

Press Release
Moisture Content of systems with POE Lubricants

Copeland recommends that moisture content with refrigeration systems utilising POE oils be a maximum of 50ppm. The reason is due to the fact that POE lubricants tend to react and form acids at moisture levels above 50 to 75ppm.

Copeland operates strict specifications and quality procedures to ensure that the lubricant supply and compressor manufacturing processes are such that product is delivered with a moisture content below 200ppm. When the user of the compressor releases the dry air within the compressor, moisture may enter the compressor. Additional moisture is also added to the refrigeration system when the associated refrigeration controls and pipework are connected, the moisture level in the oil could be as high as 270ppm. (See Fig 1).

It is recommended that a system is evacuated to 0.22 Torr or less when installed. This will reduce the moisture content in the pipe work and ancillary components and to some extent from the oil. However, some moisture will remain in the oil above 50ppm

It is only possible to reduce the moisture in the refrigerant and system lubricant by using a correctly graded, appropriately sized drier. Trying to extract moisture using normal methods e.g. system vacuum, will not succeed in reducing the moisture content to the recommended maximum of 50ppm. For this reason, Copeland recommends filter driers with solid cores and have filtration grades of XH9 or higher.

Moisture within the system can be measured in two ways. The most accurate method is to take oil samples and have these tested for moisture content. The second and most convenient method is by the moisture indicator in a sight glass by use of the various colour codes.

