
	GILES CHEMICAL ~ PREMIER MAGNESIA		
	Company Procedure		
	Title: USP Loss On Ignition (LOI): Magnesium Sulfate Heptahydrate	Number: L12-PR-100-003	
	Owner: Stephen Ballew	Revision: 2	
	Effective Date: 06/20/13	Page: 1 of 2	

1.0 Purpose

To describe how to determine the amount of volatile matter of any kind that is driven off under the conditions specified following USP Monograph for Magnesium Sulfate and General Chapter <733>.

2.0 Scope

This procedure applies to USP lot change, stability testing, and any time USP quality needs to be verified. All USP testing is performed in the Quality Assurance laboratory.

3.0 Responsibility

QA Lab personnel are responsible for USP testing.

4.0 Safety Considerations

Wear safety glasses and/or goggles and heat resistant gloves when handling hot crucibles.

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



- Porcelain Crucible – #C6450-4. 10 ml capacity
- Balance – Mettler Toledo X5105Du, B13929Z316
- 5.3 Drying Oven – Quincy Lab Inc. 20GC, G2-6409
- Muffle Furnace – Thermodyne Type 1300 120V
- Spatula
- Desiccator (Note: Ensure desiccant is kept fully effective by frequent replacement)
- Tongs

6.0 Procedure

1. The empty analytical balance is first tarred to zero.
2. A dry porcelain crucible is placed upon the balance and its weight is recorded.
3. Approximately 1 gram of a magnesium sulfate sample is added to the crucible and the total weight of the sample and the crucible are recorded.

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- **The weight of the sample is calculated by subtracting the prerecorded weight of the porcelain crucible**
 4. The crucible is placed in the drying oven at a temperature of 105° C for two hours.
 5. The crucible is removed from the drying oven using tongs and placed in a muffle furnace at 450° C for at least one hour.
 6. The crucible is removed from the muffle furnace, again using the tongs, and placed in the desiccator to cool.
 7. After a suitable time period the crucible is placed on the balance and the weight is recorded.
 8. By dividing the difference between the total weights and dividing by the mass of the sample before heating the percent loss on ignition is provided (see below):

$$\frac{(\text{total weight before heating}) - (\text{total weight after heating})}{(\text{weight of sample before heating})}$$

9. Place the sample back into the desiccator for use in the USP Assay procedure.

7.0 Reference Documents

N/A

8.0 Change Information

Updated drying oven model. Reduced muffle furnace time based on time to reach constant weight experiment (p. 30 in USP validation notebook).

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