BONDERITE

Technical Data Sheet

BONDERITE L-FM FL 744

Known as BONDERLUBE FL 744
March 2015

PRODUCT DESCRIPTION

BONDERITE L-FM FL 744 provides the following product characteristics:

Technology	Lubricant
Product Type	Lubricant Water-based
Application	Cold Forming

BONDERITE L-FM FL 744 is a liquid water-based non-reactive lubricant with a white colour.

The product belongs to an innovative surface treatment technology for cold forming processes of carbon steel, stainless steel and non ferrous metals.

BONDERITE L-FM FL 744 is used, in a single application, as an alternative to traditional lubricating package composed of phosphate coating and soap.

The working cycle on materials coming from previous blasting or chemical pickling is therefore remarkably simplified according to the following general procedure:

- Sand blasting
- Immersion in hot demineralized water (T = 50°C)
- Treatment with BONDERITE L-FM FL 744 (T = 40 to 60 °C)
- Hot drying (T = 100°C)

In presence of oil residues the material must be previously degreased.

As alternative to sand-blasting, the removal of surface oxides can be achieved by traditional pre-treatment cycles including chemical pickling.

Optimize the sections of subsequent rinse to avoid drug-in of pollutants in the bath of BONDERITE L-FM FL 744.

Henkel technical department can advise you about the required products to comply with the specific needs.

BONDERITE L-FM FL 744 coatings tends partly to hydrate with humidity; for maximum performances it is necessary to submit the treated material to deformation operations within a short time in order to guarantee the best results, compatibly with work flow.

In case of storage for longer periods or in strongly damp environment it may be necessary to repeat the drying operation to guarantee the best product performances.

Application Areas

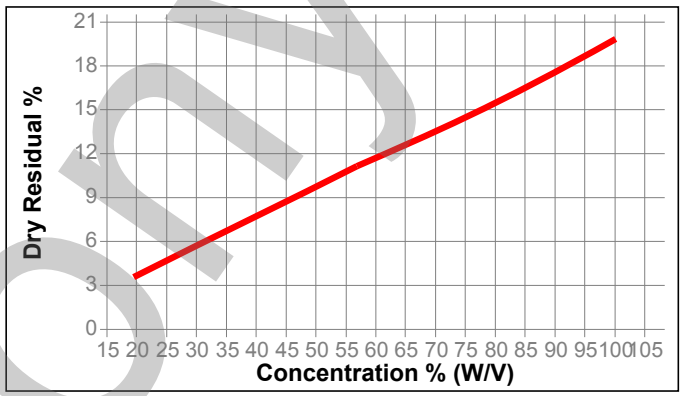
BONDERITE L-FM FL 744 is normally used by immersion, either in batch or in-line plants; the bath must be thoroughly stirred or recirculated, according to instructions received by Henkel personnel, in order to avoid product stratification.

Tanks, stirrer and pipes must be made of steel AISI 304 or carbon steel coated with FRP (Fiber Reinforced Polymers).

Please contact to Our Technical Service for suggestions of any possible system modification in order to achieve the best results.

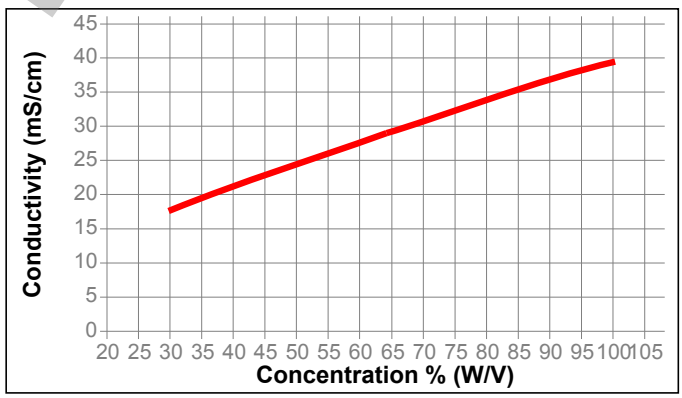
Dry Residual

Concentration BONDERITE L-FM FL 744



Conductivity

Concentration BONDERITE L-FM FL 744



DIRECTION OF 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.

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Bath Make-up:
BONDERITE L-FM FL 744 needs to be diluted by adding demineralised water which quantity depends on product type and requested deformation, up to a concentration between 60% and 100%.

Operating Data:

Treatment Temperature, °C	40 to 60
Processing time	depending on application*
Concentration, %	60 to 100
Drying (referred to surface metal), °C	100
Drying (in-line application), sec	few seconds
Drying (in-batch application), min	10 to 15

*Normally from few seconds (in-line plants) to few minutes (from 1 to 5 for in-batch applications).

Bath Control:
Two analytical methods can be used for running BONDERITE L-FM FL 744 bath, depending on the type of equipment available to the customer: conductivity measurement or dry residual determination.

Depending on the concentration obtained, add concentrated product if concentration is lower than fixed value, add demineralised water if concentration needs to be decreased.

Running through conductivity measurement

Required equipment:

- Conductimeter with a reading scale not lower than 100 mS/cm equipped with manually settable Temperature Compensator (TC) and Reference Temperature of 25 °C (or settable between 20 °C and 25 °C e.g. Crison bench types).
- Conductimetric cell with Constant $1cm^{-1}$ or $10cm^{-1}$, maximum reading capacity of at least 50 mS. (Crison or Metrohm).
- Magnetic stirrer
- Standard laboratory glassware

Operating instructions:

- Take a bath sample of about 200 mL and read the solution conductibility (Reference Temperature 25°C and Temperature Compensator 2.3%) while stirring.
- In case Temperature Compensator is not available, record the value at 25°C.
- Record the datum on the attached graph and check the corresponding concentration (%).

Running through determination of dry residual

Required equipment:

- Thermostatic stove with maximum T ≥120°C, temperature adjustment ~1°C.
- Analytical scale (sensitivity 0.0001 g)
- Heat resistant capsules (aluminium, stainless steel, ceramic, …)
- Dryer
- Standard laboratory glassware

Operating instructions:

- Preheat the stove at 105°C.
- Dry the capsule in the oven for 10' and cool it to room temperature in the dryer.
- Weigh the capsule and record the value as $\mathbf{P_0}$.
- Transfer a sample (1 to 2 g) of BONDERITE L-FM FL 744 into the capsule. Record the total value sample + capsule as $\mathbf{P_1}$.
- Put the capsule into the stove pre-heated at 105°C and wait for 2 hours.
- Take the capsule out and cool it to room temperature in the dryer.
- Weigh the capsule and record the value as $\mathbf{P_2}$.
- Calculate the dry residual value with the formula below:
- $$\text{Dry residual \%} = \frac{(P_2 - P_0)}{(P_1 - P_0)} \times 100$$
- Write the datum on the attached graph and check the correspondent concentration (%).

Replenishing
To increase concentration of 1 %, add 10 Kg of BONDERITE L-FM FL 744 to every 1,000 litres of bath.

Classification
Please refer to the corresponding **Material Safety Data Sheets** for details on:
Hazards identification
Transport information
Regulatory information

Storage

Recommended Storage Temperature, °C	5 to 40
Shelf-life, months (in unopened original packaging)	12
Frost-Sensitive	yes

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ADDITIONAL INFORMATION

Disclaimer

Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Sapiony X

Henkel AG & Co. KGaA
40191 Düsseldorf, Germany
Phone: +49-211-797-0

Henkel Corporation USA
Madison Heights, MI 48071
Phone: +1-248-583-9300

Henkel (China) Co. Ltd.
201203 Shanghai, China
+86.21.2891.8000

For more information, please contact us on www.henkel.com

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