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DOW CORNING

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LIMITED WARRANTY INFORMATION - PLEASE READ CAREFULLY

DOW CORNING

Assembly and Maintenance Solutions for Railway Applications

On track with *Dow Corning*®,
Silastic® and *Molykote*® products





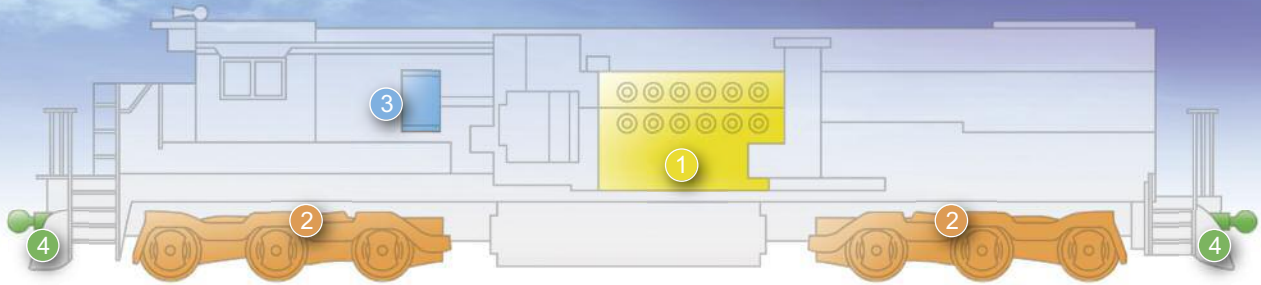
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Dow Corning Corporation

Dow Corning[®], *Silastic*[®] and *Molykote*[®] brand lubricants and sealants are used in assembly and maintenance practices for railway applications, recognized and approved by leading railway companies.

This product reference guide is designed to help you select the right *Dow Corning*[®], *Silastic*[®] or *Molykote*[®] product for a wide range of locomotive applications. If you need help determining which product is right for you, please contact your Dow Corning representative. For additional information on our complete product line, visit dowcorning.com/india.

For optimal performance and efficient locomotive maintenance, specify lubricants and sealants from Dow Corning.



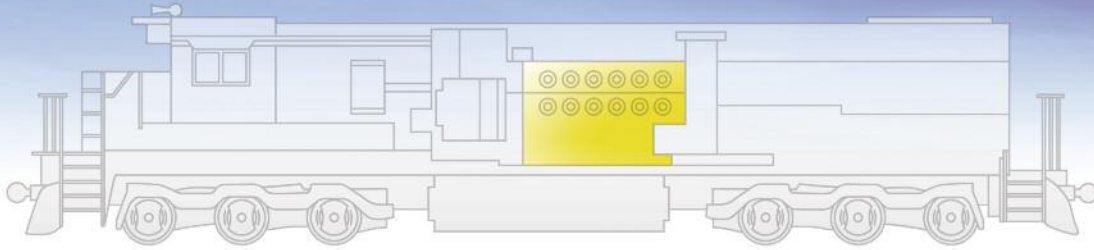
Applications

- ① **Engine:** cylinders, bearing stud, mounting bolts, generator cap, cam, vibration damper, liner sleeve
- ② **Bogie/Truck:** traction motor, roller suspension, wheel assembly, axle box, gear case, center pivot
- ③ **Brake System:** O-rings, seals and rubber components in valves, assemblies, pistons
- ④ **Couplers:** body, head, knuckle, pin, gear teeth

Other: fasteners, studs, nuts, bolts, screws, doors, windows, joints, gaskets, bushings

Products

Assembly pastes, anti-seize pastes, protective lubricants, anti-friction coatings, greases, sealants, cleaners, gasket release coatings



Applications

Cylinders, bearing stud, mounting bolts, generator cap, cam, vibration damper, liner sleeve

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AV16008



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Application	Recommended Product	Function	Benefits	Properties	
Cam gear, cam nut, cam lobes on diesel engines	<i>Molykote</i> [®] Z Powder	Assembly of cam shaft	<ul style="list-style-type: none"> • Wide service temperature range • High load carrying capacity • Very low COF 	Service temperature (°C)	-226 to +400
				Almen Wieland OK Load (N)	>20000
				COF (press fit)	0.04
Vibration damper on diesel engines	<i>Molykote</i> [®] G Paste	Running-in maintenance	<ul style="list-style-type: none"> • High load carrying capacity • Heat resistant 	Four ball weld load (kg)	280
				Service temperature (°C)	-20 to +400 (solid)
Main Base to cylinder block sealing	<i>Molykote</i> [®] G Paste	Vibration dampening	<ul style="list-style-type: none"> • High load carrying capacity • Heat resistant 	Four ball weld load (kg)	280
				Service temperature (°C)	-20 to +400 (solid)
Main Base to cylinder block sealing	<i>Molykote</i> [®] G Paste	Sealing	<ul style="list-style-type: none"> • High load carrying capacity • Heat resistant 	Four ball weld load (kg)	280
				Service temperature (°C)	-20 to +400

AV16015



Application	Recommended Product	Function	Benefits	Properties	
Main bearing studs, nuts, nut faces and washer sheets, generator cap screw and mounting bolts on diesel engines	<i>Molykote</i> ® G Paste	Assembly paste	<ul style="list-style-type: none"> • Wide service temperature range • Good corrosion resistance • High load carrying capacity • Low coefficient of friction (COF) 	Service temperature (°C)	-20 to +400 (solid)
				Penetration (1/10 mm)	310 to 360
				Copper corrosion	1a
				Four ball weld load (kg)	280
				COF (press fit)	0.10
Heavy duty cylinder head studs and nuts on typical 12 cylinder engines	<i>Molykote</i> ® G Paste	Assembly paste	<ul style="list-style-type: none"> • Wide service temperature range • Good corrosion resistance • High load carrying capacity • Low COF 	Service temperature (°C)	-20 to +400 (solid)
				Penetration (1/10 mm)	310 to 360
				Copper corrosion	1a
				Four ball weld load (kg)	280
				COF (press fit)	0.10

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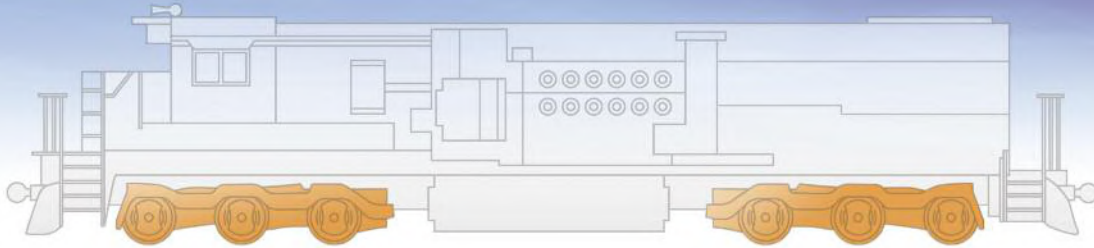


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Application	Recommended Product	Function	Benefits	Properties	
Cylinder liner O-ring gasket	<i>Dow Corning</i> ® 4 Electrical Insulating Compound	Protective lubrication	<ul style="list-style-type: none"> • Broad service temperature range • Low evaporation 	Service temperature (°C)	-57 to +200
				Penetration (1/10 mm)	220 to 250
				Evaporation (24 hr/200°C)	1.40%

Bogies (Trucks)



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Applications

Traction motor, roller suspension, axle box, wheel disk



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Application	Recommended Product	Function	Benefits	Properties	
Roller suspension Assembly of bearings	<i>Molykote</i> [®] G-n Plus Solid Lubricant Paste	Assembly	<ul style="list-style-type: none"> • High service temperatures • Gives press fit without chatter or stick slip 	Service temperature (°C)	-25 to +399
				COF (press fit)	0.08
				Weld load (kg)	499
Axle box Assembly of bearings	<i>Molykote</i> [®] G-n Plus Solid Lubricant Paste	Assembly	<ul style="list-style-type: none"> • High service temperatures • Gives press fit without chatter or stick slip 	Service temperature (°C)	-25 to +399
				COF (press fit)	0.08
				Weld load (kg)	499
Wheel disk Assembly on hub	<i>Molykote</i> [®] G-n Plus Solid Lubricant Paste	Assembly	<ul style="list-style-type: none"> • High service temperatures • Gives press fit without chatter or stick slip 	Service temperature (°C)	-25 to +399
				COF (press fit)	0.08
				Weld load (kg)	499

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Application	Recommended Product	Function	Benefits	Properties	
Parting line, frame cover, outgoing cable bush, split field coils, gaps, terminal pole bolts, armature, stator, commutator	<i>Silastic</i> ® 1080 RTV Neutral Cure Silicone Sealant	Sealing of parting line, frame cover, outgoing cable bush, split field coils, gaps, terminal pole bolts, armature, stator, commutator, etc., of traction machines	<ul style="list-style-type: none"> • Wide temperature range • Non-slump • Neutral cure • Good adhesion to many substrates 	Temperature range (°C)	-40 to +150
				Specific gravity	1.03
				Extrusion rate (g/min)	420
				Tack free time (min)	15
				Durometer hardness (Shore A)	30
				Tensile strength (KPa)	1800
Elongation at break (%)	400				

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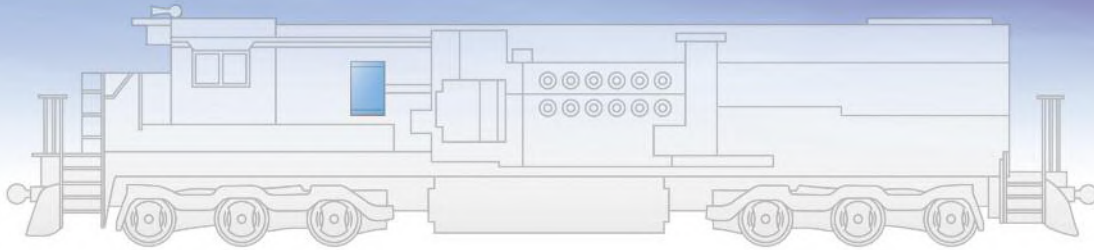


Application	Recommended Product	Function	Benefits	Properties	
End fitting bolts	<i>Molykote</i> ® G-n Plus Solid Lubricant Paste	Assembly	<ul style="list-style-type: none"> • High service temperature with reduced air access • Very low COF gives uniform clamping force 	Service temperature (°C)	-25 to +399
				COF (press fit)	0.08
				Weld load (kg)	499
Traction motor Assembly of bearings, pinion and gearwheel	<i>Molykote</i> ® G-n Plus Solid Lubricant Paste	Assembly	<ul style="list-style-type: none"> • High service temperatures • Gives press fit without chatter or stick slip 	Service temperature (°C)	-25 to + 399
				COF (press fit)	0.08
				Weld load (kg)	499

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Brake System



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Applications

O-rings, seals and rubber components in valves, assemblies, pistons



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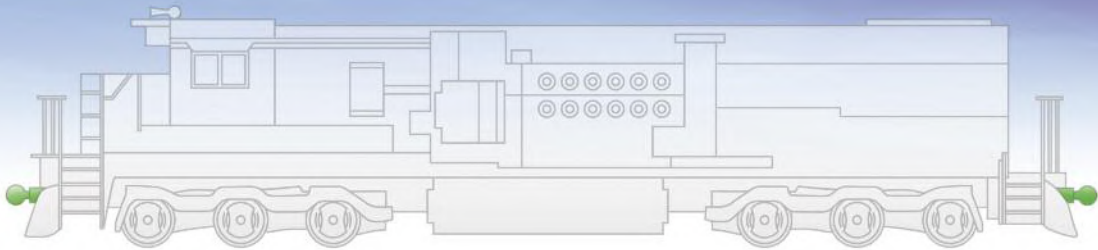
Application	Recommended Product	Function	Benefits	Properties	
Rubber O-rings, seals and rubber components in C3W/C3W2 type brake system distributor valve, service portion valve, check valve, release valves, emergency portion, spool, spillover check valve, in-shot piston, in-shot check valve	Molykote® 55 O-Ring Grease	Lubrication	<ul style="list-style-type: none"> • Wide service temperature range • Good corrosion protection • High oxidation resistance 	Service temperature (°C)	-65 to +175
				Emcor Corrosion Test	(No corrosion)
				Oxidation resistance (99°C/500 hrs) (MPa)	0.01

AV04630



Application	Recommended Product	Function	Benefits	Properties	
Rubber O-rings, seals and rubber components in KEO type distributor valve and CCB 1.5 brake system	Molykote® 111 Silicone Compound	Lubrication	<ul style="list-style-type: none"> • Excellent rubber lubrication • Wide service temperature range • Non-melting • Resistant to variety of organic and inorganic chemicals • Excellent water resistance 	Service temperature (°C)	-40 to +200
				Dropping point	None

Couplers



Applications

Coupler body, head, knuckle, pin, gear teeth

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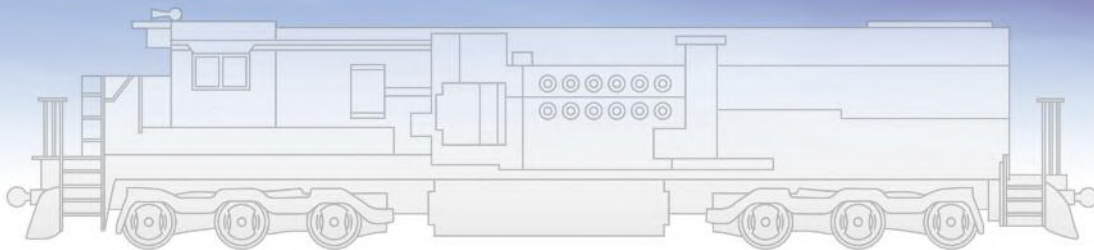


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Application	Recommended Product	Function	Benefits	Properties	
CBC coupler: Bare areas, head, body and knuckle	<i>Molykote</i> ® D-321 R Anti-Friction Coating Spray	Lubrication	<ul style="list-style-type: none"> • Air drying • Good emergency lubricant • Wide service temperature range 	Curing time (min/°C)	5/23
				Falex load carrying capacity (on phosphated surface) (N)	12500
				Service temperature (°C)	-180 to +450
Gear teeth	<i>Molykote</i> ® Longterm 00 Fluid Grease	Lubrication	<ul style="list-style-type: none"> • High load bearing capacity • Good corrosion protection 	Four ball weld load (N)	3400
				Almen-Wieland OK Load (N)	12000
				SKF Emcor Corrosion Test (sea water)	1

Other



Applications

Fasteners, studs, nuts, bolts, screws, doors, windows, joints, gaskets, bushings

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Application	Recommended Product	Function	Benefits	Properties	
Fasteners, studs, nuts, bolts, screws (other than in high-temperature areas)	Molykote® P-74 Super Anti-Seize	Anti-seize lubrication	<ul style="list-style-type: none"> • Synthetic base oil • High load carrying capacity • Wide service temperature range • Effective as dry lubricant, even at high temperatures 	Specific gravity	1.21
				Penetration (1/10 mm)	280-310
				Base oil	Synthetic
				Metal content	Metal free
				Weld load (N)	4800
				Service temperature (°C)	-40 to +1500 (as dry lubricant)

AV16007



Application	Recommended Product	Function	Benefits	Properties	
Exhaust manifold areas: Fasteners, nuts and studs	Molykote® 1000 Solid Lubricant Paste	High-temperature anti-seize lubrication	<ul style="list-style-type: none"> • High service temperature range • Good corrosion protection • Higher consistency for reliable sealing 	Specific gravity	1.26
				Penetration (1/10 mm)	280-310
				Weld load (N)	4800
				Service temperature (°C)	-18 to +1093
Door hinges, door locks	Molykote® D-321 R Anti-Friction Coating	Dry lubrication	<ul style="list-style-type: none"> • Cures at room temperature • Ease of application • Extreme service temperatures (low and high) 	Curing system	Room temperature
				Service temperature (°C)	-180 to +450
				COF (press fit, μ)	0.075

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Application	Recommended Product	Function	Benefits	Properties	
Door rubber, window frames, look-out glass, metal joints	Dow Corning® 733 Glass and Metal Sealant	Sealing	<ul style="list-style-type: none"> • Fast cure • High tensile strength • Cures to form tough rubber • Highly flexible (good damping effect) • Good unprimed adhesion to most glass, metals, plastics 	Tensile strength (MPa)	2.3
				Durometer hardness (Shore A)	25
				Elongation at break (%)	500
				Tack-free time (min)	15

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Application	Recommended Product	Function	Benefits	Properties	
General purpose	Dow Corning® OS-2 Silicone Cleaner and Solvent	Cleaning	<ul style="list-style-type: none"> • Completely ozone safe • Non-toxic • Low surface tension (easy spreading) 		
Fibrous packing gaskets	Dow Corning® 1-2577 Conformal Coating	Protection/release	<ul style="list-style-type: none"> • One part, room temperature cure • Easy application by brushing, dipping, spraying or flow coating • Stable and flexible from -100°C to +150°C 	Color	Clear
				Specific gravity	1.11
				Drying time at room temperature (max)	60 min

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Dow Corning products used for maintenance operations for railway applications

Product	Application
<i>Dow Corning</i> ® 4 Electrical Insulating Compound	Engine: Cylinder liner O-ring gasket
<i>Molykote</i> ® G Paste	Diesel Engine: Main bearing studs, nuts, nut faces and washer sheets, generator cap screw, mounting bolts, cam gear, cam nut, cam lobes, vibration damper, sealing liner sleeve to engine block 12-Cylinder Engine: Heavy duty cylinder head studs and nuts
<i>Molykote</i> ® Z Powder	Diesel Engine: Cam gear, cam nut, cam lobes

Dow Corning products used for maintenance operations for railway applications *CONTINUED*

Product	Application
<i>Molykote</i> ® G-n Plus Solid Lubricant Paste	Traction Motor: Bearings, pinion, gearwheel, end fitting bolts Roller Suspension: Bearings Axle Box: Bearings Wheel Disk
<i>Silastic</i> ® 1080 RTV Neutral Cure Silicone Sealant	Traction Motor: Parting line, frame cover, outgoing cable bush, split field coils, gaps, terminal pole bolts, armature, stator, commutator
<i>Molykote</i> ® 55 O-Ring Grease	Rubber O-rings, seals and rubber components in C3W/C3W2 type brake system distributor valve, service portion valve, check valve, release valves, emergency portion, spool, spillover check valve, in-shot piston, in-shot check valve
<i>Molykote</i> ® 111 Silicone Compound	Rubber O-rings, seals and rubber components in KEO type brake system distributor valve and CCB 1.5 brake system



Product	Application
<i>Molykote</i> ® D-321 R Anti-Friction Coating Spray	CBC Coupler: Bare areas, head, body and knuckle Door hinges, door locks
<i>Molykote</i> ® Longterm 00 Fluid Grease	Gear teeth, semi-fluid grease fortified with solid lubricant
<i>Molykote</i> ® P-74 Super Anti-Seize	Fasteners, studs, nuts, bolts, screws (not in high-temperature areas)
<i>Molykote</i> ® 1000 Solid Lubricant Paste	Exhaust Manifold Areas: fasteners, nuts and studs
<i>Silastic</i> ® 733 Glass & Metal Sealant	Door rubber, window frames, look-out glass, metal joints
<i>Molykote</i> ® OS-2 Silicone Cleaner and Surface Prep Solvent	General purpose

Dow Corning products used for maintenance operations for railway applications *CONTINUED*

Product	Application
<i>Molykote</i> ® BR 2 Plus High Performance Grease	Equalizer and compensating beam arrangement pin
<i>Molykote</i> ® Separator Spray Oil	Car body bushings, nitrile/nylon bushing inside area and side bearer pads
<i>Dow Corning</i> ® 1-2577 Low-VOC Conformal Coating	Fibrous packing gaskets



Learn More

Dow Corning® brand sealants, *Silastic*® brand silicone rubbers and *Molykote*® brand lubricants are available through a distributor network of more than 3,000 channel partners worldwide. And, Dow Corning has Lubricant Expertise Centers strategically located globally to provide you with expert technical service and support.

Learn more now about our extensive product and service offering by visiting dowcorning.com, molykote.com or e-mail industrial@dowcorning.com.