

TITLE:

Gel Lock-Up Determination for Superabsorbent Samples

SCOPE:

This method describes the procedure for measuring the absorbency rate of loose superabsorbent particles (SAP).

SAFETY:

Read the material safety data sheets for all chemicals used in this procedure. Exposure to low levels of airborne SAP dust may result in lung irritation. SAP is non-irritating by skin contact and is essentially non-irritating to the eyes. However, if eye contact occurs, it is recommended that the eyes be flushed with running water for at least 15 minutes.

When testing experimental and competitive SAP with unknown levels of residual monomer, residual solvents, or residual crosslinkers, it is recommended that neoprene gloves be worn when handling the hydrated SAP.

PRINCIPLES:

The absorbency rate is measured by observing the time required for complete absorbency of a given amount of fluid.

REAGENTS:

0.9% NaCl saline prepared with distilled or deionized water

EQUIPMENT AND MATERIALS:

1. Analytical balance accurate to 0.0001 grams (with cover)
2. Aluminum tins (Fisher #08-732, 57 mm in diameter or equivalent)
3. Stopwatch
4. 50 ml graduated cylinder

PROCEDURE:

1. Prepare the 0.9% saline by dissolving 45 g of Sodium Chloride into 4955 ml of distilled or deionized water. Blend the saline thoroughly.
2. Weigh out one 1 gram of loose SAP.
3. Pour the SAP into an aluminum tin and distribute evenly over the bottom of the tin. Measure 30 ml of saline into the graduated cylinder.
4. Pour the saline into the aluminum tin containing the SAP and start the stopwatch as soon as the first solution touches the SAP. **Note:** Give the initial mix a quick swirl to redistribute the saline and SAP evenly. Stop the stopwatch as soon as all of the solution is completely absorbed.
5. Record the time (seconds) required for the SAP to absorb all of the saline solution.
6. Repeat the test twice and take the average of the three tests for the final result.