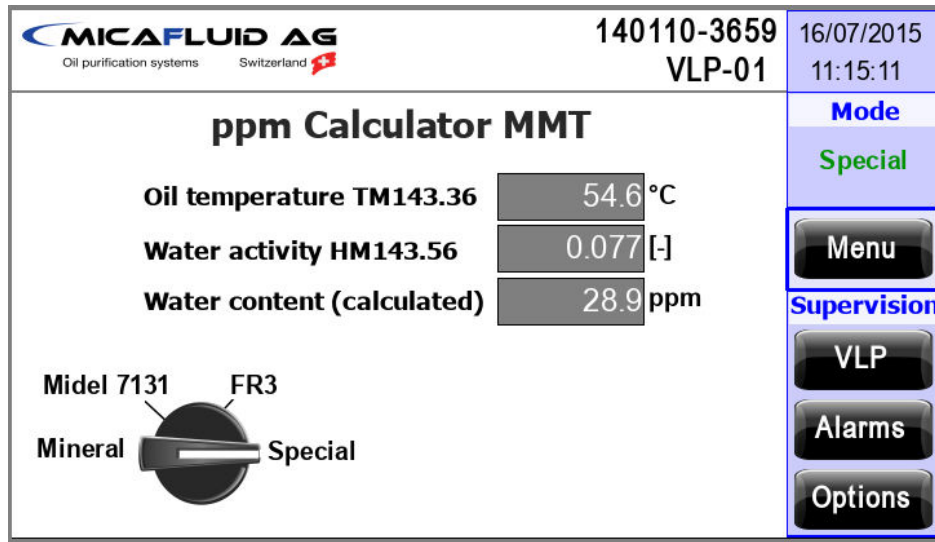


Water content in ppm for different type of oils based dew point measuring



Moisture in transformer oil is normally measured and indicated by using ppm units (mass concentration of water in oil). The real physical parameters measured by dew point measuring probes (e.g. Vaisala MMT162 or similar) is the temperature of the oil as well as the water activity in the oil (based on changes in the sensors capacitance by absorbing water molecules on a thin polymer film). The conversion from water activity (aw) to water content (ppm) is based on the average water solubility behaviour of the oil and dependent on average oil specific parameters.

Micafluid control systems are now able to perform this aw-ppm conversion for the transformer oils type Mineral, Midel 7131 and FR3 automatically; the operator can select the oil type which is currently used in the system. Using only one sensor for different oil types reduces costs for hardware, re-calibration and spare/replacement parts.

The needed oil specific conversion parameters are evaluated in the Micafluid oil laboratory (according to Karl Fischer Titration following Norm IEC 60814); the conversion is done in the PLC of e.g. an oil treatment plant type VOP. The system is also accepting additional oil types (e.g. gas to liquid, silicon etc.) by simple software update of the PLC.

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