Reagecon

"Delivering The Correct Result..."

Obtaining Accurate Readings With TDS Meters

A REAGECON GUIDE

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OBTAINING ACCURATE READINGS WITH TDS METERS

Total Dissolved Solids (TDS) is commonly used for assessing the concentration of impurities in water in areas such as environmental monitoring and boiler and cooling tower water monitoring. There are 2 main methods for testing TDS:

1. Take an accurately measured volume of the sample, filter it to remove suspended solids and then evaporate off the water at 180°C for 1 hour. The evaporating dish is weighed before and after the test and the increase in weight is the TDS.
2. Using an electronic TDS meter. Strictly speaking, these meters do not measure TDS; instead they measure the sample's conductivity and use a correlation to report a TDS value in ppm (ppm is the same as mg/l).

TDS meters have the advantages of being inexpensive, giving almost instantaneous results and being portable. However the validity of their readings depends on how they are calibrated and the correlation used between their conductivity measurement and the TDS value they display. TDS measurements are usual referenced to either sodium chloride (NaCl) content for marine applications or 442 (40% sodium sulphate, 40% sodium bicarbonate & 20% sodium chloride) content for non-marine applications, including boiler and cooling tower water. These references have been chosen as they give a good approximation of the TDS to conductivity relationship of these types of samples.

CALIBRATION OF TDS METERS

TDS meters work in one of two ways – this affects how they should be calibrated and used to obtain accurate measurements:

1. **Conductivity Standard Calibration:** Some TDS meters must be calibrated using a conductivity standard solution – usually 1413µS/cm. The user can select a conversion factor for the TDS value calculation. The precise conversion factor varies slightly across the measurement range; but a very good approximation is given by using:
   0.49 for Sodium chloride (NaCl) TDS
   0.68 for 442 TDS
2. **TDS Standard Calibration:** Other TDS meters must be calibrated using a TDS standard solution, with the user adjusting the displayed value to match the standard's value with the meter in calibration mode. Reagecon's Conductivity Standards can be used for calibrating these TDS meters, using the information given in the table below:

Product Code	Conductivity (µS/cm at 25°C)	NaCl TDS (ppm)	442 TDS (ppm)
CSKC12880	12,880	7,230	11,370
CSKCL	1,413	702	1000
CSKCS	147	70.1	96.9
CSKC84	84	38.0	50.5