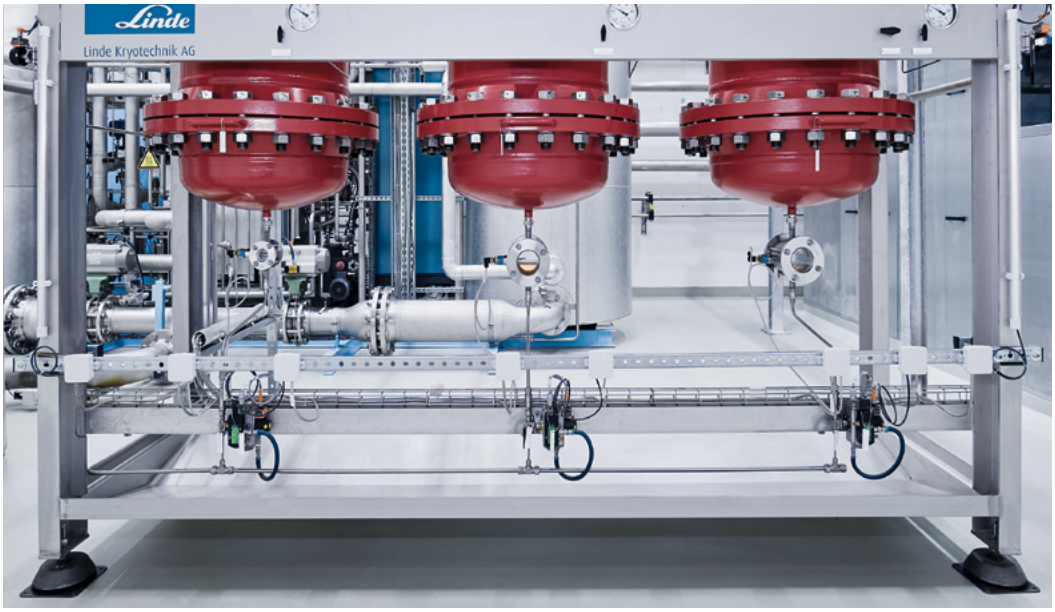
→ Linde Kryotechnik AG

Linde HCF20 compressor oil. For reliable operation of helium liquefaction and refrigeration systems.



Optimized oil separation process achieved by the use of HCF20

Challenge

Cryogenic plants use highly sophisticated, finely tuned process equipment. Fast-rotating machines such as compressors and expansion turbines from Linde Kryotechnik operate at speeds of a few thousand revolutions per minute and per second respectively. This high-performance equipment can thus be extremely sensitive to even trace contaminants from ambient air or compressor oil. Given the sensitivity of these expensive assets, it is essential that all traces of compressor oil in the helium stream exiting the compressor are removed before the gas is fed into the downstream liquefaction coldbox. Standard compressor oils are generally designed for air compressors. Some are based on mineral oil, which can oxidize or crack. Others are hydrophilic, which causes operational issues when the circuits are opened to atmospheric air. Hence standard oils can compromise the functionality and performance of screw-based helium compressors, and more importantly, compromise process safety further downstream.

Solution

The specific properties of helium gas call for a compressor oil capable of accurately lubricating, sealing and cooling the compressor over the entire working temperature and service interval without decomposing thermally over time or absorbing moisture. The HCF20 oil evolved from decades of experience with HCF12 to better meet the high performance, temperature and stability requirements of helium compressors as well as the specific requirements of each individual component of a Linde cryogenic plant.

Benefits of HCF20

- → Extended compressor lifetime
- → HCF20 is tailored specifically to the needs of Linde Oil Removal Systems
- → No oil pre-treatment step like drying before filling new oil into the compressor because HCF20 does not absorb moisture
- → HCF20 is compatible with HCF12
- → Excellent water separation behavior
- → Low foaming tendency
- → The HCF20 maintains complete lubricity even at low room temperatures
- → Shorter pump and purge time and less purge gas consumption
- → More skin-friendly than other helium-compatible oils
- → Enhanced operational safety – also for downstream processes
- → Reduced maintenance effort and replacement costs across entire process flow
- → Increase in plant availability

End-to-End

A cryogenic plant from Linde Kryotechnik is equipped with HCF20 upon delivery. Depending on individual needs, you may order Linde HCF20 in 20-liter canisters or 200-liter drums.

Compatibility

Linde HCF20 is compatible with the oil removal systems (ORS) supplied by Linde Kryotechnik as well as with most other helium compressors and oil removal systems. Please contact Linde Kryotechnik to check whether your compressor system is suited to an upgrade to HCF20 oil.

HCF20 Technical data: Polyalphaolefin-Type

		according to
Viscosity at 40 °C	47 mm^2/s	DIN 51562-1
Viscosity at 100 °C	8 mm^2/s	DIN 51562-1
Viscosity index	143	DIN ISO 2909
Density at 20	0.84 g/cm^3	
Flash point C.O.C.	280 °C	DIN EN ISO 2592

HCF20 meets the following standards:

DIN 51506 VBL
DIN 51506 VCL
DIN 51506 VDL
ISO 6743-3 DAA
ISO 6743-3 DAB
ISO 6743-3 DAG
ISO 6743-3 DAH

Linde Kryotechnik AG
Daettlikonerstrasse 5, 8422 Pfungen, Switzerland
Phone +41 52 304-0555, info@linde-kryotechnik.ch, linde-kryotechnik.ch

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