

BONDERITE L-MR 21165

March 2021

PRODUCT DESCRIPTION

BONDERITE L-MR 21165 provides the following product characteristics:

Technology	Lubricants
Product Type	Water miscible metal working fluids
Application	Metal machining (e.g. turning, drilling, milling, grinding)

BONDERITE L-MR 21165 is a water-miscible, boron free metal working fluid which is free of Cl-, P- and S-containing EP-additives and Formaldehyde Releasing Agents.

The high lubricity of BONDERITE L-MR 21165 extends the tool life time and reduces the process costs.

The excellent cleaning performance of BONDERITE L-MR 21165 keeps the machine clean and reduces the maintenance cost.

Due to the raw materials selected, BONDERITE L-MR 21165 has a long lifetime, also because of its high hardwater stability.

BONDERITE L-MR 21165 fulfills the rules of the TRGS 611 and is conform to VKIS substance list and contains an inhibitor to prevent the N-Nitrosamine formation.

Application Areas:

BONDERITE L-MR 21165 is a water-miscible cutting fluid for general to heavy machining of copper, brass, other nonferrous metals, magnesium, steel, aluminum and cast iron.

BONDERITE L-MR 21165 emulsions are stable and build a very low foaming in a water hardness between 5°dH and 200°dh.

TECHNICAL DATA

Concentrate:

Density (20°C, DIN 51757)	0.968 g/cm ³
Viscosity (20°C, DIN 53211)	329 mm ² /s
Refractive index (20°C)	1.443
Mineral oil content	20%
Ester oil content	0%

Emulsion:

Appearance	semi-transparent
pH-value (DIN 51369)	~8.9

Corrosion protection properties:

DIN 51360-2 0/0 at 4%

Lubricant effect:

Tapping Torque (5%, 20°GH) 30 Ncm
(8mm, 900rpm, M4F, AlMgSi1)
Reichert (5%, 20°GH) 19.5 mm²
(Ducom Friction test, steel)

DIRECTIONS FOR USE

Preliminary Statement:

Prior to use it is necessary to read the **Material Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions and contact Henkel for analytical support.

Dermatological Assessment:

BONDERITE L-MR 21165 can be rated as well tolerated by the skin (Henkel Internal Patch-Test & Skin Irritation Test – OECD 439). Detailed dermatological assessment on request.

Concentration:

Make up concentration: 6 % to 8 % (depending on the machining operation and material)

Topping up concentration: 1 % to 2 %

Control of the emulsion:

Refractometer:

The reading in °Brix multiplied by the product factor 1.3 is equivalent to the concentration in percent.

Titration:

100 mL of the emulsion are titrated down to pH 5.5 using 0.5 N HCl and an electronic pH-meter. The consumption of acid in mL multiplied by the product factor 0.54 is equivalent to the concentration in percent.

Splitting with acid (DIN 51368):

100 mL of the emulsion are heated up with concentrated hydrochloric acid. The reading in mL multiplied by the product factor 1.8 is equivalent to the concentration in percent.

Classification:

Please refer to the corresponding **Material Safety Data**

Sheets for details on:

Hazards identification
Transport information
Regulatory information

Storage:

Temperature, °C

+5 to +40

The shelf life is indicated on the container.

ADDITIONAL INFORMATION**Disclaimer**

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Reference 0.4