Use of AQUASTAR®

CombiCoulomat Fritless in the Fritted Cell

Conventional titration cells used in coulometric Karl Fischer (KF) moisture analysis contain two chambers separated by a mechanical barrier. The compartment which contains the anode is separated from the compartment which contains the cathode by a ceramic frit, or an ion-exchange membrane, also known as a diaphragm. The purpose of the frit is to prevent the Iodine generated at the anode from migrating to the cathode, and being reduced back to Iodide, instead of reacting with Water.

In recent years, fritless cells have gained in popularity due to their ease of maintenance, superior long-term drift/background stability, and suitability for automation. This has lead to a proliferation of coulometric reagents, some suitable only for the fritted cells, others suitable only for the fritless cells.

EMD Chemicals' Product Development Department has recently confirmed the suitability of **AQUASTAR® CombiCoulomat Fritless** (Cat. No. 1.09257) reagent for use as a single solution in coulometric KF analysis using a conventional fritted cell. Consequently, it is no longer necessary to use a separate set of reagents for each of the two coulometric cell types – **AQUASTAR® CombiCoulomat Fritless** may be used in both cases with confidence!

The following data illustrate the performance of **AQUASTAR® CombiCoulomat Fritless** as well as several competitor brands in the AQUASTAR C3000 coulometric titrator equipped with a fritted cell.

	AQUASTAR 1.09257	AQUASTAR 9255/1	COMPETITOR "G"	COMPETITOR "H"	COMPETITOR "M"
APPEARANCE	COLORLESS	LIGHT YELLOW	LIGHT AMBER	LIGHT YELLOW	COLORLESS
ANALYSIS OF 1000 PPM STANDARD (C of A VALUE = 983 PPM)					
MEAN WATER CONTENT (PPM)	983.4	986.6	984.0	986.7	984.3
STANDARD DEVIATION (PPM)	3.5	1.1	4.6	0.6	5.7
ANALYSIS OF 100% PURE WATER (3 x 50 mL)					
MEAN WATER RECOVERY (%)	100.70	101.11	99.30	99.84	99.29
STANDARD DEVIATION (%)	1.24	1.29	0.52	1.24	1.36
CAPACITY TO FAILURE (g H2O)	0.572	0.636	0.184	0.400	0.813
MEAN TITRATION TIME (MM:SS)	10:23	13:07	11:19	10:20	10:20

For additional **AQUASTAR®** Technical and Applications Support call: **1-800-222-0342**

EMD Chemicals Inc.
480 South Democrat Road
Gibbstown, NJ 08027

Phone: 856-423-6300
Fax: 856-423-4389
www.emdchemicals.com