MOLYKOTE®

DUPONT™

Smart Lubrication™

for vehicle powertrain systems

Design for increasing propulsion efficiency

Meet your critical lubrication requirements for advanced powertrain design with MOLYKOTE® brand specialty lubricants from DuPont. With our in-depth expertise, a heritage of innovation, problem-solving collaboration, and reliable global supply and technical support, these high-performance *Smart Lubrication*™ solutions are precisely formulated and application-matched to help you achieve:

- **Energy efficiency** with reduced friction losses and increased wear control
- **Comfort and design** with enhanced smoothness and reduced noise and vibration
- **Safety** with added component reliability, less wear and more corrosion resistance
- **Sustainability** with increased process efficiency and durable component service life

Design for increasing propulsion efficiency with a choice of MOLYKOTE® brand *Smart Lubrication*™ solutions:

- **Greases** with special additives to resist water washout, evaporation or oxidation
- **Silicone compounds** for light-load lubricating and sealing in extreme temperatures
- **Anti-seize pastes** with high levels of lubricating solids for heavy loads and slow speeds
- **Anti-friction coatings** for clean dry-film lubrication to control friction, wear and noise
- **Solids and powders** for plastics lubrication and specialized friction-control additives
- **Oils and dispersions** with performance additives in synthetic or mineral blends

Innovate with smart science

Proven, effective MOLYKOTE® brand *Smart Lubrication*™ solutions can help you meet vehicle powertrain systems design goals for propulsion efficiency innovation:

Reduce engine and driveline friction, wear and NVH
- Piston skirts and rings
- Camshafts, tappets
- Dual-mass flywheels (DMFW)
- Transmission actuators
- Constant-velocity joints (CVJs)
- Ball joints, universal joints

Provide lifetime lubrication for difficult-to-access components
- Alternator and fan clutch bearings
- Starter motor gears, over-running clutches
- Actuators

Insulate and protect against moisture
- Glow plug controllers
- Ignition switches, spark plug boots

Reduce squeaks, rattles, unwanted noise and vibrations
- HVAC switches, vents
- Small motors and gears
- Compressors

Ensure proper assembly, nondestructive disassembly
- Assembly fasteners, bolts, screws
- Metal intake/exhaust gaskets

Smart Lubrication™ selection guide: Powertrain applications

APPLICATION	DESIGN NEED	POTENTIAL SOLUTION(S)	PRODUCT HIGHLIGHTS
Alternator, fan clutch bearings	Provide lifetime lubrication with reduced friction, wear and noise	MOLYKOTE® FS-841 Grease	Low-consistency fluorosilicone grease for solvent-resistant, high-speed lubrication
Electric motor bearings	Reduced friction, noise and wear	MOLYKOTE® BG-20 Synthetic Bearing Grease	Synthetic grease with extreme-pressure and anti-wear additives for metal-metal lubrication
Dual-mass flywheels (DMFW)	Reduced friction with vibration damping	MOLYKOTE® G-3000 Grease	Synthetic grease with high shear resistance and good temperature stability reduces vibration and noise
Pistons and rings	Reduced friction for improved energy efficiency	MOLYKOTE® D-10-GBL Anti-Friction Coating	High-viscosity, heat-cured coating for engine components
		MOLYKOTE® D-7409 Anti-Friction Coating	Heat-cured MoS_2-based AFC for superior wear resistance
		MOLYKOTE® D-88-GBL Anti-Friction Coating	Heat-cured coating for aluminum pistons and cylinder liners
Camshafts, tappets, engine components	Reduced friction, wear and noise	MOLYKOTE® D-7409 Anti-Friction Coating	Heat-cured MoS_2-based AFC for superior wear resistance
Intake/exhaust gaskets	Reduced noise and gasket disassembly damage	MOLYKOTE® D-7620 Anti-Friction Coating	Heat-cured MoS_2-based AFC designed for roll-coating flat metal components
		MOLYKOTE® D-321 R Anti-Friction Coating	Air-drying bonded lubricant with excellent heat-aging resistance under heavy loads
Starter motor gears, spline shaft, clutch	Reduced friction, wear and noise	MOLYKOTE® G-1021 Grease	Synthetic-oil-based grease for extremely low startup and running frictional resistance
		MOLYKOTE® 3400A Anti-Friction Coating	Heat-cured dry-film lubricant with excellent adhesion, corrosion protection and low friction
		MOLYKOTE® 33L Extreme Low Temperature Grease	Silicone-based grease with excellent low-temperature resistance
EGR valve	Improved fuel, oil and solvent resistance	MOLYKOTE® HP-870 Grease	Solvent-resistant, fluorinated grease with good high-temperature stability and aging
		MOLYKOTE® D-321 R Anti-Friction Coating	Air-drying bonded lubricant with excellent heat-aging resistance under heavy loads
Spark plug boots, ignition switches	Improved water resistance	MOLYKOTE® G-5008 Dielectric Grease	Silicone grease designed for rubber and ceramic pairings
Glow plug controllers	Improved water and corrosion resistance	MOLYKOTE® 4 Electrical Insulating Compound	Greaselike silicone with good dielectric strength, water repellency, oxidation resistance
Electronic transmission actuator	Reduced friction and corrosion	MOLYKOTE® BR-2 Plus High Performance Grease	Mineral-oil-based grease with solid lubricants and extreme-pressure additives
CV joints, universal joints	Reduced friction and wear	MOLYKOTE® G-4700 Extreme Pressure Synthetic Grease	NLGI GC-LB-certified extreme-pressure grease for heavy loads and vibrations
Engine bolts, fasteners	Improved assembly with proper tightening torque	MOLYKOTE® D-321 R Anti-Friction Coating	Air-drying bonded lubricant with excellent heat-aging resistance under heavy loads
		MOLYKOTE® G-n Metal Assembly Paste	Mineral-oil-based paste with solid lubricants for very low coefficient of friction

NOTE: These are proven, effective MOLYKOTE® brand *Smart Lubrication*™ solutions for vehicle powertrain systems design. Contact your MOLYKOTE® representative for product options to meet specialized requirements.

Sustainable design solutions

Enhance your design sustainability with MOLYKOTE® brand *Smart Lubrication*™ solutions from DuPont. To meet key powertrain design needs, these advanced specialty lubrication technologies can be custom-formulated for specified performance characteristics, regulatory standards and process requirements. Raw materials include base oils such as silicone, mineral or polyalphaolefin (PAO); solid lubricants such as molybdenum disulfide (MoS_2) and polytetrafluoroethylene (PTFE); thickeners such as lithium; and various performance additives to inhibit rust, resist wear or withstand extreme pressure.

- MOLYKOTE® brand anti-friction coatings (AFCs) provide bonded lubrication for pistons and rings to help increase fuel efficiency and reduce emissions.
- MOLYKOTE® brand lubricants help reduce friction, wear and corrosion on dual-mass flywheels, constant-velocity joints and starter motor gears and over-running clutches.

Smart Lubrication™ solutions for other vehicle systems

In addition to the MOLYKOTE® brand *Smart Lubrication*™ solutions for vehicle powertrain design featured in this selection guide, DuPont also offers proven, effective lubricants for these vehicle systems:

- Chassis and brakes
- Electrical
- Exterior
- Interior

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Learn more: Contact us

To learn more about MOLYKOTE® brand specialty lubricants and proven, effective *Smart Lubrication*™ solutions to drive propulsion efficiency innovation in vehicle powertrain systems design, contact your MOLYKOTE® Technical Representative or visit **molykote.com**.

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(6/19) AGP16038