Differential Scanning Calorimetry (DSC) Analysis of the *Nutragen*® Collagen Product

Nutragen®, Type I Collagen product provided by Advanced BioMatrix is recognized as a highly purified bovine collagen (approximately 6 mg/ml) that is widely used as a standard and reagent for a variety of applications including collagen analysis and characterization, three dimensional (3D) structures for cellular experiments, extracellular matrix approximations in biophysical analysis and as scaffolds in tissue engineering.

To better characterize this product, *Nutragen*® collagen has been evaluated using differential scanning Calorimetry (DSC). DSC is a thermo-analytical technique in which the difference in the amount of heat required to increase the temperature of a sample and reference is measured as a function of temperature. Both the sample and reference are maintained at the same temperature throughout the experiment. The temperature program for a DSC analysis is designed such that the sample holder temperature increases linearly as a function of time. The reference sample has a well-defined heat capacity over the range of temperatures being scanned. Diagram 1 shows a typical DSC profile for *Nutragen*® collagen.

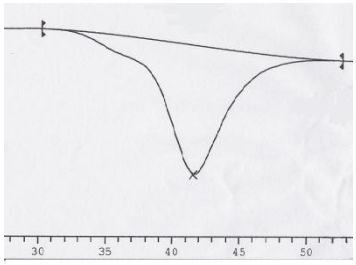
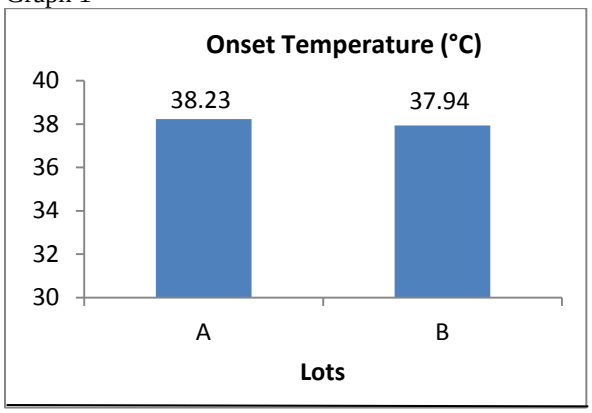


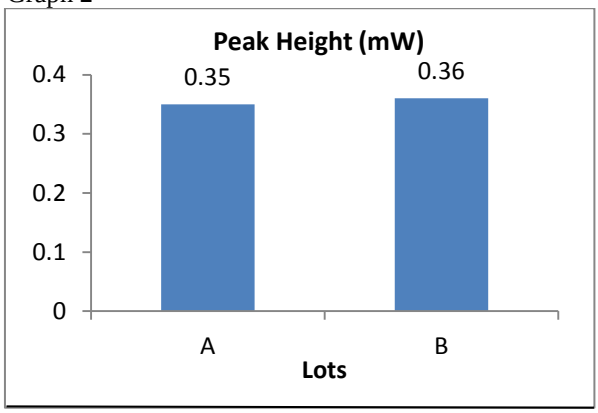
Diagram 1: Typical DSC Profile for Nutragen® Collagen with *x* axis = temperature (abscissa) and *y* axis = enthalpy (ordinate)

Two lots of *Nutragen*® were tested using DSC. Graph 1 shows onset temperature results, graph 2 shows peak height results, graph 3 shows integral (area) results, graph 4 peak temperature results, graph 5 shows the peak width temperature and Table 1 shows the DSC data. Results indicate consistency between lots of *Nutragen*® collagen.

Graph 1



Graph 2

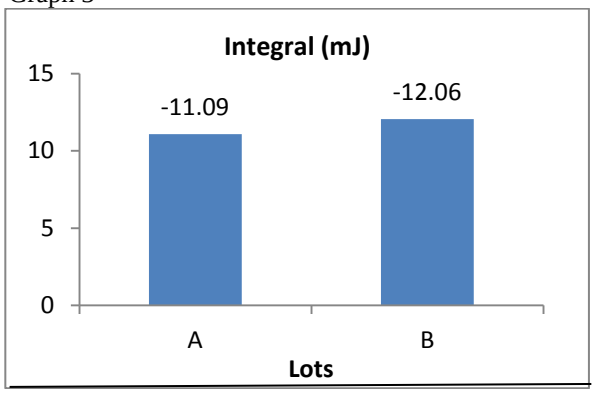


Corporate Headquarters
P.O. Box 502403
San Diego, CA 92150-2403

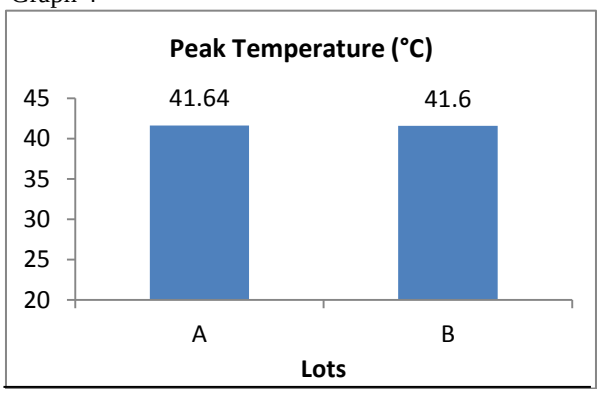
(800) 883-8220 (858) 451-2421
(510) 217-3452 Fax
www.AdvancedBioMatrix.com

Manufacturing Facility
11880 Community Road. Suite #330
Poway, CA 92064

Graph 3



Graph 4



Graph 5

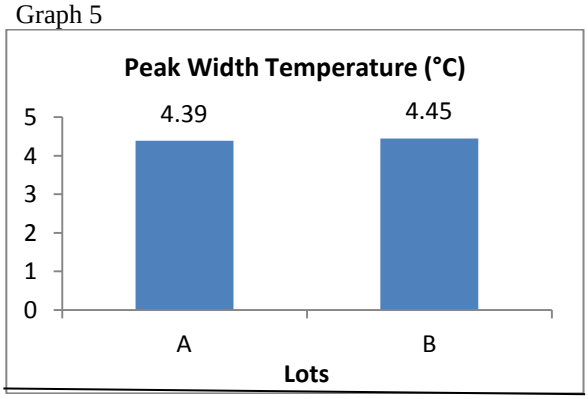


Table 1

DSC for Nutragen® 39.4 to 39.7 mg per aluminum pan				
Lot	Onset	Peak	Peak Width	Integral
	(°C)	(°C)	(°C)	(mJ)
A	38.23	41.64	4.39	-11.09
B	37.94	41.60	4.45	-12.06
AVG	**38.09**	**41.62**	**4.40**	**-11.58**

Corporate Headquarters
P.O. Box 502403
San Diego, CA 92150-2403

(800) 883-8220 (858) 451-2421
(510) 217-3452 Fax
www.AdvancedBioMatrix.com

Manufacturing Facility
11880 Community Road. Suite #330
Poway, CA 92064