

# MOLYKOTE® HSC Plus Paste

Solid lubricant paste; no intentional lead or nickel

## Features

- Can be used over a wide range of temperatures (-30°C/-22°F to 1,100°C/2,012°F)
- Enables nondestructive dismantling, even after long use at high temperatures
- High load-carrying capacity
- Due to stated coefficient of friction, defined pre-stressing forces for bolted joints can be achieved
- Good corrosion protection
- Good electrical conductivity

## Composition

- Mineral oil
- Thickening agents
- Solid lubricants
- Metal powder (lead-free)

## Applications

For metal/metal combinations that are subjected to high temperatures and frictional contacts that typically for bolted joints, are free from lead or nickel. Suitable for lubrication points with low speeds, subjected to high temperatures and corrosive effects, and also require a low and constant coefficient of friction. As a contact lubricant for electrically conducting components. Used successfully for stud bolts in industrial turbines, stud bolts in turbochargers of diesel engines, flanged connections in chemical and petrochemical plants.

## How to use

If possible, clean the thread and used bolts with a wire brush. Spread an adequate amount of the paste on the contact areas in order to obtain a good seal. An excess is not harmful. In order not to alter the properties, the paste must not be mixed with greases or oils.

To enable this product to be applied more quickly and cleanly to larger areas, it is advisable to use the spray can.

## Typical properties

Specification writers: These values are not intended for use in preparing specifications. Please contact your local MOLYKOTE® sales representative prior to writing specifications on this product.

| Standard <sup>(1)</sup>                                      | Test                                     | Unit  | Result       |
|--------------------------------------------------------------|------------------------------------------|-------|--------------|
|                                                              | Color                                    |       | Copper       |
| <b>Penetration, density, viscosity</b>                       |                                          |       |              |
| ISO 2137                                                     | Unworked penetration                     | mm/10 | 250-280      |
| ISO 2811                                                     | Density at 20°C (68°F)                   | g/ml  | 1.4          |
| <b>Temperature</b>                                           |                                          |       |              |
|                                                              | Service temperature <sup>(2)</sup>       | °C    | -30 to 1,100 |
|                                                              |                                          | °F    | -22 to 2,012 |
| ISO 2176                                                     | Drop point                               | °C    | None         |
|                                                              |                                          | °F    | None         |
| <b>Load-carrying capacity, wear protection, service life</b> |                                          |       |              |
|                                                              | Four-ball tester                         |       |              |
| DIN 51 350 pt.4                                              | Weld load                                | N     | 4,800        |
| DIN 51 350 pt.5                                              | Wear scar under 400 N load               | mm    | 0.6          |
| DIN 51 350 pt.5                                              | Wear scar under 800 N load               | mm    | 1.1          |
|                                                              | Almen-Wieland machine                    |       |              |
|                                                              | OK load                                  | N     | 20,000       |
|                                                              | Frictional force                         | N     | 1,700        |
| <b>Coefficient of friction</b>                               |                                          |       |              |
|                                                              | Screw test: Erichsen <sup>(3)</sup>      |       |              |
|                                                              | Screw test - $\mu$ thread                |       | 0.14         |
|                                                              | Screw test - $\mu$ head                  |       | 0.09         |
|                                                              | Initial break-away torque <sup>(4)</sup> | Nm    | 120          |

<sup>(1)</sup>ISO: International Standardization Organization. DIN: Deutsche Industrie Norm.

<sup>(2)</sup>Temperature limit of solid lubricants.

<sup>(3)</sup>Coefficient of friction in bolted connection, M12, 8.8, on blackened surface.

<sup>(4)</sup>M12, with starting torque  $M_a = 56$  Nm and heat treatment at 540°C/1,004°F, 21 h, bolt material: 21 Cr MoV 57 mat no. 1.7709.

## Handling precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION.

## Usable life and storage

When stored at or below 20°C (68°F) in the original unopened containers, this product has a usable life of 60 months from the date of production.

## Packaging

This product is available in different standard container sizes. Detailed container size information should be obtained from your nearest MOLYKOTE® sales office or MOLYKOTE® distributor.

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