



13. Boiled Sweet

Instrument:	Tritec 2000 Dynamic Mechanical Analyser
Sample:	Boiled Sweet
Geometry:	Single Cantilever Bending
%RMS strain:	0.055
Frequencies (Hz):	1.0
Thermal profile:	2°C/minute to 200°C

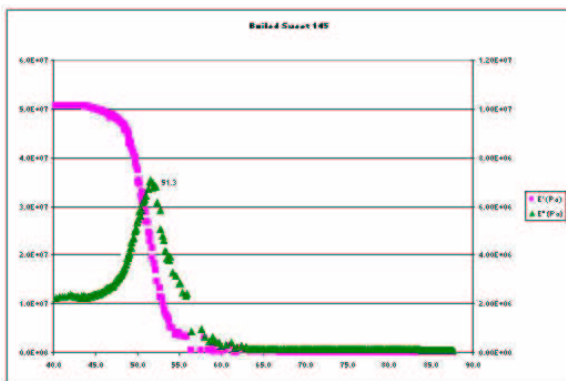


Fig.1

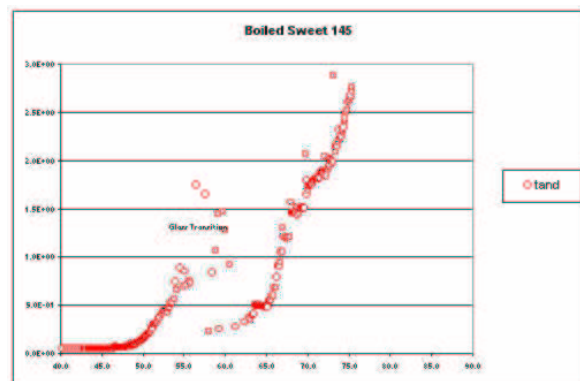


Fig.2

Comments:

The data in Fig.1 shows the glass transition as represented by E'' and E' . The data looks slightly 'noisy' as the E''_{max} is exceeded. If the $\tan \delta$ data is plotted as shown in Fig.2, then the data at first sight looks very strange. However, note that the break up of data occurs at or around the mid point of the glass transition. The probable cause of this is likely to be due to the dramatic increase in the mobility of moisture within the sugar glass at this point. Note as well that there appears to be an additional relaxation as temperature increases. This is almost certainly a 'ghost' relaxation effect as the sweet starts to dry out.

A solution to some of these effects when measuring this type of sample is to control the humidity and prevent drying out taking place. This should certainly help prevent 'ghost' peaks. Ideally, the A_w of the environment should match that of the sample. This in practice is very difficult technically through a thermal scan of a sample. A possible solution is to use a 100% humidity throughout. Further experimentation is under way in this area and results will be published in due course.