

'Providing Tribological Solutions'

Phosphate Ester Types

Originally the raw materials used included cresylic acids derived from coal tar and coking operations. While still synthetic fluids, they have become known as "natural" phosphate esters. Examples include tricresyl or trixylenyl phosphate such as Fyrquel EHC-N and Reolube Turbofluid 46XC. Those made from phenolics derived from other processes are known as "synthetic phosphate esters. These are Fyrquel EHC-S and Reolube Turbofluid 46B (Durad).

Types of Phosphate Ester Fluids					
Lanxess ¹ REOLUBE®		ICL ² FYRQUEL®		Type	Desirable Features
EHC ³	HYD ³	EHC ³	HYD ³		
Turbofluid 46XC and OMTI	-	EHC-N (Stauffer EHC ³)	220N	Trixylenyl (TXP)	Lowest air release times, best hydrolytic stability and good overall.
Turbofluid 46B (Durad EHB)	HYD 46B	EHC-S	220	Butylated Phenol (TBPP)	Best bulk oxidation resistance.
Turbofluid 46 ⁵	HYD 46 ⁵	-	-	Isopropyl Phenol (IPPP)	Better hydrolytic stability than butylated synthetics.
-	-	EHC ⁴	-	Blend of Butylated Phenol and Trixylenyl	A compromise of the natural and synthetic.

1. Reolube and Durad fluids were originally from both Ciba-Geigy and FMC respectively but then combined as FMC, Great Lakes Chemical Company, Chemtura Co./Cie and now Lanxess.
2. Fyrquel fluids were originally from Stauffer, later Chesborough, Chesborough Ponds, Akzo, Akzo Nobel Chemicals and Supresta who owned by Ripplewood and purchased 2007 Israel Chemicals Ltd. (ICL).
3. EHC stands for electrohydraulic control systems that have servo-valves and HYD for systems not usually having servo-valves. EHC fluids can be used in HYD systems but the converse is seldom recommended. All the listed fluids are not necessarily approved for all turbines.
4. Fyrquel EHC was a 100% TXP until about the mid 80's.
5. Turbofluid 46 is no longer available.

Fyrquel is a trademark of ICL and Reolube a Trademark of Lanxess.