

# Relationship between impact strength and fiber length

Xencor LFTs are innovative, long-fiber reinforced products designed for metal replacement and structural applications. The long fibers create a unique three-dimensional network within the molded part, where the entangled fibers form a strong fiber skeleton, resulting in high mechanical properties, such as impact strength. It is well-known that the LFTs improve as fiber length increases. The figure demonstrates the notched impact strength as a function of fiber length for Xencor PPA-1950. The results show that notched impact strength increases with fiber length, and saturates around 42 kJ/m<sup>2</sup>. Fibers longer than 1500 microns do not effectively enhance mechanical performance. For further improvement, stronger adhesion between the fiber and matrix may be required rather than simply increasing the fiber length.

