

High-Performance Elastomeric Coatings

For All Industries

The LORD HPC series of high performance elastomeric coatings have been developed to provide excellent fluid, ozone, and solvent resistance for applications where high strain and fatigue resistance is important. These patented coatings are superior to other coatings on the market due to their critical advantage of high adhesion to substrate elastomers resulting in extended fatigue life of parts prior to cracking.

There are six coatings available, based on three different elastomeric materials. HPC-3 is based on Fluoroelastomer (FKM); HPC-5 is based on Hydrogenated Nitrile (HNBR); and HPC-6 is based on Ethylene Acrylic (AEM). Each basic material is available in clear or black. The clear materials can be colored or can have heat reflective additive added to enable radiant heat reflection.

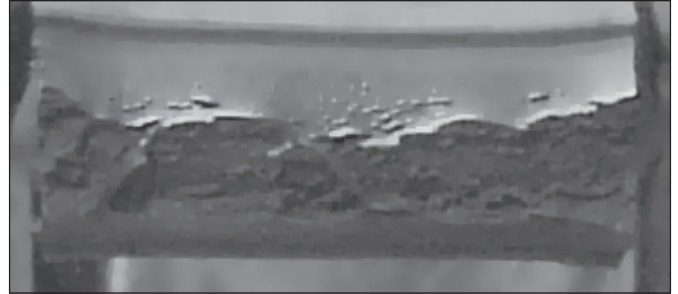


Figure 1: Uncoated Part

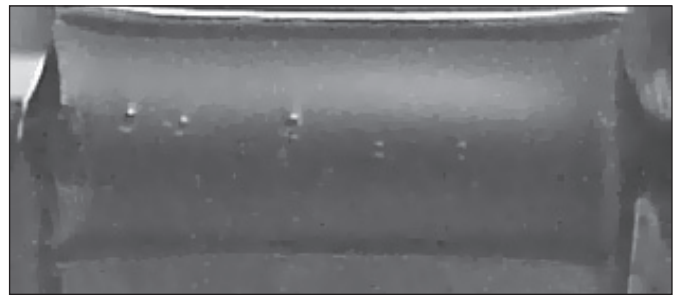


Figure 2: Coated Part

After 150,000 cycles in a DeMattia flex test machine, parts coated with LORD High-Performance Elastomeric Coating exhibited excellent adhesion and exceeded the fatigue life of the uncoated sample.

Coating Name	Base Elastomer	Primary Application
HPC-3	FKM	Best fuel, solvent and high temperature fluid resistance
HPC-5	HNBR	General purpose, great ozone resistance and good fluid resistance.
HPC-6	AEM	Cosmetic coating that provides improved ozone and fluid resistance to an existing substrate. Best used where the material is needed for cosmetic purposes
HRC	AEM	Excellent for radiant heat dissipation. Reduces part temperature when radiant heat is cause of the high temperature

Table 1: Primary Applications of HPC Coatings

Features and Benefits

Durable – this is the critical feature that HPC offers in comparison with previous elastomeric coatings – if the coating does not crack, the promised environmental protection is delivered. Figures 1 and 2 demonstrate that the coating, in some cases, actually extends the fatigue life of the coated substrate.

Fluid Resistant – provides superior resistance to fuels, aggressive oils and solvents. Table 2 presents general fluid protection of HPC coatings for natural rubber in a variety of fluids. Similar results are achieved for other elastomers.

Ozone Resistant – HPC-5 provides excellent ozone resistance to traditionally non-ozone resistant compounds, even those with ozone protection in the formulation. Figure 3 demonstrates the difference in time to ozone crack.

Cost Effective – enables the bulk of the part to be produced with low cost materials then coated with HPC-5 (HNBR) or HPC-3 (FKM) for environmental resistance. This enables parts with high mechanical properties and low cost of some elastomers and high environmental resistance of other elastomers that are bonded to the surface for protection.

LORD PRODUCT INFORMATION

Heat Reflective – Clear HPCs can have HPC Silver Additive added to the coating. This makes the coating a “heat reflective coating” which reflects radiant heat away from the part allowing parts to be made with less expensive materials, possibly saving the cost of a heat shield. Parts will be more reliable and perform more consistently (less variability due to temperature effects). Figure 4 presents data for heat reflective vs. a traditional black part next to a radiant heat source – HPC reduces operating temperature from 300° (149°C) to 200°F (93°C).

Fluid Resistive Qualities

Coating Designation	Control	HPC-5B	HPC-3B
Base Elastomer: NR/BR Blend	Uncoated	HNBR	FKM
Fluid Age, 2 Coats Applied by Dipping			
Jet A Fuel			
22 hrs. at 70°F (21°C): volume change (%)	219.8	1.7	0.7
70 hrs. at 70°F (21°C): volume change (%)	210.6	13.8	1.3
168 hrs. at 70°F (21°C): volume change (%)	204.6	41.3	6.8
Unleaded Gasoline			
22 hrs. at 70°F (21°C): volume change (%)	193.2	23.5	1.5
Mineral Spirits			
22 hrs. at 70°F (21°C): volume change (%)	181.1	1.7	1.4
IRM-903 Oil			
70 hrs. at 70°F (21°C): volume change (%)	62.5	0.1	0.0
70 hrs. at 212°F (100°C): volume change (%)	243.6	30.8	-0.8
1000 hrs. at 70°F (21°C): volume change (%)	180.1	0.5	-0.1
Citgo Type F Transmission Fluid			
70 hrs. at 70°F (21°C): volume change (%)	43.4	0.0	0.2
Mil-PRF-23699F Exxon Turbo Oil 2380			
70 hrs. at 70°F (21°C): volume change (%)	37.8	-0.5	0.0
Mil-H-5606 AeroShell Fluid 41			
70 hrs. at 70°F (21°C): volume change (%)	188.7	0.4	-1.7

Table 2

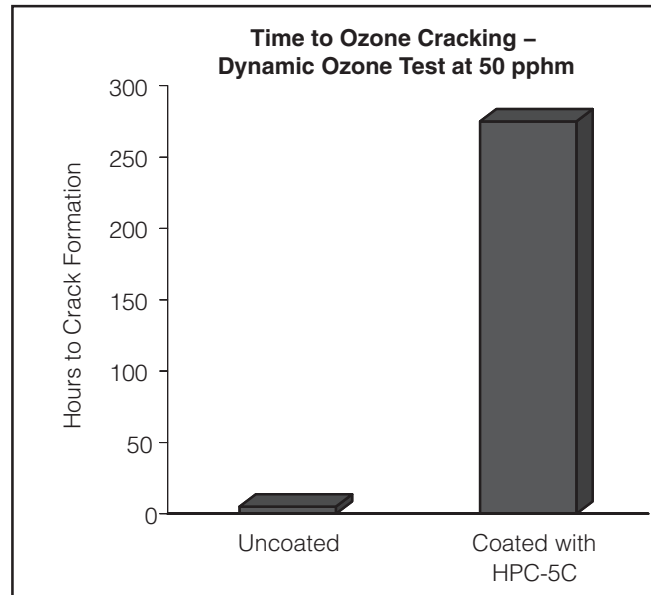


Figure 3

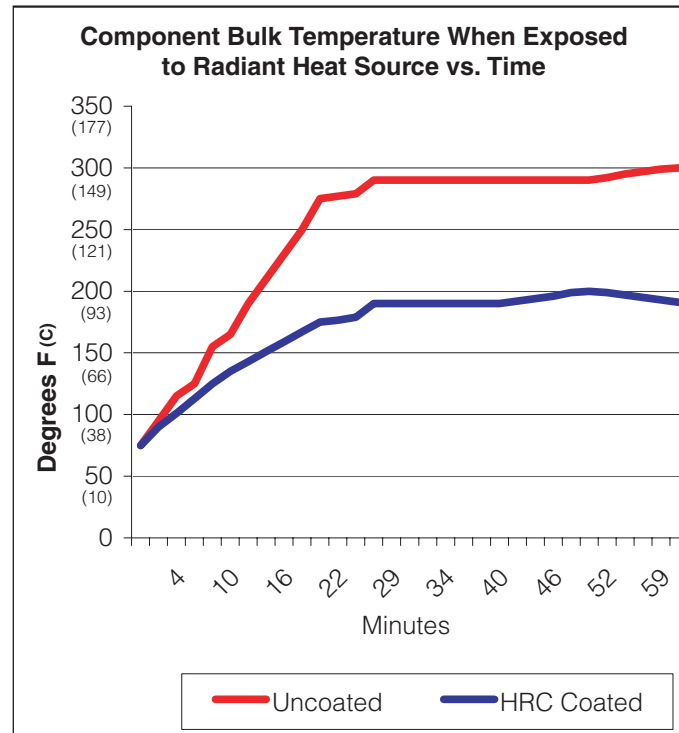


Figure 4

LORD provides valuable expertise in adhesives and coatings, vibration and motion control, and magnetically responsive technologies. Our people work in collaboration with our customers to help them increase the value of their products. Innovative and responsive in an ever-changing marketplace, we are focused on providing solutions for our customers worldwide . . . ask us how.

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