



LT-450 Applications in the Automotive Industry

Thermal Barrier Coatings for Complex Deep Bowl Piston Crown Configurations (Upper Left), Exhaust Manifold Inside Diameters (lower left), Valve Faces and Valve Stems (above) as well as Piston Ring Wear Faces.

The LT-450 coating is a water based chemical thermal bonded slurry coating. This unique coating is a ceramic - metal "CERMET" composite material. It is applied much as one would apply a paint, and subsequently cured to bind and seal the coating film at a temperature of 450°F. The "slurry" is comprised of solid powders mixed into a slurry using a dilute organic chrome phosphate liquid binder. This binder was developed primarily for Aluminum alloys, however will also bind to stainless steels, alloyed steels, copper, titanium and other metallic substrates upon heat curing of the slurry to 450°F.

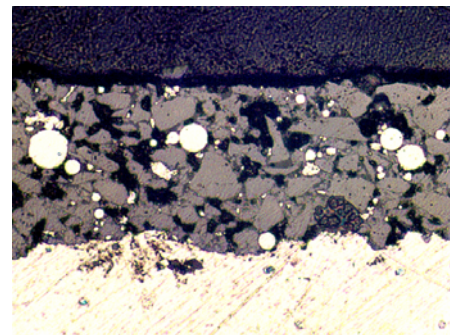
LT-450 CERMET

Material Composition

(% by Weight)

ZrO ₂ (Cubic Phase) -----	69%
WcoCr Alloyed -----	14%
Calcium -----	4%
Cr ₂ O ₃ -----	10%
Organics -----	<3%

LT-450 CERMET Coating Cross Section



(250X Magnification)

Physical Properties:

Microhardness Vickers DPH -----	1200 - 1400 (100 gram load)
Porosity -----	Less than 2% open
Specific Heat -----	0.48 (Ws/gm/°K) at Room Temp.
Thermal Conductivity (K) -----	0.00993 (W/cm/°K) at 580°C
Temperature Capability -----	Up to 540°C continuous

For additional information, call: **Adiabatics, Inc.** Phone: (812) 372-5052 or FAX: (812) 372-4470