

The clean and flexible solution

Solid film lubricants for elastomers

The necessity for lubricating elastomer sealants for assembling aid, as well as the reduction of friction in dynamic processes, is beyond question and in the past this was primarily undertaken by classic lubricants (oils, greases). In recent years dry lubrication with solid film lubricants has acquired increasing significance in this field.

One of the main benefits for use of a solid film lubricant (SFL) is the possibility of coating mass parts. So it is possible to dispense with the preliminary work (oiling, greasing), which is often carried out by hand, during assembling of the component.

Application

The areas of application for solid film lubricants are miscellaneous and range from the coating of O-rings and shaft sealing rings for assembling aid via the coating of elastomeric components in motor vehicles to its use in sealing elements in valves and fittings. Nearly all rubber materials (e.g. NBR, EPDM, ACM, VMQ) can be coated with solid film lubricants.

Our comprehensive range of services in the field of SFL-coatings

- Technical advice about lubricants
- Sample coating of components
- Custom coating in our own gleitmo-bond coating centre
- Know-how transfer with regard to the coating technology
- Service analysis by our R&D division
- Tailor-made development of products



AUM DACRO COATINGS

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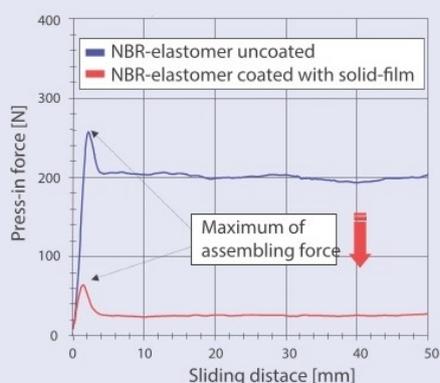


Fig. 1: press-in forces resulting during the assembling of an uncoated O-ring (material NBR Sh 70) compared with an O-ring coated with a solid film lubricant (counterpart: steel, press-in speed: 100 mm/min).

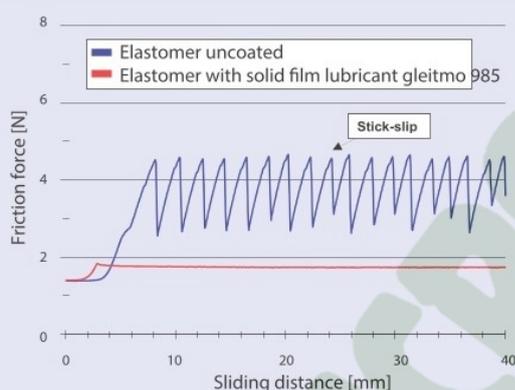


Fig. 2: avoidance of stick-slip on an EPDM elastomer by coating with gleitmo 985 solid film lubricant (test method according to DIN 53375).

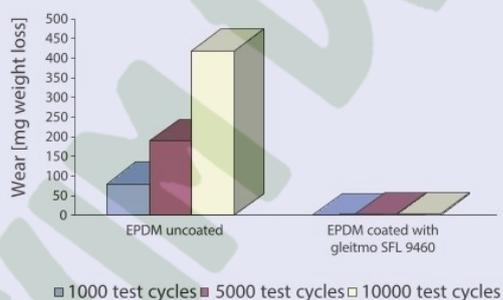


Fig. 3: abrasion occurring on an uncoated elastomer test sample (material EPDM Sh 60) compared with a test sample coated with a solid film lubricant while varying the test cycles (test method according to DIN 11998, dry, load 500 g).

Properties

The solid film lubricant is a firmly adhering surface finishing which preserves the existing physical dynamic material properties of the basic material. As result of the solid lubricants bonded in the coating a decrease of the coefficient of friction of the sealing material occurs, which yields in a clearly reduction of assembling forces (fig. 1).

In the case of components moving dynamically, FUCHS LUBRITECH's solid film lubricants prevent the occurrence of stick-slip effect and thus avoid the generation of squeaking (fig 2).

In addition to a reduction of friction a solid film lubricant coating contributes to a significant wear reduction of the parts, which occurs even during the assembling of the sealing elements and can lead to leakages. But even with dynamically stressed components protection against wear results from the use of the solid film lubricant (fig. 3).

Apart from their outstanding mechanical-dynamic properties FUCHS LUBRITECH's solid film lubricants are resistant to many substances (e.g. water, fuel, mineral oil), which come in contact with the component as a result of environmental influences or technical liquids.

Application

Coating of the components with gleitmo solid film lubricants is mainly carried out using commercial application processes, which permit the coating of mass parts (dipping, tumbling etc.). Depending on the type of solid film lubricant used it can be necessary to undertake short-term moderate temperature treatment to speed up curing. Subsequently a firmly adhering, dry solid lubricant coating with a layer thickness of a few microns remains on the surface. According to the parting properties of the coating easy separation of the parts is possible and the adherence of possible contaminants can be avoided. Most of the solid film lubricants are provided with a UV active pigment, so that after coating a control can be carried out with the aid of an ultraviolet light.



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