Gelatin, Gel Strength (Bloom Strength) by Penetration
GMIA Testing Standard

TVT Texture Analyzer
The TVT Texture Analyzer (Figure 1) offers rapid and objective analysis for different products. The following parameters can be characterized for your product category:

- Hardness
- Rupture force
- Elasticity
- Stickiness
- Adhesiveness

Both international standard methods as well as customer tailor-made profiles are available.  

Figure 1: TVT Texture Analyzer

Scope
- Determination of gel strength (Bloom strength) by single cycle penetration test, GMIA Testing Standard.

Method Description
The recording of the measurement data commences once the probe reaches the pre-set trigger force. The probe will then penetrate the sample to a pre-defined distance. After penetration, the probe returns to its starting position.

Calibration
Make sure the instrument is correct calibrated before the measurements. How to perform the calibration can be found in the User’s Manual.

Load cell (recommended) 5 - 10 kg

Probe
P-CY0.5, Cylinder probe 0.5 inch diameter, perspex
Part number: 67.32.13  (Figure 2)

Bloom jar for testing
Part number: 67.32.90

Figure 2: P-CY0.5
Profile Settings

Setting Parameter

Single Cycle Compression

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample height [mm]</td>
<td>60.0</td>
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<tr>
<td>Starting distance from sample [mm]</td>
<td>5.0</td>
</tr>
<tr>
<td>Compression [mm]</td>
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</tr>
<tr>
<td>Initial speed [mm/s]</td>
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</tr>
<tr>
<td>Test speed [mm/s]</td>
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<tr>
<td>Retract speed [mm/s]</td>
<td>1.0</td>
</tr>
<tr>
<td>Trigger force [g]</td>
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</tr>
<tr>
<td>Data rate [pps]</td>
<td>200</td>
</tr>
<tr>
<td>Adhesiveness</td>
<td>Marked</td>
</tr>
</tbody>
</table>

Sample preparation
Prepare the gel solution with the concentration of 6.67% w/v (7.5g in 105ml of water). Pour it into standard Bloom jars (150ml capacity). Chill the filled Bloom jars in a water bath at 10°C ±0.1°C for 17h ±1h. When the solutions are ready, place the bloom jar centrally under the probe and start the measurement. For more detailed preparation see the standard method for Bloom strength.

Curve Description
The maximum peak force, at the penetration depth of 4mm, is defined as the Gel Strength (Bloom Value) (g) of the gel (single Bloom value).

Data Analysis
The force required for penetrating the sample can be measured in the units [g] or [N], however, the Bloom Strength is measured in [g]. Except raw data (force, time and distance) the program also directly provides calculated results such as mean value and standard deviation.