



# Enviro-Save<sup>®</sup> Global Distribution

ENGINE AND POWERTRAIN PROTECTION METAL TREATMENT

## TECHNICAL INFORMATION

The Enviro-Save Metal Treatment process is comprised of the impregnation of all friction surfaces with TETRA FLUOR ETHYLENE (TFE) resin - to minimize engine friction/drag, wear and corrosion.

Figures 1 & 2 show the top and cross sectional surface views of an engine crankshaft bearing shell under 4,500 times magnification. This view consists of peaks and valleys, not the smooth polished surfaces we see with the naked eye. The roughness of the asperity induces turbulence in the oil film between the bearing surfaces and in the marginal boundary area. This turbulence encourages oil film breakdown that then allows the bearing surfaces to contact each other.

Figure 3 shows the same bearing surfaces now permanently impregnated with the TFE resin (in green) to the height of the peaks only, thereby not reducing the running clearance area. Subsequent (periodic) monitoring by oil analysis confirms that the single Enviro-Save TFE treatment remains in the bearing surface indefinitely, without repeat application.

With the peaks and valleys changed to a smooth plane, the oil film breakdown caused by asperity induced turbulence is greatly reduced in the boundary lubrication area. The damage caused by oil pressure and lubrication loss in dry start is minimized to only the peaks of the asperity touching. Finally, the bearing load/pressure is enhanced with the the resin-to-resin filled surfaces now providing the lowest coefficient of friction known.

The TFE impregnation, being inert, will provide long term corrosion protection of all relative engine/equipment components.

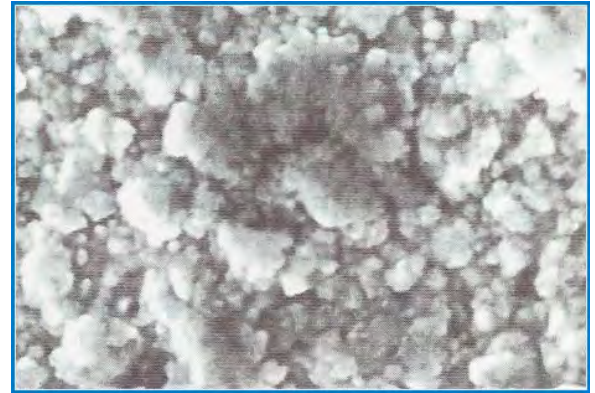


Figure 1: Top View

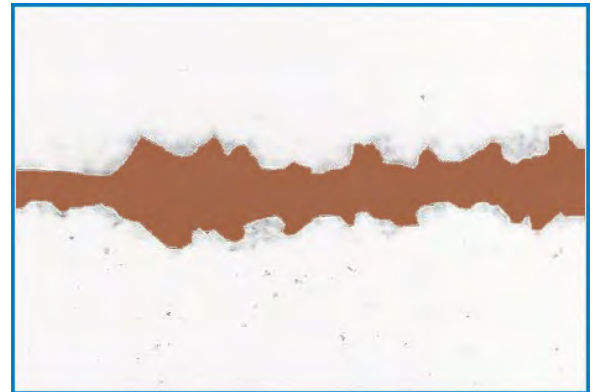


Figure 2: Cross Section

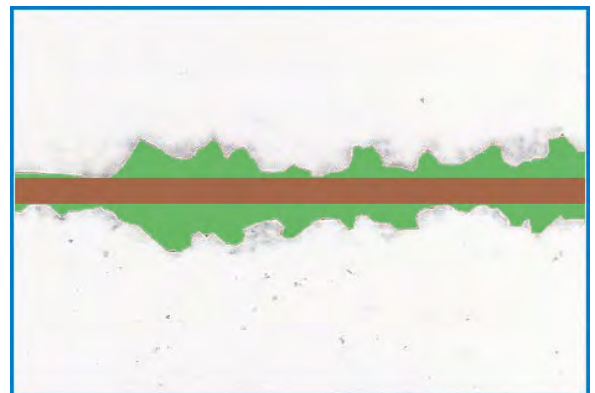


Figure 3: Resin Filled