral	Long term - systemic effects, general population	1.24 mg/kg bw/day (general population)
Dermal	Long term - systemic effects, general population	1.24 mg/kg bw/day (general population)
Inhalative	Long term - systemic effects, general population	1.83 mg/m³ (general population)

· **PNECs**	
102-71-6 2,2',2''-nitrilotriethanol	
Aquatic compartment - freshwater	0.32 mg/L (freshwater)
Aquatic compartment - marine water	0.032 mg/L (marine water)
Aquatic compartment - water intermittent releases	5.12 mg/L (intermittent release water)
Aquatic compartment - sediment freshwater	1.7 mg/kg sed dw (sediment fresh water)
Aquatic compartment - sediment marine water	0.17 mg/kg sed dw (sediment marine water)
Terrestrial compartment - soil	0.151 mg/kg dw (soil)

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Sewage treatment plant	10 mg/L (sewage treatment plant)
509-34-2 3',6'-Bis(diethylamino)spiro(isobenzofuran-1(3H),9'-(9H)xanthen)-3-on	
Aquatic compartment - freshwater	0.0034 mg/L (freshwater)
Aquatic compartment - marine water	0.0003 mg/L (marine water)
Aquatic compartment - sediment freshwater	0.176 mg/kg sed dw (sediment fresh water)
Aquatic compartment - sediment marine water	0.018 mg/kg sed dw (sediment marine water)
Terrestrial compartment - soil	0.033 mg/kg dw (soil)

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

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
· **Respiratory protection:**
Filter AX-P2
For good ventilation provide, this can be achieved by local or space exhaust. If the concentration lies over the job limit values, then, a certified respirator suitable for this purpose must be used.
· **Protection of hands:**
Check the permeability prior to each anewed use of the glove.
For the protection against chemicals in areas with heightened risk of injury (mechanical hazard) no recommendation for a suitable glove material can be given.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.5 mm
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**
Value for the permeation: Level ≤ 6
Supplier for suitable protection gloves:
ASD ArbeitsSicherheit Dortmund
Torstr. 101 - 37355 Niederorschel OT Rüdigershagen
Tel.: 02301 / 919543 - Fax: 02301 / 9453893
E-Mail: m.schnellhardt@t-online.de - http://www.arbeitssicherheitdortmund.de
The exact break trough 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

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**
Form: Aerosol
Colour: Red
· **Odour:** Characteristic

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· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Not applicable, as aerosol.
· **Flash point:**	-42 °C Basis: propellant
· **Flammability (solid, gas):**	Not applicable.
· **Auto-ignition temperature:**	Not determined - aerosol.
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible. Not determined.
· **Explosion limits:**	
Lower:	1.5 Vol %
Upper:	10.9 Vol %
· **Vapour pressure at 20 °C:**	8,300 hPa Basis: propellant
· **Density at 20 °C:**	0.961 g/cm³ Basis: active substance
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent separation test:**	
Organic solvents:	43.9 %
VOC (EU)	40.00 %
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

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

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
115-10-6 dimethyl ether		
Inhalative	LC50/4 h	308 mg/l (rat)
102-71-6 2,2',2''-nitrilotriethanol		
Oral	LD50	8,000 mg/kg (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation** No data available.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **General remarks:**
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Water hazard class 1: weakly water-endangering
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Eliminate the pure, unchanged substance in accordance with local regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
· **Waste disposal key:**
For this product no waste key number can be specified, because only the intended purpose permits an allocation. The waste key number is to be specified in arrangement with the regional waste disposal.
The indications for Waste key reflect the pure unmodified product and are only a recommendation.

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· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	UN1950
· **14.2 UN proper shipping name**	
· **ADR**	1950 AEROSOLS
· **IMDG**	AEROSOLS
· **IATA**	AEROSOLS, flammable
· **14.3 Transport hazard class(es)**	
· **ADR**	



· **Class**	2 5F Gases.
· **Label**	2.1
· **IMDG, IATA**	



· **Class**	2.1 Gases.
· **Label**	2.1
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **14.6 Special precautions for user**	Warning: Gases.
· **Hazard identification number (Kemler code):**	-
· **EMS Number:**	F-D,S-U
· **Stowage Code**	SW1 Protected from sources of heat. SW22 For AEROSOLS with a maximum capacity of 1 litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters.
· **Segregation Code**	SG69 For AEROSOLS with a maximum capacity of 1 litre: Segregation as for class 9. Stow "separated from" class 1 except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2.
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.

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· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E0 Not permitted as Excepted Quantity
· **Transport category**	2
· **Tunnel restriction code**	D
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E0 Not permitted as Excepted Quantity
· **UN "Model Regulation":**	UN1950, AEROSOLS, 2.1

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Directive 2012/18/EU**
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 150 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

· **National regulations:**

· **Waterhazard class:** Water hazard class 1: slightly hazardous for water.
· **VOC (EU)** 378.0 g/l
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

· **Relevant phrases**
The wording of the listed risk phrases are those of the individual raw materials.
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
· **Recommended restriction of use**
Existing national and local laws concerning chemicals are to be considered.

· **Department issuing SDS:**
MR Chemie GmbH, Dep. safety data sheets, Tel.: +49/(0)2303/95151-38
· **Contact:**
MR Chemie GmbH, Dep. safety data sheets, Tel.: +49/(0)2303/95151-38, QS@mr-chemie.de
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)
LC50: Lethal concentration, 50 percent

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LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Gas 1A: Flammable gases – Category 1A
Aerosol 1: Aerosols – Category 1
Press. Gas (Comp.): Gases under pressure – Compressed gas
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
· *** Data compared to the previous version altered.**