

Instantizing Different Collagen Products Through Top Spray Granulation

The Process...

Top spray granulation is an advanced instantizing technology that transforms collagen powders into free-flowing, highly dispersible granules with superior handling characteristics.

When processing many types of collagens, top spray granulation enhances wettability, minimizes dust, improves flowability, and enables rapid dissolution in both hot and cold liquids.

The result is a premium instantized product that delivers improved functionality for nutritional, pharmaceutical, and functional food applications while maintaining product quality throughout production and packaging.

PROCESSING EQUIPMENT

Process Equipment:

- ✓ FC-LAB 3
 - Top Spray Solution Gun
 - Conidur Mesh Screen
 - Pleated Polyester Filters
- ✓ Moisture Analyzer
- ✓ QICPIC Particle Size Analyzer

Test 1 - Competitors Collagen

- Initial Mass: 3007g
LoD 4.57 % or 2869.6g
- Mid Process Sample: 422g
LoD 10.05 % or 379.6g
- Product: 2416g
LoD 8.17 % or 2218.6g
- Total Recovered: 2614.1g
- Yield: 91.1 %

Test 2 - Clients Collagen

- Initial Mass: 3001g
LoD 2.32 % or 2931.4g
- Mid Process Sample: 501g
LoD 9.49 % or 453.5g
- Product: 2528g
LoD 8.31 % or 2317.9g
- Total Recovered: 2790g
- Yield: 95.2 %

Test 3 - Clients Collagen

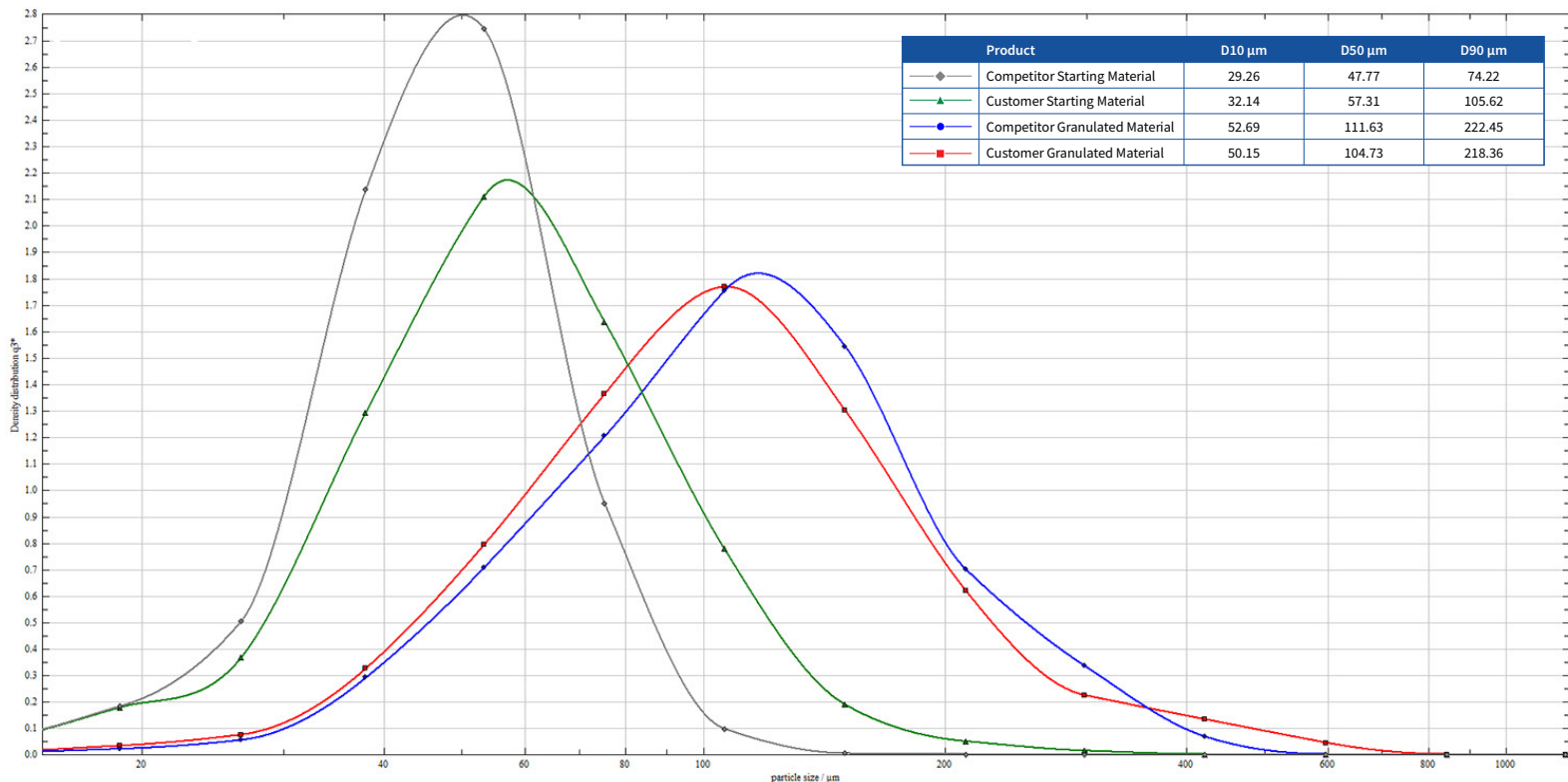
- Initial Mass: 3003g
LoD 2.32 % or 2933.3g
- Mid Process Sample: 528g
LoD 9.25 % or 479.2g
- Product: 2560g
LoD 8.33 % or 2347.3g
- Total Recovered: 2846.8g
- Yield: 97.0 %

The Conclusion...

- 1) All produced batches met the instantization objective.
- 2) Large granules do not appear to be necessary to achieve the desired performance, although smaller granules dissolve slightly more slowly.
- 3) Moisture content can be reduced further if required for stability purposes. Doing so may negatively affect instantization. However, extending the process duration (40 minutes instead of 30) could increase granule size and weight, compensating for the lower residual moisture.
- 4) No significant granule size reduction appears to occur during drying. Normally, this phase is the most critical because granules formed during wetting tend to break due to impacts and friction. However, the adhesive nature of collagen promotes the formation of strong, robust solid bridges.
- 5) Operating at a product temperature of 33°C or higher appears to prevent granule collapse and ensures slow, consistent particle growth.
- 6) If larger granules are desired for a specific customer requirement, reducing atomization pressure, reducing process temperature, increasing pump speed, and/or extending process duration should make it easy to achieve that objective.



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Instantizing Results

