

Technical Bulletin # 42

To: Coulometrics Support Personnel

From: Applications

Date: October 17, 2002

Subject: Cleaning Platinum Amperometric Indicating Electrode (Sulfur).

Purpose:

This Technical Bulletin describes cleaning the platinum amperometric indicating electrode used in the coulometric determination of sulfur.

Symptoms:

During use or lack of use the electrode surfaces can become coated with compounds that will inhibit the electrode from measuring the proper cell current during analysis. Symptoms include: cell solution turns colorless during analysis and generating current applied to the cell is less than 200 ma. Indicating cell current fluctuates wildly. When at the end point of the 6.0 μ a, the indicated cell current repeatedly drops significantly and the end point is difficult to maintain to terminate the analysis.

These same symptoms could also indicate the electrode is failing.

Procedure:

1. Remove the electrode from the cell top and rinse well with deionized water.
2. Wash the two electrode leads with a good detergent.
3. Polish the electrodes with a scouring powder and a soft brush – a used, soft bristle toothbrush works well. (The use of 600-grit wet/dry sand paper used wet also works well for hardened coatings.)
4. Rinse the cleaned electrode well with deionized water.
5. Re-install the cleaned electrode in the cell top.
6. Reset the electrode gap to a minimum of 1/16”.

Alternatively,

1. Soak the electrode for 2 to 3 hours in cleaning solution (chromic-sulfuric acid solution) or concentrated nitric acid.
2. Rinse the cleaned electrode well with deionized water.
3. Re-install in the cell top.
4. Reset the electrode gap to a minimum of 1/16”.

