

Safety data sheet

according to 1907/2006/EC, Article 31



Printing date 07.06.2013

Revision: 07.06.2013

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

- **Product identifier**
 - **Trade name: MR® 2000 Anti-Reflex L, solvent-based**
 - **Type of packaging** bulk
 - **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
 - **Application of the substance / the preparation** Anti-reflection agent for optical 3D-metrology
 - **Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:**
Hersteller:
MR-Chemie GmbH Tel. +49 (0)2303/95151-0
Nordstr. 61-63 Fax +49 (0)2303/95151-10
D-59427 Unna
 - **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
In-Country Emergency Number for:
- | | | |
|---------------|------------------|-------------|
| China: | 4001 204937 | (Mandarin) |
| Hong Kong: | 800 968 793 | (Cantonese) |
| India: | 000 800 100 7141 | (Hindi) |
| South Africa: | 0 800 983 611 | (English) |
- (WISAG FMO Cargo Service GmbH & CO.KG)

2 Hazards identification

- **Classification of the substance or mixture**
 - **Classification according to Regulation (EC) No 1272/2008**
-  GHS02 flame
Flam. Liq. 2 H225 Highly flammable liquid and vapour.
-  GHS07
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

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



Xi; Irritant

R36: Irritating to eyes.



F; Highly flammable

R11: Highly flammable.

R66-67: Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.

- **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.

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At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.

Has a narcotizing effect.

· **Classification system:**

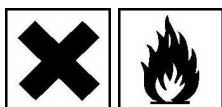
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

· **Label elements**

· **Labelling according to EU guidelines:**

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

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



Xi Irritant
F Highly flammable

· **Risk phrases:**

- 11 Highly flammable.
- 36 Irritating to eyes.
- 66 Repeated exposure may cause skin dryness or cracking.
- 67 Vapours may cause drowsiness and dizziness.

· **Safety phrases:**

- 7/9 Keep container tightly closed and in a well-ventilated place.
- 16 Keep away from sources of ignition - No smoking.
- 23 Do not breathe vapour/spray.
- 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.

· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances** Mixture of solvents, inert solids and additives

· **Chemical characterization: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 67-63-0 EINECS: 200-661-7	2-Propanol Xi R36; F R11 R67 Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	25-50%
CAS: 67-64-1 EINECS: 200-662-2	acetone Xi R36; F R11 R66-67 Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	25-50%

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

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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:** If symptoms persist consult doctor.
- **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**
Headache
Stupor
Dizziness
Unconsciousness
- **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**
Ensure adequate ventilation
Keep away from ignition sources.
Avoid contact with eyes and skin.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Prevent seepage into sewage system, workpits and cellars.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
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.

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Condition of the tanks and stockrooms is to be co-ordinated with the responsible authorities.
Keep receptacles tightly sealed.
- **Information about storage in one common storage facility:**
Keep away from strong oxidizing agents, alkalis and acids.
- **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:**

67-63-0 2-Propanol

WEL (Great Britain)	Short-term value: 1250 mg/m ³ , 500 ppm Long-term value: 999 mg/m ³ , 400 ppm
AGW (Germany)	Long-term value: 500 mg/m ³ , 200 ppm 2(II);DFG, Y

67-64-1 acetone

IOELV (EU)	Long-term value: 1210 mg/m ³ , 500 ppm
WEL (Great Britain)	Short-term value: 3620 mg/m ³ , 1500 ppm Long-term value: 1210 mg/m ³ , 500 ppm
AGW (Germany)	Long-term value: 1200 mg/m ³ , 500 ppm 2(I);DFG

- **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:**
Filter A/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:**
Protective gloves

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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**

Butyl rubber, BR

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.

- **Eye protection:** With danger of the eye contact closing eye protector.

- **Body protection:** Protective work clothing

9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

Form:	Fluid
Colour:	Suspension with white solids
· Odour:	Characteristic
· Odour threshold:	Not determined.

- **pH-value:** Not determined.

- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	55 °C

- **Flash point:** -19 °C
Basis: active substance

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 425 °C

- **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:	2.0 Vol %
Upper:	13.0 Vol %

- **Vapour pressure at 20 °C:** 233 hPa

· Density at 20 °C:	0.87 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

- **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

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- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not determined.
 - Kinematic:** Not determined.
 - Organic solvents:** 90.0 %
 - VOC (EU)** 91.8 %
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Avoid open flame or electrical ignition.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** Strong oxidizing agents, alkalis and acids.
- **Hazardous decomposition products:** At fire temperatures may give off toxic fumes.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values relevant for classification:**

67-63-0 2-Propanol

Oral	LD50	5045 mg/kg (rat)
Dermal	LD50	12800 mg/kg (rbt)
Inhalative	LC50/4 h	30 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Has a degreasing effect to skin.
Irritant effect possible.
- **on the eye:** Irritating effect.
- **after ingestion:** Swallow and first of all the following vomiting can lead to lung losses.
- **after inhalation:** Mucous membrane irritation possible.
- **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**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** Easily biodegradable
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

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- **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.
- **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.
- **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.

- **European waste catalogue**

07 07 04	andere organische Lösemittel, Waschflüssigkeiten und Mutterlaugen
15 01 10	Verpackungen, die Rückstände gefährlicher Stoffe enthalten oder durch gefährliche Stoffe verunreinigt sind

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

14 Transport information

- **UN-Number**
- **ADR, IMDG, IATA** UN1993
- **UN proper shipping name**
- **ADR** 1993 FLAMMABLE LIQUID, N.O.S., special provision 640D (ACETONE, METHYL ACETATE)
- **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (ACETONE, METHYL ACETATE)

- **Transport hazard class(es)**

- **ADR**



- **Class** 3 (F1) Flammable liquids.
- **Label** 3

- **IMDG, IATA**



- **Class** 3 Flammable liquids.

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· Label	3
· Packing group · ADR, IMDG, IATA	II
· Environmental hazards: · Marine pollutant:	No
· Special precautions for user · Danger code (Kemler): · EMS Number:	Warning: Flammable liquids. 33 F-E, S-E
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	

· ADR · Limited quantities (LQ) · Transport category · Tunnel restriction code	1L 2 D/E
· UN "Model Regulation":	UN1993, FLAMMABLE LIQUID, N.O.S., special provision 640D (ACETONE, METHYL ACETATE), 3, II

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**
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
- **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:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization

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ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

ADR: Accord européen sur le transport 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 Harmonized System of Classification and Labelling of Chemicals

VOC: Volatile Organic Compounds (USA, EU)

LD50: Lethal dose, 50 percent

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

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