

**MOLYKOTE®**

**DUPONT™**

# **MOLYKOTE® Anti-Friction Coatings**

*Smart Lubrication™* solutions for automotive and industrial applications



## Table of contents

- 2 Introduction to MOLYKOTE® and anti-friction coatings
- 6 Solutions for a wide range of applications
- 10 Product line selection
- 10 Selected coatings for corrosion protection
- 11 Friction values and specific properties
- 12 Application process
- 13 The coating process
- 14 Automotive application-driven benefits
- 15 Industrial application-driven benefits
- 16 How to contact us

# Legendary performance for today and tomorrow



*In 1948, American scientist Alfred Sonntag introduced the world's first molybdenum disulfide (MoS<sub>2</sub>) lubricants – MOLYKOTE® brand – and began a rich history of customer-driven performance and materials innovation.*

For more than 70 years, MOLYKOTE® has been a trusted partner, helping engineers and manufacturers meet some of the world's toughest technical design and lubrication challenges. Now, with the addition of DuPont's technologies and expertise, we are even better positioned to create solutions for emerging trends.

We continually invest in technology and product innovation to support customers' changing needs. Working side by side with our customers, MOLYKOTE® is forging the future of specialty lubrication with:

- A broad range of trusted, technology-driven specialty lubricant chemistries
- Application expertise and technical support from internationally recognized lubrication experts
- Anti-friction coating (AFC) solutions to meet megatrend needs and provide sustainable and efficient solutions
- Innovative combination of tribology and material science for wet and dry lubrication





## High-value, high-performance long-term lubrication

Often described as “lubricating paints,” MOLYKOTE® AFCs contain solid lubricants – rather than coloring pigment – dispersed through carefully selected resin blends and solvents. The choice of raw materials and the concentration of each ingredient are important to the application-based customization of each coating.

MOLYKOTE® AFCs form a dry film and optimize friction of metal, plastic and elastomer parts – even under intense loads and harsh operating and environmental conditions.

The coatings are easy to apply by spraying, brushing, dip-spinning, roll-coating or screen printing. After curing, the bonded, dry lubricating film provides durable wear protection with a certain level of corrosion protection and resists dust and contamination.

This makes MOLYKOTE® Anti-Friction Coatings ideal for use in dirty, dusty and humid environments and on inaccessible parts that require long-term lubrication. Economical to apply, long-lasting and valued in uses where other lubricants fail, MOLYKOTE® AFCs provide:

- Dry, clean lubrication unaffected by dust, dirt and moisture
- Lifetime lubrication without aging, evaporation or oxidation

- Rust prevention without surface treatments (e.g., galvanizing)
- Nonflammable, nonstaining protection on metals, plastics and elastomers
- Controlled film thickness for exact load-bearing capabilities
- Fully effective lubrication, even after prolonged shutdown

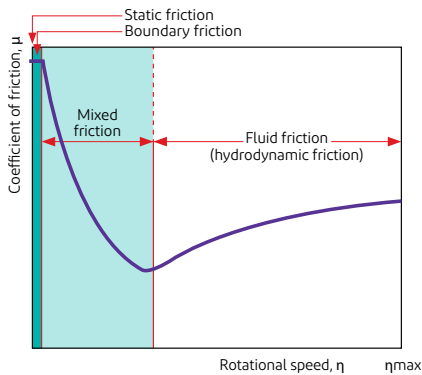
MOLYKOTE® Anti-Friction Coatings help customers improve safety, reliability and performance by controlling friction and wear, preventing component failures, extending lubrication intervals, and reducing production and operating costs.



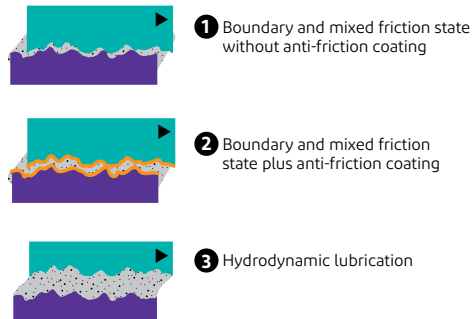
# Delivering results in tough conditions

## Operating principles and conditions

MOLYKOTE® Anti-Friction Coatings are particularly effective in boundary friction and mixed friction states, as illustrated in the Stribeck curve (Figure 1). In these states, direct metal-to-metal contact and wear take place because fluid hydrodynamic lubrication cannot be realized.



**Figure 1.** The Stribeck curve: Friction between surfaces as a function of viscosity, speed and load.

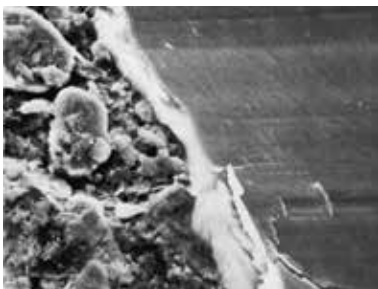


**Figure 2.** Different lubricants are used to meet the requirements of different regimes. AFCs are particularly effective in boundary and mixed friction states.

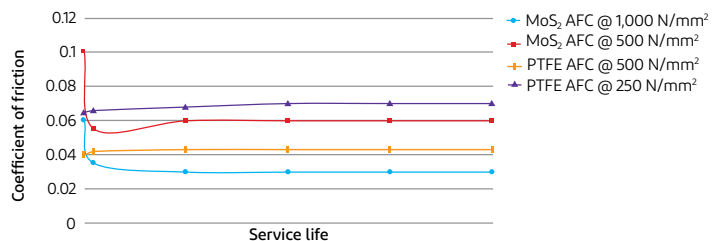
In MOLYKOTE® AFCs, the solid lubricants are kept on the substrate surface by the bonding force of the resin package so the surfaces are always separated by an effective dry film – whether under very low speeds, oscillating movements or high loads. MOLYKOTE® Anti-Friction Coatings also can support hydrodynamic lubrication as an agent to improve running-in. In addition, AFCs provide lubricity in case of hydrodynamic film breakdown.

## Typical running-in effect and friction value

Anti-friction coatings generally are applied at 10-20  $\mu\text{m}$  dry film thickness. Under load, the structure of the film is compacted, producing an extremely smooth surface covering the asperities of the carrier material (Figure 3). Coefficient of friction values of  $\text{MoS}_2$ -based anti-friction coatings are compared to PTFE-based coatings in Figure 4. The coefficient of friction value of  $\text{MoS}_2$ -based coatings drops after a short running-in phase.



**Figure 3.** SEM photograph with 1,000x magnification:  $\text{MoS}_2$  anti-friction coating before (left) and after (right) load application.



**Figure 4.** Typical friction values of  $\text{MoS}_2$ - and PTFE-based anti-friction coatings under different loads, measured with the LFW1 test machine – ASTM D2714 method.



## Innovating through collaborative application engineering

MOLYKOTE® Anti-Friction Coatings offer fine-tuned solutions enabled by a customer-oriented development process – made possible by our network of global collaboration and technical development centers equipped with the latest tribological and analytical technology. When customers work together with us, they have the full benefit of our:

- Tribology testing capabilities, from standard data sheet test methods to custom-designed test rigs to match specific customer applications
- Equipment to replicate part movement across a wide range of loads, environmental conditions, temperatures and speeds (LETS) to assist with all stages of development – from prototype to production and maintenance
- In-house coating research and development
- Deep knowledge in resin and solid lubricant technology
- Regional experts who translate customer application challenges into measurable lubricant solutions

In addition, we provide support for coating-line designs, process improvements and coating-shop recommendations. Combining DuPont™ resins with MOLYKOTE® lubricant expertise and advanced formulations will help us to develop better solutions for emerging trends and challenges.

## Solutions for a wide range of applications

As fail-safe lubricants, MOLYKOTE® Anti-Friction Coatings are valued by the world's leading engineers and manufacturers and are trusted for uses where maximum wear endurance is needed in a wide variety of applications – from increasingly electrified, autonomous and energy-efficient vehicles to industrial challenges where functionality, connectivity, safety and sustainability are critical.

Together, we can create lubrication solutions for your specific automotive and industrial applications. The next few pages highlight common application examples of MOLYKOTE® Anti-Friction Coatings.





### Piston skirt coating

MOLYKOTE® D-10-GBL Anti-Friction Coating  
 MOLYKOTE® D-6024 Anti-Friction Coating  
 MOLYKOTE® PA 744 Anti-Friction Coating

*For enhanced durability and emergency lubrication on pistons and piston rings; reduces noise and scuffing while increasing efficiency and fuel economy; screen-printable*



### Starter motor anchors

MOLYKOTE® D-6600 Anti-Friction Coating

*Low friction for lifetime durability of metal/metal pairings; suitable for start-stop systems*



### Exhaust manifold gaskets

MOLYKOTE® D-6900 Anti-Friction Coating  
 MOLYKOTE® D-7620 Anti-Friction Coating

*Improves sealing properties and avoids microseizing at high temperatures to meet Euro 6 norm; enables easier disassembly; designed for coil and roller coating*



### Lock mechanisms, lock-catching plates and locking levers, safety hooks

MOLYKOTE® 3400A LF Anti-Friction Coating  
 MOLYKOTE® D-708 Anti-Friction Coating

*Long-term lubrication and corrosion protection; not affected by dust*



### Door panels, armrests, consoles, interior trim

MOLYKOTE® D-96 Anti-Friction Coating  
 MOLYKOTE® D-9630 Anti-Friction Coating

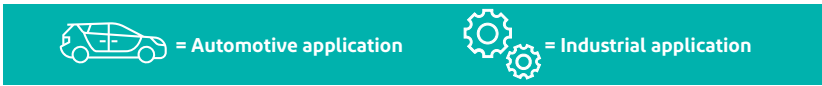
*Lifetime anti-noise performance in cases where unfavorable material pairings are combined; when used as a replacement for nonwoven tape, it eliminates squeaks and rattles and represents an economical solution*



### Seat belt components

MOLYKOTE® D-6600 Anti-Friction Coating  
 MOLYKOTE® D-708 Anti-Friction Coating

*Low-friction dry lubrication for lifetime durability of metal/metal pairings; nonstaining*





 **Caliper springs and brake clips**

MOLYKOTE® D-708 Anti-Friction Coating  
 MOLYKOTE® D-709 Anti-Friction Coating

*Dry lubrication of steel springs in caliper brake pad sliding guides; works alongside a dry lubricant as an insulating anti-corrosion coating*



 **Air conditioner swash plates**

MOLYKOTE® D-6818 Anti-Friction Coating  
 MOLYKOTE® D-7409 Anti-Friction Coating

*Excellent lubrication performance; high wear resistance; efficient processability; excellent chemical resistance*



 **Air conditioner pistons**

MOLYKOTE® D-6927 Anti-Friction Coating

*Excellent lubrication performance; excellent chemical resistance to refrigerant and compressor oil; high wear resistance at mild conditions; efficient processability*



 **Gears**

MOLYKOTE® D-7409 Anti-Friction Coating  
 MOLYKOTE® 7400 Anti-Friction Coating  
 MOLYKOTE® D-321 R Anti-Friction Coating

*High load-carrying capacity for running-in protection of heavily loaded gear sets*



 **Threaded connections**

MOLYKOTE® D-708 Anti-Friction Coating  
 MOLYKOTE® D-3484 Anti-Friction Coating

*Defined, constant friction levels and corrosion protection for bolts, studs and nuts*



 **Chains**

MOLYKOTE® D-7409 Anti-Friction Coating  
 MOLYKOTE® D-3484 Anti-Friction Coating  
 MOLYKOTE® D-321 R Anti-Friction Coating

*Long-life friction reduction for pins (MOLYKOTE® D-7409 Anti-Friction Coating, MOLYKOTE® D-3484 Anti-Friction Coating); reliable lubrication for complete chains (MOLYKOTE® D-321 R Anti-Friction Coating)*





### Springs

MOLYKOTE® D-321 R Anti-Friction Coating  
MOLYKOTE® D-3484 Anti-Friction Coating  
MOLYKOTE® D-7409 Anti-Friction Coating

*Friction reduction to eliminate stick-slip and increase efficiency*



### Valves

MOLYKOTE® D-7409 Anti-Friction Coating

*Operating efficiency; eliminates stick-slip; high chemical and fluid resistance*



### General assembly

MOLYKOTE® D-321 R Anti-Friction Coating  
MOLYKOTE® 3402-C LF Anti-Friction Coating

*Powerful dry-film lubricants for easy assembly of sliding parts; MOLYKOTE® 3402-C LF Anti-Friction Coating additionally offers good corrosion protection; MOLYKOTE® D-321 R Anti-Friction Coating also is available in spray cans*



### Rubber and plastic components, such as O-rings and seals

MOLYKOTE® D-9100 Anti-Friction Coating

*Translucent dry-film coating for rubber and plastic components; reduces and controls friction, wear and noise; flexible coating withstands part elongation; excellent adhesion; long service life; high productivity and processing speed with UV curing*

# Product selection

MOLYKOTE® Anti-Friction Coating	Substrate			Pairings <sup>(1)</sup>	Load-carrying capacity, MPa	Solid lubricant	Service temperature range, °C	Environment	
	Metal	Plastic	Elastomer					Wet/dry <sup>(2)</sup>	Oil/fuel resistance
D-7409	✓			M/M	High	MoS <sub>2</sub>	-70 to 300	Dry	+
D-7620	✓			M/M	High	MoS <sub>2</sub>	-70 to 300	Dry	+
3400A LF	✓			M/M	High	MoS <sub>2</sub>	-200 to 430	Dry	+
D-6900	✓			M/M	High	MoS <sub>2</sub>	-60 to 700 <sup>(3)</sup>	Dry	+
106	✓			M/M	High	MoS <sub>2</sub>	-70 to 250	Dry	o
D-3484	✓			M/M	High	MoS <sub>2</sub>	-70 to 250	Dry	o
D-321 R	✓	✓	✓	M/M	High	MoS <sub>2</sub>	-180 to 450	Dry	-
7400	✓			M/M	High	MoS <sub>2</sub>	-70 to 200	Dry	-
3402-C LF	✓			M/M	High	MoS <sub>2</sub>	-200 to 315	Dry	o
D-10-GBL	✓			M/M	Medium	Graphite	-40 to 340	Wet	+
D-6024	✓			M/M	Medium	MoS <sub>2</sub>	-40 to 310	Wet	+
PA 744	✓			M/M	Medium	MoS <sub>2</sub>	-75 to 300	Wet	+
D-6818	✓			M/M	Medium	MoS <sub>2</sub>	-60 to 240	Wet/dry	+
D-6927	✓			M/M	Medium	PTFE	-60 to 240	Wet/dry	+
D-7405	✓			M/M, M/P	Medium	Synthetic	-70 to 200	Dry	+
D-6600	✓			M/M, M/P, M/E	Medium	PTFE	-40 to 260	Dry	+
D-708	✓			M/M, M/P, M/E	Medium	PTFE	-180 to 240	Dry	+
D-709	✓			M/M, M/P, M/E	Medium	PTFE	-180 to 240	Dry	+
D-96		✓		P/P, P/M, P/E	Low	PTFE	-40 to 150	Dry	o
D-96 UV		✓		P/P, P/M, P/E	Low	PTFE	-40 to 150	Dry	o
D-9630		✓		P/P, P/M, P/E	Low	PTFE	-40 to 120	Dry	o
D-9100		✓	✓	P/P, P/M, P/E, E/P, E/M, E/E	Low	PTFE	-40 to 120	Dry	-

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

<sup>(1)</sup>M = metal; P = plastic; E = elastomer. The first letter listed in each pairing indicates the substrate that is coated with the anti-friction coating.

<sup>(2)</sup>Preferred working conditions.

<sup>(3)</sup>Without oxygen present.

## Selected coatings for corrosion protection

Type of coated surface	Plane steel plate		Edged part	
Pretreatment	Zn-phosphating			
Application method	Spraying		Dip-spinning	
MOLYKOTE® Anti-Friction Coating	AFC film thickness, µm	Time to red rust, hr	AFC film thickness, µm	Time to red rust, hr
D-7409	15	250	—	—
3400A LF	12-15	600	10-12	240
3402-C LF	10-12	72	—	—
D-6600	10-12	600	10	360
D-708	12	600	10-12	240

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

Testing procedure: ISO 9227 salt spray test.

Because corrosion protection performance depends on the geometry of the parts (plane or edged), pretreatment, application process, and film thickness, MOLYKOTE® recommends running tests on original parts and industrial application processes before setting specifications.

# Friction values and specific properties

MOLYKOTE® Anti-Friction Coating	Friction value					Specific properties
	Conditions <sup>(1)</sup>	Coefficient of friction <sup>(2)</sup>	Material pairing <sup>(3)</sup>	Tribological contact	@ pressure, MPa	
D-7409	Dry	0.070	M/M	Linear	550	High load-carrying capacity, low friction, oil/fuel resistance
D-7620	Dry	0.080	M/M	Linear	550	High load-carrying capacity, low friction, oil/fuel resistance
3400A LF	Dry	0.060	M/M	Linear	550	High load-carrying capacity, low friction, corrosion protection
D-6900	Dry	0.055	M/M	Linear	550	High load-carrying capacity, low friction, high-temperature resistance
106	Dry	0.060	M/M	Linear	550	High load-carrying capacity, low friction
D-3484	Dry	0.065	M/M	Linear	550	High load-carrying capacity, low friction, quick curing schedule
D-321 R	Dry	0.060	M/M	Linear	550	High load-carrying capacity, low friction, electrical conductivity
7400	Dry	0.060	M/M	Linear	550	High load-carrying capacity, low friction, water-based, air-curing
3402-C LF	Dry	0.050	M/M	Linear	550	High load-carrying capacity, low friction, air-curing, corrosion protection
D-10-GBL	Wet	0.100	M/M	Linear	200	Oil-/fuel-resistant, emergency and wet lifetime lubrication
PA 744	Wet	0.045	M/M	Point	550	Oil-/fuel-resistant, emergency and wet lifetime lubrication
D-6024	Wet	0.047	M/M	Linear	180	Oil-/fuel-resistant, emergency and wet lifetime lubrication
D-6818	Dry	0.060	M/M	Area	2.5	Oil-/fuel-resistant, high durability under harsh conditions
D-6927	Dry	0.090	M/M	Linear	250	Oil-/fuel-resistant, anti-wear performance at low pressures
D-7405	Dry	0.090	M/M	Linear	250	Low friction at low/medium pressures, oil resistance
		0.110	P/M	Point	60	
D-6600	Dry	0.065	M/M	Linear	250	Low friction at low/medium pressures, corrosion protection
		0.060	M/P	Point	60	
D-708	Dry	0.090	M/M	Linear	250	Low friction at low/medium pressures, corrosion protection, black finish
		0.100	M/P	Point	60	
D-709	Dry	0.080	M/M	Linear	250	Low friction at low/medium pressures, corrosion protection
		0.080	M/P	Point	60	
D-96	Dry	0.200	P/P	Area	NA	Lifetime anti-noise, low friction at low/medium pressures
D-96 UV	Dry	0.200	P/P	Area	NA	Lifetime anti-noise, low friction at low/medium pressures, UV tracing
D-9630	Dry	0.100	P/P	Linear	4	Lifetime anti-noise, low friction at low/medium pressures, high plastic compatibility
D-9100	Dry	0.700	NBR/M	Point	2	UV curing, low friction at low pressures, nonstick
		0.500	EPDM/M			

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

<sup>(1)</sup>Wet = mixed friction conditions in presence of engine oil; Dry = dry conditions.

<sup>(2)</sup>Because the coefficient of friction is influenced by material pairing, tribological contact, load, speed and temperature, MOLYKOTE® recommends running trials on original parts and components before setting specifications.

<sup>(3)</sup>M = metal; P = plastic; NBR = nitrile butadiene rubber; EPDM = ethylene propylene diene monomer rubber. The first letter listed in each pairing indicates the substrate that is coated with the anti-friction coating.

# Application process

MOLYKOTE® Anti-Friction Coating	Application process	Flash point, °C	Curing conditions	Color (dry film)	Surface coverage @ film thickness, m <sup>2</sup> /kg	Diluent (MOLYKOTE® Thinner unless otherwise noted)
D-7409	Spraying	35	Heat	Dark gray	16 @ 10 µm	7415
D-7620	Coil-coating	40	Heat	Dark gray	17 @ 12 µm	7415
3400A LF	Spraying, dip-spinning	10	Heat	Dark gray	16 @ 10 µm	L-13
D-6900	Coil-coating	10	Heat	Dark gray	21 @ 12 µm	L-13
106	Spraying, dip-spinning	30	Heat	Dark gray	19 @ 10 µm	L-13
D-3484	Spraying, dip-spinning	26	Heat	Dark gray	20 @ 10 µm	L-13
D-321 R	Spraying	23	Air	Dark gray	8 @ 10 µm	L-13
7400	Spraying, dip-spinning	None	Air	Dark gray	15 @ 10 µm	Water
3402 C LF	Spraying	15	Air	Dark gray	12 @ 10 µm	L-13
D-10-GBL	Screen printing	77	Heat	Dark gray	15 @ 20 µm	On request
D-6024	Screen printing	29	Heat	Dark gray	18 @ 15 µm	7415
PA 744	Screen printing	57	Heat	Dark gray	19 @ 15 µm	7415
D-6818	Spraying	44	Heat	Dark gray	17 @ 10 µm	7415
D-6927	Spraying	61	Heat	Dark gray	14 @ 10 µm	7415
D-7405	Spraying, dip-spinning after thinning	50	Heat	Light yellow	30 @ 10 µm	7415
D-6600	Spraying, dip-spinning	26	Heat	Light yellow	20 @ 10 µm	L-13
D-708	Spraying, dip-spinning, dipping	0	Heat	Black	20 @ 10 µm	L-13
D-709	Spraying, dip-spinning	0	Heat	Light gray	20 @ 10 µm	L-13
D-96	Spraying	None	Air	Translucent	23 @ 10 µm	Water
D-96 UV	Spraying	None	Air	Translucent	23 @ 10 µm	Water
D-9630	Spraying	None	Air	Translucent	34 @ 10 µm	Water
D-9100	Spraying	None	UV	Transparent	28 @ 10 µm	Water

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

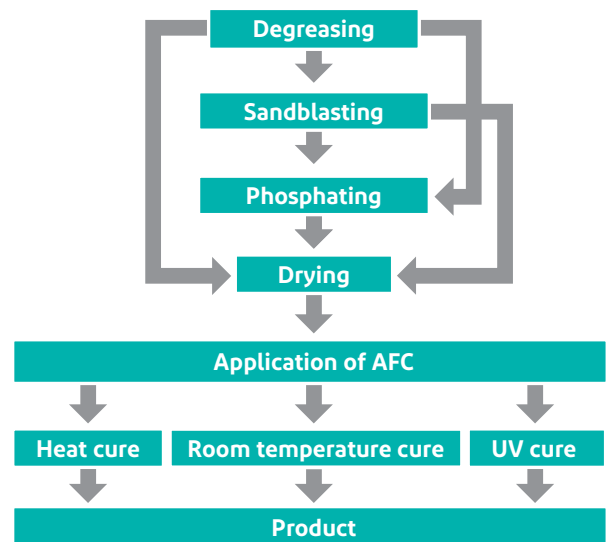


# The coating process

To ensure the effectiveness and full service life of MOLYKOTE® Anti-Friction Coatings, a proper coating process must be followed (Figure 5). Surface pretreatment plays a key role in coating service life and performance. Depending on the material, this can include processes such as solvent sonication, degreasing, media blasting, detergent washing, phosphating, anodizing, acid washing, e-coating, corona/ plasma treatment and others (Figure 6).

Once the pretreated parts are dry and clean, different methods – varying by part geometry, weight, quantity and coating liquid viscosity – can be used to apply the anti-friction coating, including dip spinning, tumble spraying, HVLP spraying, screen printing, brushing, rolling and coil-coating.

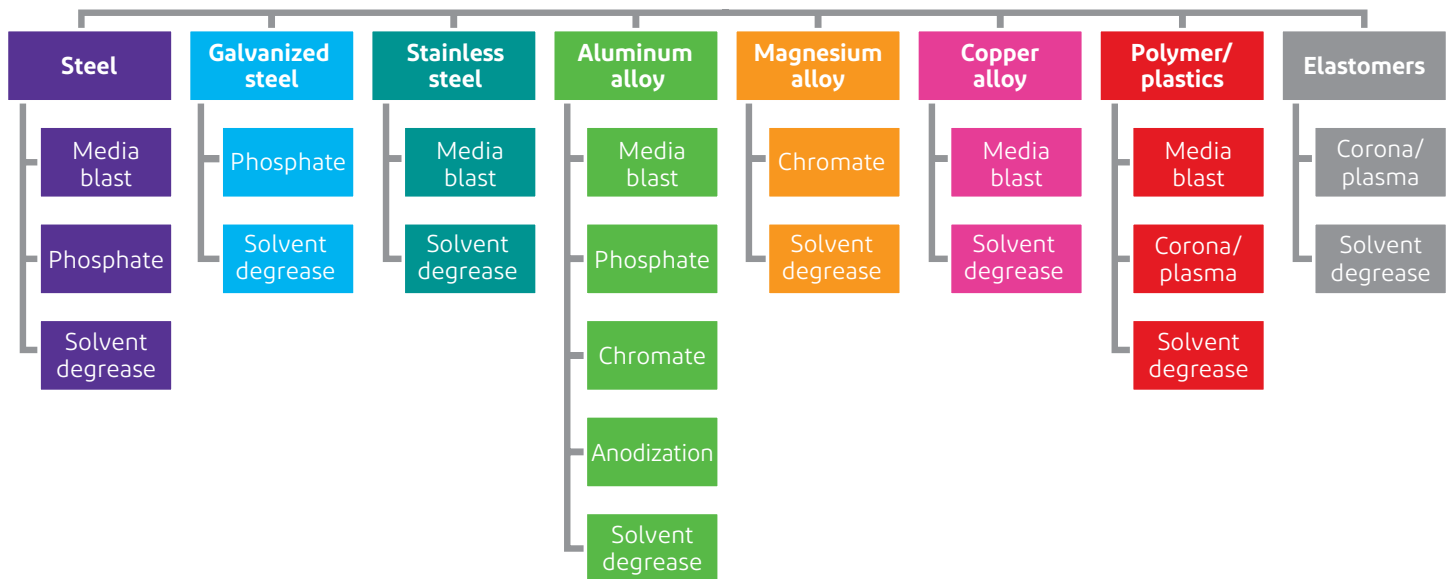
Once coating is applied to the substrate, a curing process is required. Time to cure (from 2 to 90 minutes) and temperature needed (from ambient temperature up to 250°C) can vary, depending on the cure mechanism (heat, air or UV).



**Figure 5.** Typical steps for using anti-friction coatings on steel.

# Pretreatment methods

**Figure 6.** Depending on the material, there are many pretreatment methods that can be used to clean the surface and prepare it for coating.



# AFCs for automotive application needs

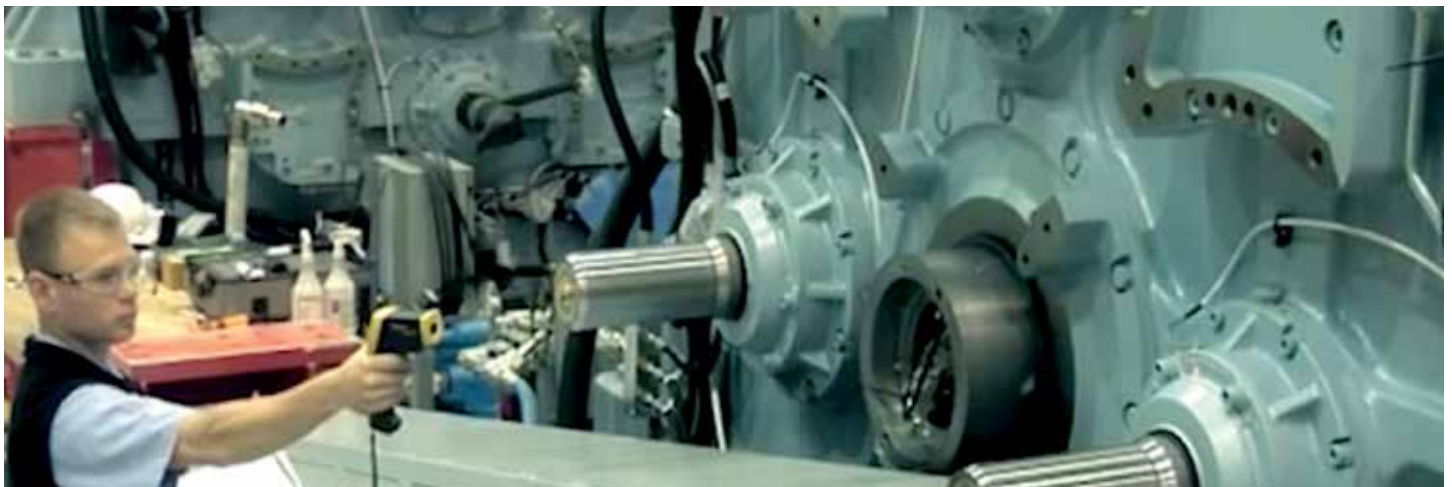
Application	MOLYKOTE® Anti-Friction Coating	Running-in optimization	Emergency lubrication	Corrosion protection	Fuel/oil resistance	Anti-seizing	Stick-slip elimination	Specific benefits
<b>Powertrain</b>								
Pistons	D-10-GBL D-6024 PA 744	✓	✓		✓			
Tappets	D-7409	✓	✓		✓			
O-rings	<b>Rubber:</b> D-9100 <b>Metal:</b> 3400A LF					✓	✓	
Cylinder head gaskets	D-7620				✓	✓		Separating layer
Starter motor anchors	D-6600		✓	✓				
Exhaust manifold gaskets	D-6900				✓	✓		Microsealing, acid resistance, coolant resistance
Gears	7400 D-7409	✓			✓			
Bushings	D-7409	✓			✓			
Thrust washers	D-7409	✓			✓			
<b>Chassis</b>								
Ball joints				✓	✓		✓	
Bushings	D-6600			✓				
Rods	D-708			✓				
Fasteners				✓				
Spline shafts	7400					✓		
Crash tubes	D-708					✓	✓	
<b>Brake systems</b>								
Springs, clips	D-708 D-7405			✓		✓	✓	Insulation properties
Spindles (EPB)	D-708 D-6600		✓	✓	✓		✓	
<b>Exterior</b>								
Closures, lock mechanisms	3400A LF D-708 D-7409			✓				Suitable as topcoat for zinc-plating
Sunroof rails, guides	D-708 D-6600			✓	✓			
Hinges	3400A LF			✓			✓	
<b>Interior</b>								
Door panels, armrests, consoles, interior trim	D-96 D-96 UV D-9630						✓	Air-curing
Rubber/plastic components	D-9100						✓	UV-curing
Seat belt components	D-6600			✓			✓	Nonstaining
Springs	106 D-3484 D-6600						✓	Nonstaining
Spindles	106		✓					
<b>HVAC</b>								
Pistons	D-6927		✓		✓			
Swash plates	D-6818		✓		✓			

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

# AFCs for industrial application needs

Application	MOLYKOTE® Anti-Friction Coating	Running-in optimization	Emergency lubrication	Corrosion protection	Fuel/oil resistance	Anti-seizing	Stick-slip elimination	Assembly aid
<b>Bearings</b>								
Sliding bearings	D-6600		✓	✓	✓	✓		
<b>Chains</b>								
Pins	D-7409 D-3484		✓				✓	
Chains	D-321 R					✓		
<b>Gears</b>								
Gears	7400 D-7409	✓			✓			
Gear racks	D-7409	✓			✓			
<b>Threaded connections</b>								
Bolts, nuts, studs	D-708 D-3484			✓				
Petroleum casing pipes	3402-C LF					✓		
<b>Springs</b>								
Cup, helical	D-321 R D-3484 D-7409					✓	✓	✓
<b>Seals</b>								
Static, dynamic	D-9100					✓		✓
<b>Shaft/hub connections</b>								
Shrink discs	3402-C LF D-321 R					✓	✓	✓
Splined shafts	D-7409 D-3484						✓	
<b>Other applications</b>								
Telescopic booms	D-7409 D-321 R						✓	
Temperature control units of heating systems	D-6600 D-708						✓	
Valves, pumps	D-7409				✓		✓	
General assembly, maintenance	D-321 R	✓				✓	✓	✓

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



# How to contact us

## Asia Pacific

*Bangkok, Thailand*  
66 2 6594000

*Melbourne, Australia*  
+61 3 9935 5666

*Mumbai, India*  
+18004190899

*Seoul, South Korea*  
82 2 2222 5200

*Shanghai, China*  
400 885 1888  
400 661 2629

*Tokyo, Japan*  
+81362058900

## Europe, Middle East, Africa (EMEA)

*Mechelen, Belgium*  
+800 3876 6838

## Latin America

*Barueri, Brazil*  
+55 (11) 0800 171715

*Buenos Aires, Argentina*  
+0800 333 8766

*Mexico City, Mexico*  
+01800 849 7514

## North America

*Midland, Michigan, USA*  
& *Wilmington, Delaware, USA*  
+1 833 338 7668 (U.S.)  
+1 800 387 2122 (Canada)



MOLYKOTE® solutions are available through a distributor network of more than 3,000 channel partners around the globe. To learn more about our extensive product and service offering and to find a distributor near you, visit [molykote.com](http://molykote.com).

## MOLYKOTE®



DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted.  
© 2020 DuPont.

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.