1.0 Purpose

1.1 To verify that magnesium sulfate heptahydrate samples are below the USP limit of 0.014% chloride.

2.0 Scope

2.1 USP Monograph: Magnesium Sulfate, and General Chapter <221>

3.0 Responsibility

3.1 Quality Associate is responsible for this procedure.

4.0 Safety Considerations

4.1 Safety Goggles, Chemical Resistant Gloves, and Lab Coat. Safety is a condition of employment. Employees are not authorized to work in an unsafe manner and are prohibited from harming the environment of the facility or community.

5.0 Materials/Equipment

5.1 Balance-Mettler Toledo X5105Du, B13929Z316
5.2 Weigh Paper
5.3 2 50-mL Nessler Low Form Color Comparison Tubes (labeled ‘test’ and ‘control’ respectively)
5.4 Stir Rod or Spatula (long enough for color comparison tubes)
5.5 Portable Lamp – Lampi Fluorescent
5.6 Eppendorf 1000 µL Adjustable Pipette
5.7 Timer
5.8 Black Sheet of Paper

Reagents:

5.9 Silver Nitrate Test Solution (0.1 N)
5.10 70% Nitric Acid
5.11 DI H_2O
5.12 0.020 N Hydrochloric Acid Volumetric Solution

6.0 Procedure

6.1 Weigh out 1.0 g of the magnesium sulfate sample (for magnesium sulfate solution use 273 µL or 1182 µL for Greendale liquid) on a weigh paper and add it to the 'test' color comparison tube and dissolve with approximately 40 mL of DI H2O.

6.2 In the 'control' color comparison tube add 200 µL of 0.020 N hydrochloric acid volumetric solution.

6.3 Add 1 mL of 70% nitric acid, 1 mL of silver nitrate TS and sufficient water to make 50 mL to each tube.

6.4 Mix, and allow to stand for 5 minutes protected from direct sunlight.

6.5 Compare the turbidity of the 'test' sample to the 'control' sample. View the tubes horizontally across the diameter of the tubes, against the dark background of the black sheet of paper with the aid of the portable lamp directed at a right angle against the sides of the tubes.

If the 'test' sample shows less turbidity than the 'control' sample then the magnesium sulfate sample has a chloride concentration below the USP limit of 0.014% (520 ppm for magnesium sulfate solution or 120 ppm for Greendale liquid).

7.0 Reference Documents

7.1 Laboratory Notebook
7.2 *USP Stability Testing Summary Worksheet* Q12-PR-100-F010

8.0 Amendment Record

Revision Number	Revision Date	Revision Author	Revision Description
0	02/27/12	SB	New Document