

ACE Control System

The Patented (GB2370641) ACE Control System is a state of the art control system for coulometric Karl Fischer titrators. This award winning technology lies at the heart of the Aquamax KF family of coulometric Karl Fischer titrators, ensuring unrivaled accuracy.



The ACE Control System (Automatically Compensated Errors) guarantees that the electrolysis current produced by a Aquamax coulometer and the count rate it displays are always correctly synchronized, regardless of changes to the electrolysis cell resistance. The standard test methods for water content determination of crude oil samples by coulometric Karl Fischer titration (ASTM D4928, API MPMS Chapter 10.9 and IP 386 etc.) stipulate that the Karl Fischer anode reagent be mixed 60:40 with xylene. This is intended to improve sample miscibility and limit the amount of waxy deposits and asphaltines dropping out and causing problems with the generator electrode. This modification to the reagent, and subsequent addition of the oil samples being analysed, affects the resistance / capacitance of the titration vessel. When the resistance in the electrolysis cell is increased beyond certain limits the coulometer is unable to operate efficiently and provides an incorrect result, usually falsely high. To account for this the standard test methods suggest that the performance of the coulometer be regularly monitored by injecting 10µl of pure water. The suggested interval is after every 10 determinations and the result obtained should be $10,000 \pm 200\mu\text{g}$. The reagents should be changed if the result is outside these limits. If your result is outside of the limits do you go back and re-test the previous 10 samples or do you assume that they were all correctly analysed? Can you afford to make that assumption? Read the Recent Advances article for more information.

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