1.0 Purpose

The purpose of this procedure is to describe the method used for determining the reactivity of Magnesium Oxide.

2.0 Scope

This procedure applies to all in-coming MgO raw material samples.

3.0 Responsibility

Quality Personnel is responsible for performing this procedure.

4.0 Safety Considerations

Appropriate PPE should be worn while working with acids in the laboratory including but not limited to steel-toed shoes, gloves, and safety glasses.

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

- Weighing Balance
- 150-mL beaker
- 100-mL graduated cylinder
- 1000-mL volumetric flask
- Instant read Thermometer or suitable temperature measuring device (20°C -100°C)
- Magnetic Stirring Plate
- Magnetic Stirring bar -- 1” length
- Stopwatch- (or suitable time measuring device)
- Glacial Acetic Acid
- De-ionized water

6.0 Procedure

Reactant Prep:

Acetic Acid Solution 19% (w/v)

A. Weigh 190.0g ± 0.1g of glacial acetic acid into a 1000 ml volumetric flask.
B. Dilute to the mark with de-ionized water.

C. Mix well.

Testing Procedure:

1. 94 ml of 19% acetic acid solution is transferred into a 150-ml beaker
2. The initial temperature is checked assuring temperature is between 21º - 23º C
3. The beaker is placed on the magnetic stirring plate.
4. The tip of the thermometer is set so that the tip is approximately 5mm of the bottom of the beaker.
5. Initial temperature of solution is recorded.
6. 6.00g ± 0.01g of magnesium oxide is added to the solution and stopwatch is started.
7. The temperature of the solution is recorded at 30-second intervals over a 10 minute period, if a profile is required.

   Note: In most cases only the temperature at 10 minutes (T10) is required.

   Results are reported as the change in temperature (°C) in 10 minutes.

$$\mathbf{T_{10} - T_0 = \Delta T \text{ in } 10 \text{ minutes}}$$
$$\mathbf{T_{10} = \text{temperature } (\,^\circ\text{C}) \text{ at } 10 \text{ minutes}}$$

8. Data is recorded on *MgO Raw Material Testing (L12-FM-100-004)*.

7.0 Reference Documents

MgO Raw Material Testing (L12-FM-100-004)

8.0 Change Information

Added requirement for instant read thermometer. Updated to new SOP Template. Added Form Reference.