

## BONDERITE L-FG M 15 ACHESON

Known as Molydag 15  
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### PRODUCT DESCRIPTION

BONDERITE L-FG M 15 ACHESON provides the following product characteristics:

<b>Technology</b>	Lubricant
<b>Product Type</b>	Molybdenum disulphide in water
<b>Application</b>	Cold forming lubricant

BONDERITE L-FG M 15 ACHESON is a water based, molybdenum disulphide lubricant for cold and semiwarm forming of alloy and non-alloy steels as well as titanium alloys.

It is a concentrate and must be diluted with water before use. After short dipping of the billet in diluted BONDERITE L-FG M 15 ACHESON a uniform and very adherent MoS<sub>2</sub> film is formed, which will provide adequate lubrication during cold forming operations.

Compared with other methods of applying an MoS<sub>2</sub> film, such as tumbling of the billets in MoS<sub>2</sub> powder or coating by means of MoS<sub>2</sub> dispersed in a volatile solvent, the use of BONDERITE L-FG M 15 ACHESON is simple and economical and gives an MoS<sub>2</sub> film having superior characteristics.

### Special features

- After short dipping of the billet a uniform and very adherent lubricating film of MoS<sub>2</sub> is formed, even on billets of complicated form.
- No odour, no unpleasant physiological effects, chemically neutral, not inflammable, compatible with acids and alkalis (e.g. if contaminated by liquids brought over from previous dips).
- May be diluted with tap water in any required proportion.
- The thickness of the film can be regulated by the dilution ratio.
- Precision extrusion of sharp sides and angles made easier.
- No surface attack on the metal even under highest specific loads.
- Specially suitable for large scale working as continuous coating is possible.
- No removal of the MoS<sub>2</sub> lubricating film on transport nor in the transfer nor feed mechanisms.
- No sedimentation of the MoS<sub>2</sub> nor build-up of agglomerates.
- Can be maintained stable at a temperature of 90 °C.

### Application Areas:

Cold and semi-warm forming of alloy and non-alloy steels and titanium alloys.

### TECHNICAL DATA

#### (as supplied)

Lubricating solid	molybdenum disulphide
Carrier	water
Consistency	viscous fluid
pH	9 to 11

### 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.

#### Dilution:

BONDERITE L-FG M 15 ACHESON is a concentrate to be diluted before use.

The extent of the dilution is determined by the degree of difficulty of the forming operation (material being formed and reduction ratio).

The following dilution ratios are given as a general indication:

- For difficult conditions and a high degree of reduction: 1 to 2 parts of water to one part of BONDERITE L-FG M 15 ACHESON.
- For difficult conditions but with a lower reduction ratio: 3 to 4 parts of water to one part of BONDERITE L-FG M 15 ACHESON.
- For easy conditions: 5 parts of water to one part of BONDERITE L-FG M 15 ACHESON.
- Dilution can be made with tap water with a maximum hardness of 30° dH.

#### Important:

To maintain a homogenised mixture it is necessary to add the water to the concentrate and not the other way about. An occasional stirring after dilution is necessary. For this purpose a simple stirrer is recommended.

#### Dipping of the Billets:

Before dipping the billets must be degreased (using a hot bath degreaser) and then washed well.

For difficult conditions pretreatment by phosphating is recommended.

Dipping and drying can be carried out as follows:

1. After degreasing or phosphating the billets have a temperature of 60 to 80°C. They are dipped briefly in the diluted BONDERITE L-FG M 15 ACHESON. Because of residual warmth they dry in a few seconds.
2. Cold billets can be dipped in the BONDERITE L-FG M

15 ACHESON bath (60 to 80°C) and left in until the billets reach the approximate temperature of the bath. After leaving the bath they also dry in a few seconds.

- If cold billets are dipped in cold BONDERITE L-FG M 15 ACHESON they must be dried in a stream of hot air afterwards.

For continuous production the dipping bath can be placed directly after the cleaning and phosphating equipment. This is suitable for intermittent as well as continuous work. The MoS<sub>2</sub> lubricating film has excellent adherence to the billet and is not removed during transport nor transfer. The billets do not have to be kept apart during these operations. Once the billets have been treated they can be stored for an unlimited time but should be protected from moisture.

### Controlling the dipping bath concentration

The concentration of the dipping bath should be checked periodically to make up for losses. This is carried out as follows:

- 100 g liquid is removed from the BONDERITE L-FG M 15 ACHESON bath being used. The bath should be well stirred whilst the sample is being taken.
- 100 g diluted material is made using fresh BONDERITE L-FG M 15 ACHESON (stirred before taking a sample) and adding the required amount of water to get the working dilution.

The two samples are now placed in an oven and the water is allowed to evaporate so drying to constant weight in both cases.

If a) is the weight of the residue of sample 1, and b) is the weight of the residue of sample 2, the additions to the bath are calculated as follows:

I. If a) is greater than b) water should be added as:  

$$\frac{100(a-b)}{b}$$
 in % of weight by the total contents of the bath.

II. If a) is less than b), BONDERITE L-FG M 15 ACHESON concentrate should be added as:

$$\frac{100(b-a)}{32b}$$
 in % of weight of the total contents of the bath.

### Storage:

Recommended Storage Temperature, °C 5 to 25

Shelf life, months 24  
 (in unopened original packaging)

Keep from freezing.

Avoid excessive heat.

Reseal containers after use to avoid contamination.

### Classification:

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

**Sheets** for details on:

**Hazards identification**  
**Transport information**  
**Regulatory information**

## 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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