**Experimental and thermomechanical analysis of friction stir welding of poly(methyl methacrylate) sheets**

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**S1.** Properties of PMMA. (a) Viscosity as a function of shear rate. (b) Heat capacity. (c) Thermal conductivity [1-5]. The emissivity coefficient of the PMMA was selected 0.97 from literature [6].

**S2.** Thermal properties of the steel tool are deduced from Ref. [7] and used:

 (1)

 (2)

**S3.** Properties of the commercial PMMA sheet used in this study. For comparison, the reported values in literatures [1-5] are shown.

|  |  |  |
| --- | --- | --- |
| Property | Measured values | Reported values |
| Density (g/cm3) | 2.57 | 2.58 |
| Tensile Strength (MPa) | 69.8 | 70 |
| Young Modulus (GPa) | 72 | 72.3 |
| Elongation (%) | 4.73 | 4.8 |
| Poison’s Ratio | 0.2 | 0.2 |



**Fig. S2.** Electronic image showing sticking of PMMA to the tool.

**References**

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