

Density

1. Scope:

To provide a standardized procedure for the determination of density in liquid fertilizers.

2. Principle:

The sample is added to a tared volumetric flask and weighed. The density of the sample is calculated by dividing the sample weight by the volume of the flask used.

3. Safety:

Care must be taken when weighing the fertilizer sample. Some fertilizer samples contain hazardous chemicals such as phosphoric acid.

4. Interferences:

None

5. Apparatus and Equipment:

- 5.1. Analytical Balance (capable of weighing to 0.1 mg)
- 5.2. Volumetric Flask
- 5.3. Funnel
- 5.4. Disposable Pipette

6. Reagents and Supplies:

None

7. Sample Preparation:

See *Fertilizer Sample Preparation, Storage, and Disposal (FEED/FERT SP-3)*.

8. Instrument Calibration:

Perform the daily balance verification.

9. Analysis:

- 9.1 Place the volumetric flask on the balance and tare the balance.
- 9.2 Mix the sample thoroughly.
- 9.3 Fill most of the volumetric flask with sample using the funnel.
- 9.4 Use the disposable pipette to fill the sample to the graduation mark on the flask.
- 9.5 Record the weight.
- 9.6 Record the room temperature.

10. QA/QC:

If available, a laboratory control sample (LCS) should be run with each set. If not, an old sample previously run for density may be used.

11. Calculations:

$$\text{Density} = \frac{\text{Weight of Sample (g)}}{\text{Volume of Flask Used (mL)}}$$

12. Reporting:

The result is reported on the laboratory sheet. If the result is above the allowable tolerance, the sample is rerun.

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