Mechanical Testing of Oriented Polymer Thin Films

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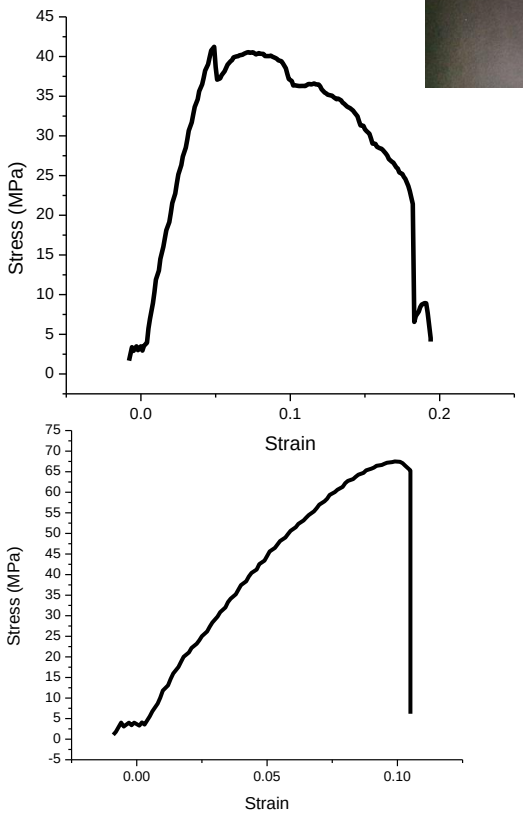
Project Overview

This project examines the mechanical properties of plastic cups made of polyethylene (PETE). Two different samples, parallel and perpendicular cuts, were tested on the MTS tensile machine. Two different sized cups, small and large, were used to compare the differences of data between the sizes. Stretching of the material or crazing was experienced in the parallel cut samples. In the perpendicular cuts, immediate fracture occurred. Data was collected for both sized cups, analyzed and then compared to partner for small cups.

In collaboration with Sophie Ydstie

Samples on left and in middle: parallel cut and crazing is observed.
Sample on right: perpendicular cut, clean fracture.



Stress vs. Strain plots comparing the big cup cut parallel (top) and big cup cut perpendicular (bottom). Strain rates of the sample at 25mm/min.

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