# MOLYPAUL

Flow Control – Solid lubricants for the Iron, Steel and Refractory Industry

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**LUBRITECH** Special Application Lubricants

# LUBRICANTS. **TECHNOLOGY.** PEOPLE.

### **FUCHS LUBRITECH – Special Application Lubricants**

We focus consistently on high-quality lubricants and related specialties. We develop innovative and holistic solutions for a wide variety of applications. We value the high level of commitment of our employees and their trusting interaction with one another.

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FUCHS has developed, produced and sold lubricants and related specialties for more than 80 years – for virtually all applications and sectors. With over 100,000 customers and 50 companies worldwide, the FUCHS Group is the world's leading independent lubricant supplier. Within the FUCHS Group, FUCHS LUBRITECH is the expert

## **LUBRITECH** Special Application Lubricants

### Facts and Figures

Company: FUCHS LUBRITECH GmbH, part of the FUCHS Group, based in Kaiserslautern, Germany

LUBRITECH: the Special Application Division of the FUCHS Group Product range: LUBRITECH GROUP offers a full range of more than 1,000 special products, including food grade lubricants, adhesive lubricants, lubricating fluids and greases, pastes, solid film lubricants, concrete release agents, aerosols and metal-forming lubricants Certifications: ISO 9001: 2008, ISO 21469, Halal, Kosher

for Special Application Lubricants. A team of more than 500 specialists around the world work to meet your needs. However demanding the application, we offer a specialised solution. Service is a crucial and fundamental component of our offering. Our experts offer on-site technical consultation to assure performance, efficiency and process reliability.

FUCHS LUBRITECH special application lubricants stand for highest performance and sustainability, safety and reliability, and efficiency and cost savings. They represent a promise: technology that pays back.

# SPECIALITY LUBRICANTS FOR THE IRON, STEEL AND REFRACTORY INDUSTRY

ACTIVITY OF

The high temperatures and pressures as well as the extreme environmental conditions in steelmaking necessitate the use of special lubricants, which are used on high-temperature and pressure-stressed joints and bearings, fastening and motion threads, roller bearings (as minimum quantity lubrication), sliding mechanisms, on the surfaces of ceramic sliding plates, as release assistance for the secondary ceramic components in slide gate systems, gas purge systems and in many other places in the production process.

We offer an extensive product range that comprehensively meets the demands placed and helps steelworks and refractory manufacturers to substantially improve the durability and performance of their products and plants, to decrease downtimes and maintenance work and thus to increase the profitability of their plants. You can rely on our expert knowledge in the fields of development, consulting and support.



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# Product and application range of the **MOLYPAUL® 900 and 700 series**

# Surface coating of ceramic sliding plates

The MOLYPAUL® 900 and 700 product series contain lubricant variants based on synthetic and natural graphites, which are used as coating and parting lubricants in the

production plants of refractory manufacturers and in the "flow control" area of the iron and steel industry.

#### Main fields of application

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- Surface coating of ceramic sliding plates
- Cold surface coating of sealing surfaces of secondary ceramics
- Separation of ceramic wearing parts after use
- Hot-spraying on ceramic surfaces in steelworks
- Coating of casting moulds for the production of prefabricated ceramic components
- Mould release (casting templates), e.g. fireproof ceramic dry-setting mixes
- Coating of continuous casting moulds for start-up assistance and wear protection (continuous casting plants for billets and blooms, slabs and thin slabs)



Spray-coated sliding-plate surface



Surface spray coating of slab mould



Manual surface coating of ceramic sliding plates

Coating with high-performance lubricants improves the durability of the ceramic sliding plates, increases their safety in use in the steelworks and thus contributes to a reduction in maintenance costs and possible downtime



### Surface coating of ceramic linear sliding plate

### MOLYPAUL® 900/50, MOLYPAUL® 900, MOLYPAUL® 919, **MOLYPAUL® 942 FAV**

- Water-based, paste-like products
- Dense, oxidation-resistant wearing layer is created
- Application with a sponge, brush, spatula or fibre roller

Cold coating of sealing surface of ceramic sliding ladle nozzle



(Manuel) ceramic rotary plate coating



Surface coating (spraying) of linear sliding plate

# Ceramic plate coating

### **MOLYPAUL® 912**

- Paste-like product

MOLYPAUL® 950, MOLYPAUL® 930

- Water-based, sprayable products

- semi-automatic spraying device

costs. Thanks to their high resistance to oxidation and a low coefficient of friction, the products from the MOLYPAUL® 900 series make a substantial contribution to this.

• Low-friction, oil-based emulsion for use on rotary sliding valve ceramic plates System-related tolerance differences and surface unevenness are compensated • Lubricant is applied directly after installation into the slide valve mechanism Application with a sponge, brush or fibre cloth

#### Surface coating of linear sliding plate

- · High-performance, abrasion-resistant lubricating film is created
- Surface is low-friction and resistant to oxidation
- Application with a manual spray gun or an automatic or

# Surface coating of secondary ceramic components

## Hot-spraying on ceramic surfaces

The paste-like MOLY-PAUL<sup>®</sup> products fulfil this task, dry out at room temperature after application and close the open pores in the ceramic surface.

The wettability is lowered and prevents the penetration of the grout into the pore structure of the component. The wearing parts and any remaining grout residues are easy to remove.

After spraying, the product developed especially for this application, MOLYPAUL® 994, creates a dense, closed, dry lubrication film with a graphite structure tailored to the application. This decisively reduces the wettability of the ceramic component with respect to the grout/putty used. The efficient exchange of wearing parts is thus ensured.



Cold coating of sealing surface of ceramic sliding ladle nozzle

#### Cold coating of the sealing surface

#### **MOLYPAUL® 900**

- Product is applied to the sealing surface of the ceramic sliding ladle nozzle
- The high release effect enables the easy and quick exchange of the head plate, which is bonded by a grouted joint
- Adhering grout residues can be removed easily and gently; the sleeve durability is positively affected





sliding bottom plate

Hot-spraving, sealing surface sliding plate / exchangeable nozzle



Cold coating of the wellbloc mounting cone

#### Cold coating of the well block mounting cone

#### **MOLYPAUL® 900**

- Wettability of the ceramic surface is reduced
- After use the components (sliding nozzles, porous plug) can be removed quickly and cleanly
- Adhering mortar release can be removed easily; the nozzle brick durability is positively affected

### MOLYPAUL® 994

- Water-based solid lubricant, especially for spray application to hot surfaces
- Release function of the ceramic components, which are connected via mortar joints
- Application with a low-maintenance, pneumatically operated manual spray gun (Easy Spray Gun)
- Closed, low-friction lubricating film with high release effect is created

Particular importance is attached to fine atomisation when spraying. The liquid content of the lubricant serves as a carrier material, which ensures the optimum distribution of the parting substances on the hot ceramic surfaces by spraying. The "Easy Spray Gun" manual spray gun is ideal for the application. No smoke or odours are generated during the application.





Hot-spraying, sealing surface exchangeable nozzle / ladle-shroud

#### Spraying areas:

- Plate surfaces
- Ladle nozzle / exchangeable nozzle sealing surface
- Ladle nozzle brick holding cone /sliding sleeve and porous plug
- Tundish bottom nozzle / submerged entry nozzle

# **Coating of continuous casting moulds**

# Release of fireproof ceramic products, casting templates and moulds

The MOLYPAUL<sup>®</sup> products are easy to apply without drips. A self-contained lubricating film with excellent sliding properties is formed. The lubricant application

enables the time-delayed use of the standard oil lubrication during the initial casting phase. The danger of deflagrations is minimised.

The MOLYPAUL<sup>®</sup> products can be applied without drips and enable clean demoulding. The moulded article remains free of unwanted discolourations and the mould is ready for



Continuous casting mould for billets coating with fibre roller



Coating with a spray device

#### Continuous casting plants for slabs and thin slabs

Continuous casting plant for billets and blooms

under the influence of temperature

the danger of deflagrations is minimised

Applied using fibre cushions or a fleece roller

Paste-like, non-dripping lubricant on a graphite basis

#### **MOLYPAUL® 750**

MOLYPAUL® 783

Easy to apply

- Sprayable, ready to use and aqueous suspension
- · Forms a resistant dry lubricating film on ambient-temperature with a high release effect

• A compact lubricating film with a low coefficient of friction is created

Shell formations on the mould walls are effectively prevented

Replaces the standard oil lubrication during initial casting;

- Low coefficient of friction and high abrasion resistance ensure a smooth start-up of the dummy bar and protect the metal moulds against scoring and wear during insertion
- Service life of the mould is prolonged
- Applied using spraying apparatus, a fibre roller or a fibre pad



#### **MOLYPAUL® 959**

Casting mould for the production of cast ceramic components

### **Release of casting templates**

### CEPLATTYN TL

- Sprayable, silver-coloured suspension of an oil emulsion with metallic solid lubricants with a high release effect
- Coating, for example of tundish templates, which are used in connection with ceramic dry setting mixes

Spray-coating of a mould







the next use without the necessity for extensive cleaning. Multiple use of the casting mould is possible, since a new coating often doesn't have to be applied before each use.

#### Release of fireproof ceramic casting products

- Cream-coloured liquid emulsion
- Non-hardening, non-dripping release layer forms
- No discolourations are formed on the ceramic moulded articles
- Usable on all mould materials
- Application with artist's brush, fibre roller or spray gun

Applied using spraying apparatus with a high spraying performance

# **Overview of products and applications**

Product name	Description	Features	Application by means o
MOLYPAUL® 900/50	Paste-like, water-based lubricant on a graphite basis for the surface coating of ceramic sliding plates	<ul><li>Ready-to-use</li><li>Oxidation-resistant</li></ul>	<ul><li>Fibre roller</li><li>Sponge</li><li>Fibre cloth</li><li>Brush</li></ul>
MOLYPAUL® 900	Paste-like, water-based lubricant on a graphite basis for the surface coating of ceramic sliding plates, release of ceramic components; application to cold surfaces	<ul><li>Ready-to-use</li><li>Low-friction</li><li>Oxidation-resistant</li></ul>	<ul><li>Fibre roller</li><li>Sponge</li><li>Fibre cloth</li><li>Brush</li></ul>
MOLYPAUL <sup>®</sup> 912	High-viscosity, oil-based lubricant on graphite basis, for the surface coating of ceramic rotary sliding plates	<ul> <li>Ready-to-use</li> <li>Low-friction</li> <li>Oxidation-resistant</li> <li>Compensation of unevenness</li> </ul>	<ul><li>Fibre roller</li><li>Sponge</li><li>Fibre cloth</li><li>Brush</li></ul>
MOLYPAUL <sup>®</sup> 919	Paste-like, water-based lubricant on a graphite basis for the surface coating of ceramic sliding plates	<ul> <li>Ready-to-use</li> <li>Low-friction</li> <li>Oxidation-resistant</li> <li>Abrasion-resistant</li> </ul>	<ul><li>Fibre roller</li><li>Sponge</li><li>Fibre cloth</li><li>Brush</li></ul>
MOLYPAUL <sup>®</sup> 930	Aqueous dispersion, based on a special combination of solid lubricants and a tuned additive package for the surface coating of ceramic sliding plates and as a mould release agent in foundries	<ul> <li>Sprayable</li> <li>Low-friction</li> <li>High surface adhesion</li> <li>Oxidation-resistant</li> <li>Abrasion-resistant</li> </ul>	<ul><li>Fibre roller</li><li>Sponge</li><li>Spraying device</li></ul>
Molypaul® 942 Fav	High-viscosity, water-based compensating lubricant paste on a graphite basis for the surface priming of ceramic sliding plates and as a basic lubricant in connection with a multiple coating	<ul><li>Low shrinkage effect</li><li>Closes open surface pores</li><li>High adhesion</li></ul>	Spatula
MOLYPAUL® 950	Aqueous dispersion on a graphite basis for the surface coating of ceramic sliding plates	<ul> <li>Sprayable</li> <li>Low-friction</li> <li>Oxidation-resistant</li> <li>Abrasion-resistant</li> </ul>	<ul><li>Fibre roller</li><li>Sponge</li><li>Spraying device</li></ul>
Molypaul® 994	Aqueous dispersion on a graphite basis for the separation of ceramic products; hot-spray application	<ul> <li>Sprayable</li> <li>high releasing effect</li> <li>Low-friction</li> <li>Closed graphite veil</li> </ul>	<ul> <li>Manual spray gun</li> </ul>
Molypaul® 783	Soft, paste-like lubricant on a graphite basis, suitable for the coating of all mould types and materials	<ul> <li>Ready-to-use</li> <li>High releasing effect</li> <li>Low consumption</li> <li>Abrasion-resistant</li> <li>Inhibits infiltration</li> <li>Low-friction</li> </ul>	Fibre roller
MOLYPAUL <sup>®</sup> 750	Aqueous dispersion on a graphite basis for the coating of continuous casting moulds (slab, thin slab)	<ul> <li>Sprayable</li> <li>High releasing effect</li> <li>Abrasion-resistant</li> <li>Adhesion to metallic surfaces</li> <li>Low-friction</li> </ul>	<ul><li>Fibre roller</li><li>Spraying device</li><li>Fibre pad</li></ul>
MOLYPAUL® 959	Graphite-free, non-hardening, cream-coloured liquid emulsion for the separation of casting moulds for the manufacture of prefabricated ceramic components	<ul> <li>High releasing effect</li> <li>Non-dripping</li> <li>No colouring</li> <li>Biodegradable</li> <li>Suitable for all types of mould</li> </ul>	<ul><li>Sponge</li><li>Brush</li><li>Manual spray gun</li></ul>
CEPLATTYN TL	Graphitic silvery suspension of an oil emulsion with metallic solid lubricants for the separation e.g. of tundish templates (dry setting mixes)	<ul><li>Sprayable</li><li>High releasing effect</li></ul>	Spraying device
EASY SPRAY GUN	Compressed air operated, hand held gun made of hard plastic with metallic extension tube for spraying aqueous MOLYPAUL® products	<ul><li>Sturdy construction</li><li>Spraying amount adjustable</li></ul>	Compressed air

#### Container availability



### **FUCHS LUBRITECH – Special Application Lubricants**

# Innovative lubricants need Experienced application engineers

Every lubricant change should be preceded by expert consultation on the application in question. Only then the best lubricant system can be selected. Experienced LUBRITECH engineers will be glad to advise on products for the application in question and also on our full range of lubricants.



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