



DSV Application Note #1

Dilute Solution Viscosity Measurement of Gelatins

Gelatin is a translucent, colorless, flavorless edible material, derived from collagen rich animal body parts. It is brittle when dry and gummy when moist. It has wide range of applications. It is commonly used as a gelling agent in food, medications, drug coatings and capsules, photographic films and papers, and cosmetics. Although gelatin is soluble in warm water, it is more convenient to work with them at room temperature by adding organic modifiers (to prevent gelation) into the water. The purpose of this application note is to show the effect of different organic modifiers on the intrinsic viscosity (IV) values for three different common types of gelatins.

| | |
|----------------------|-----------------|
| Solvent | See Table Below |
| Sample Concentration | 0.5 g/dL |
| Prep Temperature | 40C |
| Dissolution Time | 16 Hours |
| Analysis Temperature | 37C |

| Conditions | IV (dL/g) | IV (dL/g) | IV (dL/g) |
|------------------|--------------|------------------|-------------|
| | | | |
| Salt | 0.154M NaCl | 0.154M NaCl | 0.154M NaCl |
| Org Mod 1 | 10% Methanol | 10% Acetonitrile | 10% DMSO |
| Org Mod 2 | 1% Glycerin | 1% Glycerin | 1% Glycerin |
| | | | |
| Bone Gelatin | 0.3865 | 0.4002 | 0.4049 |
| Hide Gelatin | 0.4252 | 0.428 | 0.4432 |
| Pig Skin Gelatin | 0.3275 | 0.3679 | 0.3464 |

In addition to the precision of the data demonstrated above, the relative viscometer presents an easy opportunity to automate a particularly laborious task. Automation can range from a simple autosampler system to fully automated Vortex operation.