

Akulon®

Processing benefits of PA6 compared to PA66

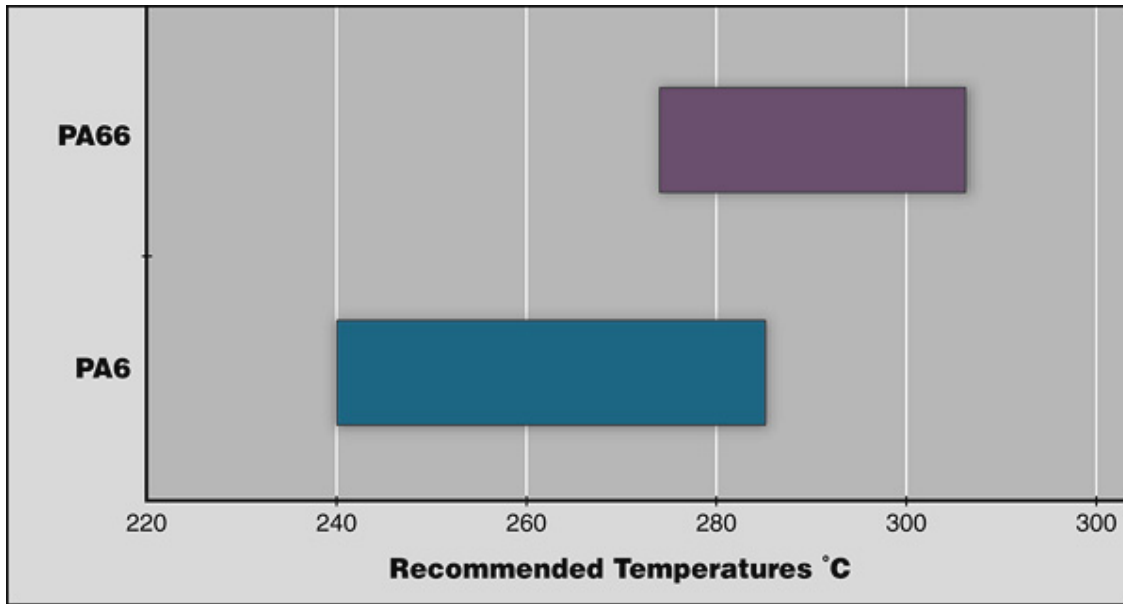
PA6's toughness and lower melting point result in important benefits to processors.

Broader processing window

The melting point of PA6 is 40°C lower than PA66. As the onset of thermal degradation of both materials is similar, a processor has about a 40°C broader temperature window to work with when PA6 is used. Value results from:

Lower temperature settings on machine:

- leads to lower energy costs
- when coloring with cadmium-free pigments, the lower thermal stress gives a higher freedom of choice; cheaper pigments for certain colors become possible



Up to 20% better flowing material at similar temperature settings with the following important value gains:

- Lower injection pressures required; smaller molding machines with lower clamp force can be used : lower machine cost per part
- Faster injection can give shorter cycle time
- Easier on-line coloring. The color mixes in more readily giving a uniform, streak-free colored part. Better part appearance, lower risk of rejects
- Better part appearance when using reinforced grades; easier flowing materials give smoother, resin-rich surfaces. Splay or flow lines can be eliminated yielding quality parts that do not require

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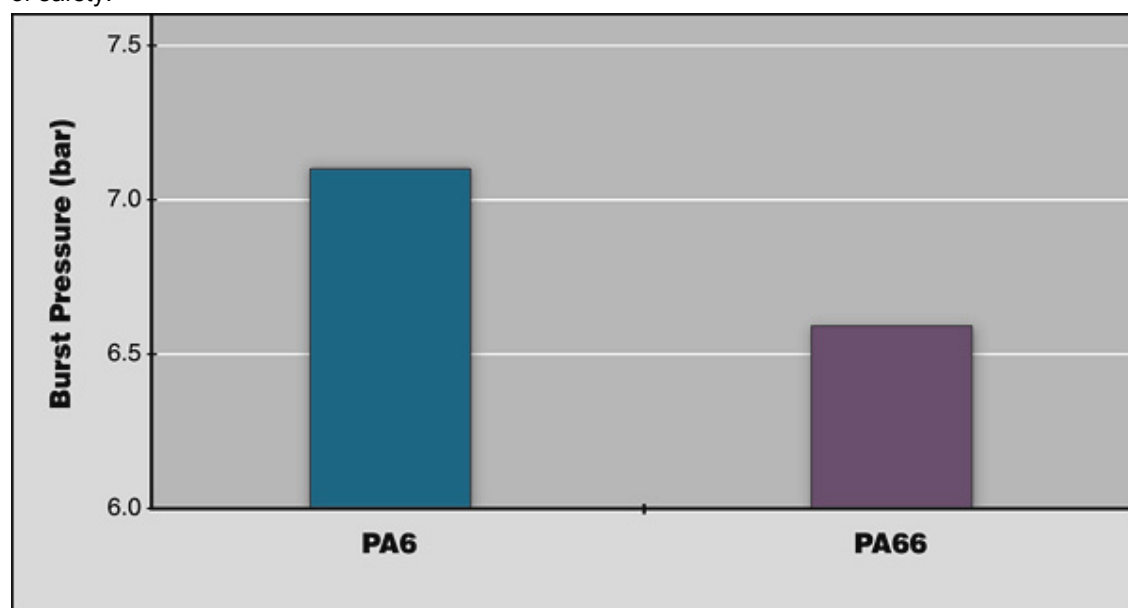
painting

Slower crystallisation of PA6, material does not freeze off as quickly. Benefits include:

- Better surface appearance especially for reinforced grades, no orange peel effect
- Hold pressure can be maintained longer; reduced tendency to sink marks

[Akulon Ultraflow](#), a range with up to 80% better flow rate than standard PA6 materials, can exploit these advantages further – cycle time reductions of up to 40% have been achieved using Akulon Ultraflow.

In secondary operations such as welding, the lower melting point of PA6 results in higher weld line strengths. For parts under stress during operation e.g. burst pressure levels in inlet manifolds, this gives a higher margin of safety.



Higher toughness of PA6

PA6 parts have a higher toughness and better ductility directly after molding than do PA66 parts, especially [reinforced grades](#). This lowers the risk of parts cracking when ejecting from the mold and reduces reject levels. As parts are tougher, there is less risk of rejects during handling in subsequent manufacturing operations. Conditioning of parts, e.g. by immersion in water, can be avoided, making for a simpler manufacturing operation.

Parts designed with snap fits are particularly sensitive to these risks during molding and assembly and PA6's greater ductility make it the preferred material.

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