PMMA plastics - plexiglass

Plexiglass properties

Acrylic plastics are very popular, constantly expanding the application areas that until now belonged to traditional materials such as glass or wood. It's all thanks to its properties:

- exceptional aesthetics, rigid, thermoplastic, low synthetic,
- high transparency on average 92% and even up to 99%, especially in the UV band,
- at the same time resistant to ultraviolet, which prevents yellowing, does not require additional UV coatings,
- easy in mechanical and thermal treatment, plastic is above the temperature of 80 ° C, it is allowed to be molded in the temperature range 130-190°C
- can be easily colored,
- low depolymerization temperature allows for easy recycling, plexiglass waste can be re-heat treated, and extrusion plexiglass can be re-applied to the extruder,
- unnecessary waste can be eliminated by fragmentation and incineration, because the combustion of plexi does not cause toxic or corrosive compounds, which has a positive impact on the environment,
- it is resistant to weather conditions and to many chemical compounds (cast plates),
- it is characterized by good thermal insulation,
- has a constant impact value,
- has a low abrasion resistance, which, however, can be leveled with mineral admixtures.

List of the most important plexiglass parameters

	Unit	extruded plexiglass plate	plexiglass casted plate
specific weight	g/cm^3	1,19	1,19
light transmission	%	92	92
coefficient of longitudinal elasticity	MPa	3200	3200
Vicat's softening temperature	°C	105	115
max. temperature of the shape permanence	°C	80	85
molding temperature	°C	140-175	130-190
specific heat	$J/g/^0C$	1,32	1,32
toughness acc. to Izod's (with notch)	KJ/m^2	1,3	1,4
toughness acc. to Charpy's (without notch)	KJ/m^2	10	12
coefficient of thermal expansion	$mm/m/^0C$	0,065	0,065
thermal conductivity	$W/m/^0C$	0,19	0,17
hardness acc. To wg Rockwell's, M scale		95	100