



## Differential Scanning Calorimetry (DSC) Analysis of the *VitroCol*<sup>®</sup> Collagen Product

*VitroCol*<sup>®</sup>, Type I Collagen product provided by Advanced BioMatrix is recognized as a highly purified human collagen (approximately 3 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, *VitroCol*<sup>®</sup> 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 *VitroCol*<sup>®</sup> collagen.

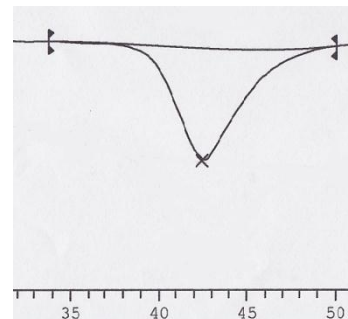
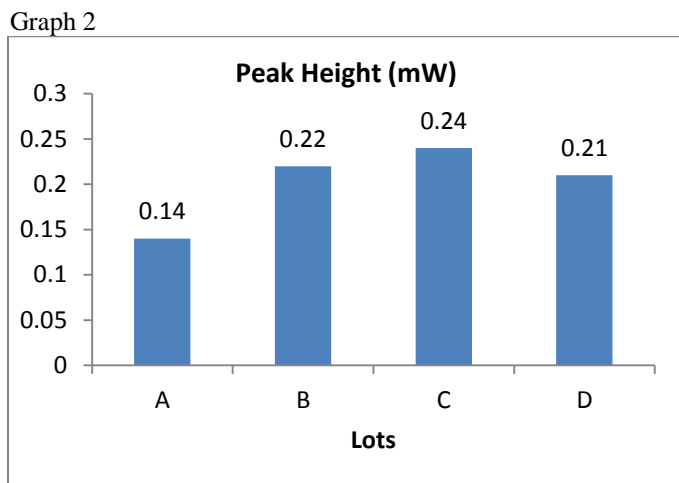
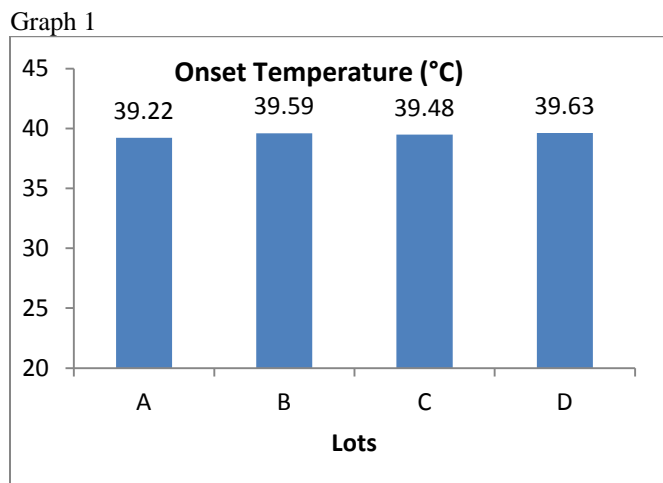


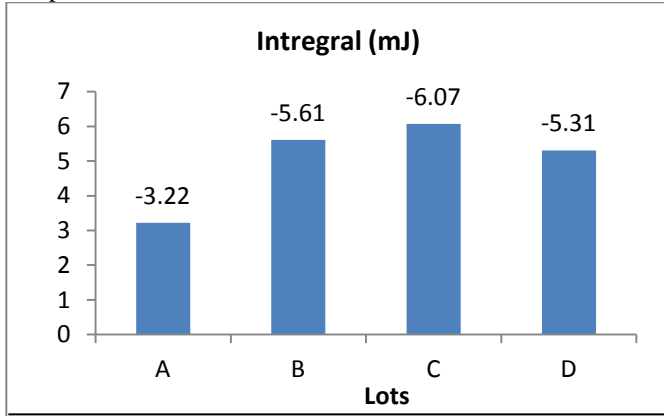
Diagram 1: Typical DSC Profile for *VitroCol*<sup>®</sup> Collagen with x axis = temperature (abscissa) and y axis = enthalpy (ordinate)

Four lots of *VitroCol*<sup>®</sup> 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 date.

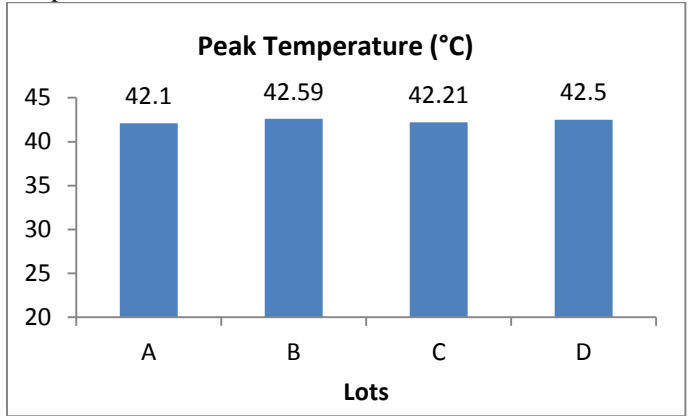




Graph 3



Graph 4



Graph 5

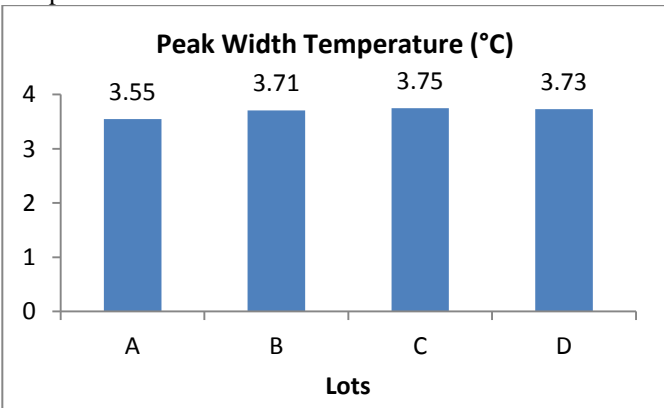


Table 1

DSC for VitroCol®				
38.8 to 39.3 mg per aluminum pan				
Lot	Onset	Peak	Peak Width	Integral
	(°C)	(°C)	(°C)	(mJ)
A	39.22	42.10	3.55	-3.22
B	39.59	42.59	3.71	-5.61
C	39.48	42.21	3.75	-6.07
D	39.63	42.50	3.73	-5.31
<b>AVG</b>	<b>39.52</b>	<b>42.40</b>	<b>3.60</b>	<b>-5.05</b>
<b>STDEV</b>	<b>0.11</b>	<b>0.21</b>	<b>0.17</b>	<b>1.26</b>
<b>RSD</b>	<b>0.28</b>	<b>0.50</b>	<b>4.82</b>	<b>-24.96</b>
<b>MAX</b>	<b>39.63</b>	<b>42.59</b>	<b>3.75</b>	<b>-3.22</b>
<b>MIN</b>	<b>39.39</b>	<b>42.10</b>	<b>3.37</b>	<b>-6.07</b>