

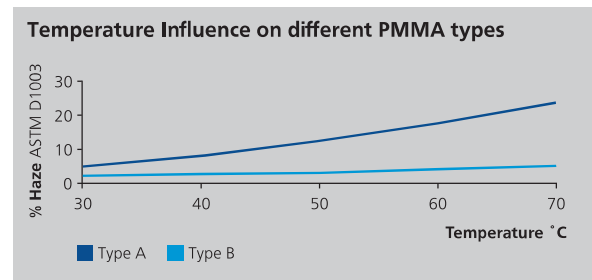
Transparent Sheets

Light weight and high design flexibility make transparent plastic sheets attractive for use as “organic glass” in many different applications e.g. noise barriers, green houses, sport arenas, sky domes, solar panels or bus stop shelters. In addition, rigidity and impact resistance of acrylic (PMMA) and polycarbonate (PC) sheets were optimized expanding its usage for safety and architectural glazing as well as for automotive, aircraft, yacht or caravan applications. Depending on the application, the transparency requirements will be very different and need to be objectively controlled – often within very tight specification.

Influence of material properties

Sheets for outdoor use need to withstand extreme weather conditions and require high rigidity over a long lifetime. As an example, PMMA typically shows increasing haze with higher temperatures and therefore, limits its use in e.g. automotive glazing where low haze is a crucial safety requirement. Material development has further allowed this behavior to improve and resulted in an optimized PMMA material with low temperature dependency ideal for automotive applications like rear windows.

Automotive glazing is tested and approved in accordance to international regulations like e.g. ECE R43 or ANSI Z 26.1 in regards to mechanical, chemical and fire resistance, and last but not least transmission properties.



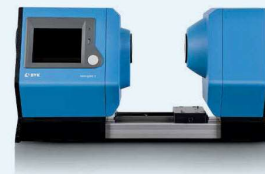
BYK-Gardner Solution



Solid Color & Gloss
spectro2guide



Gloss
micro-gloss

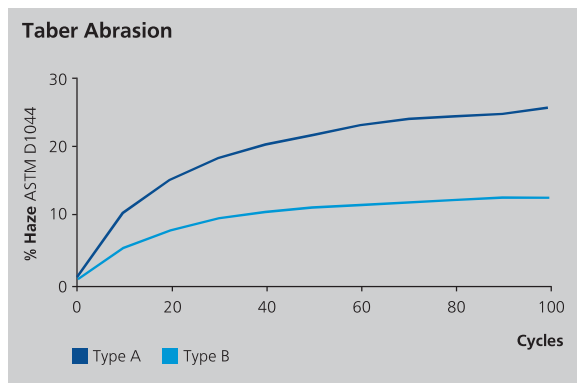
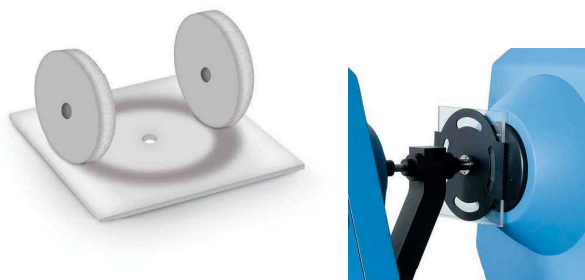


Transparency
haze-gard i



Abrasion resistance

A critical behavior of plastic materials has been their limited abrasion resistance, which in many applications requires additional efforts, such as modifications of the polymer or use of appropriate coatings. A widely used method for abrasion testing is the so-called Taber test according to ASTM D1044, where the sample is turned under abrasive wheels at defined conditions. After a certain number of cycles transmission haze is measured. To guarantee repeatable and representative readings, a special holder is available, which allows placement of the scrub mark exactly in the optical path of the haze-gard i.



As an example, the graph above shows the abrasion results of different uncoated PMMA types used for public and sport glazing.



Film and Sheet Accessory
sample holder



Sheet Accessory
Taber abrasion holder