Appendix:-

Table1. Data for Impact Test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Impact Testing |  |  |  |  |  |  |
|  | °C | Trial1 (J) | Trial2 (J) | Trial3 (J) | Average (J) | Stdev (J) |
| Liquid Nitrogen | -195.79 | 0.0033 | 0.0033 | 0.0040 | 0.0035 | 0.0004 |
| Ice Water | 0 | 0.1076 | 0.1090 | 0.1054 | 0.1073 | 0.0018 |
| Room Temperature | 24 | 0.1452 | 0.1459 | 0.1467 | 0.1459 | 0.0008 |
| Oven 1 | 70 | 0.2686 | 0.2470 | 0.2320 | 0.2492 | 0.0184 |
| Oven 2 | 90 | 0.3830 | 0.4061 | 0.3542 | 0.3811 | 0.0260 |

Table2. Data for Tensile Test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Nylon 6 | PP | PMMA | Poly C | PVC | HIPS |
| Length L (mm) | 114.87 | 114.21 | 113.62 | 114.28 | 114.22 | 114.25 |
| Length S (mm) | 35.68 | 35.4 | 35.75 | 35.38 | 35.79 | 35.51 |
| Width (mm) | 6.42 | 6.4 | 6.29 | 6.3 | 6.3 | 6.41 |
| Thickness (mm) | 3.29 | 3.19 | 2.89 | 2.85 | 2.95 | 3.12 |
| Cross-Section Area (mm^2) | 21.12 | 20.42 | 18.18 | 17.96 | 18.59 | 20.00 |
| Length S (inch) | 1.40 | 1.39 | 1.41 | 1.39 | 1.41 | 1.40 |
| Cross-Section Area (inch^2) | 0.0327 | 0.0317 | 0.0282 | 0.0278 | 0.0288 | 0.0310 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| New Length L (mm) | 213.38 | 421.95 | 113.9 | 153.1 | 116.19 | 118.5 |
| New Length S (mm) | 137.65 | 348.9 | 42.1 | 81.4 | 44.79 | 46.89 |
| New Width (mm) | 3.75 | 2.91 | 6.29 | 4.7 | 6.29 | 6.39 |
| New Thickness (mm) | 1.79 | 1.35 | 2.81 | 2.02 | 2.89 | 3.09 |
| Cross-Section Area (mm^2) | 6.71 | 3.93 | 17.67 | 9.49 | 18.18 | 19.75 |

Equation for engineering stress:

Equation for engineering strain: