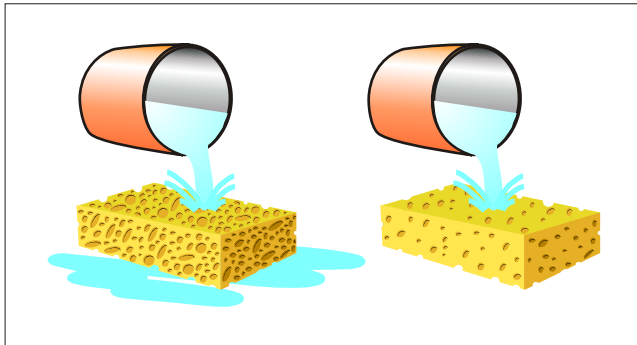


## Saturated Relative Humidity (SRH) vs. Parts Per Million (PPM)

Most analysis of the amount of moisture in oil is based on Parts Per Million or PPM. The issue with this form of measurement is the variance of the saturation limit of the oil from the basic PPM reading. There are several issues that will cause the PPM saturation limit to vary from oil to oil. They are type of oil (synthetic versus mineral), type of additives, and the temperature of the oil when the equipment is running or is on stand-by. Another issue with this method of measurement is that the user does not know the saturation level of the moisture in the oil. The reporting of the PPM only gives a raw number. It is important to know the saturation limit of an oil at a given temperature in order to determine a set point for effective lubrication maintenance before free water is present. Sponges provide a simple way to illustrate this. Sponges of different densities hold varying amounts of water. A dense-cell sponge can hold more water than an open-cell sponge, even though both occupy the same cubic volume.



The Hydrolert prevents the sponge from overflowing.

	Mineral 1	Mineral 2	Synthetic 1	Synthetic 2
100	300 ppm	400 ppm	700 ppm	900 ppm
90	261 ppm	360 ppm	630 ppm	810 ppm
80	232 ppm	320 ppm	560 ppm	720 ppm
70	203 ppm	280 ppm	490 ppm	630 ppm
60	Safe operating range			
50				
40				
30				
20				
10				

Trico has developed the Hydrolert Family of products using a patented monitoring system based on the moisture absorption capacity of the oil, Saturated Relative Humidity (SRH). The Hydrolert monitors the moisture level in the oil and accounts for the temperature and type of oil.

Every type of oil has a different moisture saturation level. What the Hydrolert products do is measure the actual level of moisture content and monitors that level against the saturation limit. In order to understand this concept, think of it as you would atmospheric air. We are able to measure relative humidity levels in the air regardless of the temperature of the air and the quality of the air. The Hydrolert does similar monitoring for moisture content in oil.

Because the Hydrolert family of products measures the moisture content based on saturated relative humidity; temperature and oil type are both relative. This means there is no correction factors to be done to the unit in order for it to function on different oils. The unit senses that the temperature and the saturation limit is always 100%. Because at saturation the oil can hold no more than 100% of moisture (the sponge is full). Monitoring as a percentage of the saturation limit is a constant. Above 100%, free moisture is present in the oil, ready to damage components in the housing.

The Hydrolert family of products are preset to give a warning when oil reaches 70% of its saturation limit. The set point is based on studies Trico Mfg. Corp. has done through out the industries we serve.

