

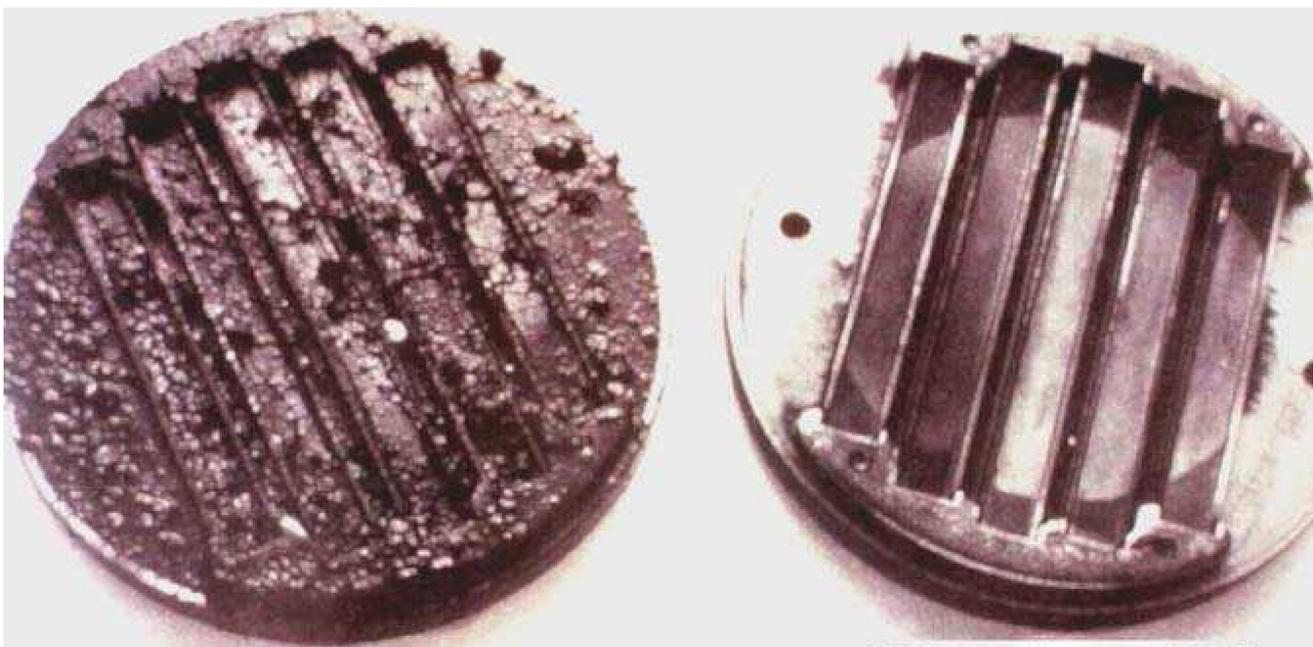
Dirty Valves:

The images show the condition of the discharge valves, one using mineral oil after 1500 hours and the other using Ultrachem 501 after 6000 hours. The valve shown in this particular photo is a typical channel valve with metal reeds, which rock back and forth on small springs to open and close. The discharge valve on a recip. runs close to 210 °C under typical conditions, which is right on the edge of petroleum failure. A hot metal causes carbonaceous deposits on the valve, either hard or greasy, depending on whether the base stock was paraffinic (most common for recip.) or naphthenic in origin.

This is a very dangerous condition because "dirty" valves do not operate at 100% efficiency, i.e. they do not close completely and this lets out some of the hot discharge air and this could get recompressed on the second cycle of the piston, and so on. This can lead to a cycle of ever increasing temperatures, until the carbonaceous deposits (shown in the photo) actually start to glow and in a reciprocating compressor, this situation of air + oil + compression + a glow plug, is the ideal condition for a compressor "fire" or compressor "explosion".

The use of Ultrachem 500 with much higher flash point than Mineral Oil has dramatically reduced the incidence of this kind of industrial accidents in the past. The first picture shows a dirty valve, with Mineral Oil, at 1500 hours because that is a typical time when a recip. has to be shut down for maintenance. A chart of compressor efficiency would show large negative spikes every 1200 and 1500 hours and that is because of the dirty valve not closing properly, which in turn is due to the deposits, thus lowering discharge pressure and volume. The Diester Ultrachem 500, by contrast, not only does not make those carbonaceous deposits at 210o C, but actually dissolves old deposits with a significant degree of solvency. This is why the oil turns towards black in color, not because of any drop in its performance capabilities, but because it is cleaning up and dissolving all these dirt and deposits.

Apart from all other claimed benefits, this will be a significant marketing tool in your hands to prove the superiority and benefits of using synthetic lubricants, and in particular Ultrachem 500 against mineral oil in Reciprocating Compressors, especially the ones involved in operations where safety of the equipment and human beings around them is of paramount importance. Example - mines, refineries, petrochemical plants etc.. I am also, sending you by mail a hard copy of this photograph, which you can show to your customers, when you visit them.



Petroleum
after
1500 hours

Ultrachem 501
after
6000 hours