TechInfo

Understanding Refractometer Correction Factors

A Brix refractometer is commonly used to measure the concentration of a water miscible metalworking fluid emulsion (aka coolant).

1 litre of concentrate added to 9 litres of water will always create a 10% actual concentration, but different products mixed in this same ratio will give differing refractometer readings. Therefore the refractometer correction factor must be applied to determine the actual concentration of the emulsion / coolant.

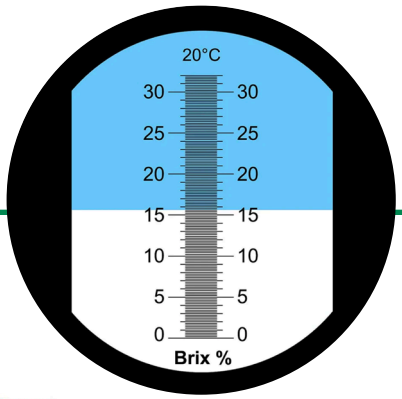
For our example above (actual 10% mix; 1 litre concentrate, 9 litres water)

1. If the concentrate has a refractometer factor of 2, the refractometer will read 5%. Multiply the reading on the refractometer by the correction factor to get the true concentration (5 x 2 = 10%).

2. If the concentrate has a refractometer factor of 1.2, the refractometer will read 8.33%. Multiply the reading on the refractometer by the correction factor to get the true concentration (8.33 x 1.2 = 10 %).

Why do different coolants have different refractometer factors?

The refractometer works by refracting (bending) light through a sample of the fluid, via a prism. Different formulations of coolant (even from the same manufacturer) have different densities and therefore refract light differently.



Tips

- Look for the refractometer correction factor on your fluid datasheet. If in any doubt, consult your supplier.
- Remember to "zero" your refractometer using water before taking a new measurement.
- Always take your sample from a running coolant supply – not from the tank.
- Multiply refractometer reading by correction factor to calculate actual concentration.

ETL Fluid Experts Ltd
T +44 (0)1423 522911
www.etlfluidexperts.com

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