1.0 Purpose

The purpose of this procedure is to describe how to determine the %$MgSO_4$ in a liquid sample by Specific Gravity.

2.0 Scope

This procedure applies to all daily Manufacturing liquid salt samples.

3.0 Responsibility

Lab Associate is responsible for performing this procedure.

4.0 Safety Considerations

Appropriate PPE is to be worn in the laboratory.

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

- Liquid salt sample
- 500 ml beaker
- 25 ml volumetric flask
- Weighing Balance accurate to 0.01g or better
- Set of standard charts for conversion of Specific Gravity and Temperature to %$MgSO_4$
- Microwave
- Instant Read Thermometer

6.0 Procedure

1. Pour liquid salt sample into a 500 ml beaker.
2. Heat the sample in the microwave until all the salt crystals have dissolved into solution.
3. Record temperature using instant read thermometer.
4. Place volumetric flask on weighing balance and tare to zero.
5. Fill 25 ml volumetric flask to line with sample and record weight.
6. Determine the Specific Gravity by using the following formula:

$$\frac{\text{Weight of sample (g)}}{\text{Volume of sample (ml)}} = \text{Specific Gravity (g / ml)}$$

7. Use the above mentioned conversion charts to determine the $\%MgSO_4$ based on the specific gravity reading and the temperature of the solution.

7.0 Reference Documents

Final Product Liquid – Daily Quality Control Report (L12-FM-100-006)

8.0 Change Information

Updated to new SOP format. Added reference to Instant Read Thermometer. Removed reference to pH meter.