

'Providing Tribological Solutions'

FOREWARNING

As an added service a FORewarning is provided when a test parameter is either tending to go out of specification or is out of specification. This is so that effective corrective action can be taken as soon as possible.

Because of the many differences between designs and consumables, these have to be generic. However, specific suggestions for any system can be provided on request. Just call, fax or e-mail your inquiries. Technical Notes are also available for many fluid topics.

COLOR

Background: New fluids should clear or might have very slight coloration. In service the fluids will darken up and this is 'normal' but the darkening should level out after a few years. If the fluid is being overly stressed and/or where the purification system can not handle it or where there is too little make-up with new fluid, then the color can keep increasing.

Reason for prompt action: Darkening usually arising from thermal overstressing and can lead to varnish formation and deposits in the system. If caught early it might also be possible to save the fluid charge so that a change is not necessary.

Cause: Color is normally tested by ASTM D-155. This is a comparative method with a range of 0 to 8 going from clear though amber to red and eventually to almost black. Note that the test was developed for mineral oils so the actual colors are not exactly the same. The cause of rapid color change can include the following;

Low make-up (<5% pa), fluid bulk oxidation, contamination, hot spots (heaters, relief valves and control valves, missing heat shields or missing insulation or EH pipes lagged in with steam lines), operation (running two pumps for more than a few minutes), material incompatibility, or dieseling (excessive air).

Action: This normally involves bleeding off and adding new fluid that can be done on-line half drum at a time. On line treatment of the fluid might be possible but this depends on the cause and the fluid condition. It could include fine particulate filtration, electrostatic filtration and/or treatment with purification media such as ion exchange resins, activated carbon or membranes. It is suggested that bench tests and full fluid retesting be performed before any work is done on an operating unit.