

**CRYOL 150**

Carlyle has done an extensive evaluation of the oil types used on the semi-hermetic and open drive compressors. As a result of the analysis, Carlyle is announcing that the oil used in the low temperature (06DR/06ER) applications has been changed from the synthetic Zerol 150 oil, to a mineral oil, either Cryol 150 or Suniso 3GS.

Carlyle has been shipping all of their 06DR compressors with Cryol 150 or Suniso 3GS 92. The cut in serial number is 4792J00255. The 06ER compressors effective serial number cut in date is 1192J01751.

Carlyle's 06DA/06DM, 06EA/06EM, and 5F/H compressors have had the oil charge changed from Zerol 150 to either Cryol 150 or Suniso mineral oil effective as announced August 1990 in OEM Bulletin 127.

In addition to the mineral oil, a small amount of an oil additive (added by the oil supplier) will be used. Tests by Carlyle have indicated that with this special oil additive, there has been a significant improvement in the lubrication of the compressor bearing and running gear. The new oils are fully compatible with other Carlyle approved oils and can be mixed in any proportion. Please keep in mind that this mixture does not apply to the Ester based oils used with alternate refrigerants.

The key characteristic of mineral oil is its ability to handle certain refrigerant control abuse conditions. Both flooded starts and flood back conditions can allow refrigerant to enter the lube system during compressor operation. The Cryol 150 or Suniso has been found to operate with a dense oil foam under these abuse conditions and avoid pump vapor locks that may occur with Zerol 150. One indication of this refrigerant control condition is tripping of an oil protection control. In severe refrigerant control conditions, bearing surfaces may be permanently damaged to the point of requiring the compressor's replacement. The combination of the mineral oil and the new additive resulted in a compressor design that had the ability to operate successfully for longer periods under these types of refrigerant control abuse conditions.

The mineral oils (Cryol and Suniso) have been used at low temperatures successfully for many years with R-502 and R-22. However, oil return from the system varies with different oils. The mineral oils have much higher separation temperatures and the solubility characteristics are different. These differences may not be detectable under normal operating conditions but, under abnormal conditions such as - loss of charge or systems with oil traps, they will exhibit different behavior. Adherence to good system design practices is as important with the mineral oils as it is with the synthetics.

The change in compressor oil with the additive, is expected to have favorable impact on customer failure rates, line rejects, and a major impact on reduction of nuisance tripping in the field. This now completes the change over to mineral oil. All Carlyle 06D/06E Semi-Hermetic and 5F/H Open Drive compressors are being shipped with Cryol 150 or Suniso mineral oil.

Regards,

*Tony Esper
Application Engineer*