

## Annealing of Polypropylene

### Why Anneal Plastics?

If, during the machining process, significant material is removed, annealing is recommended to relieve machined-in-stress and minimize possibility of premature part failure.

All extruded stock shape plastics are compressed through a profile die when extruded. The compression that occurs in the material is not relieved because the plastic “sets up” as soon as it comes out of the die and it remains in this compressed or highly stressed state. This high state stress will cause four problems if not addressed:

1. Materials will tend to warp and distort
2. Physical properties will be different than published data (usually lower)
3. Material may crack
4. Finished part dimension may change

In order to eliminate these problems extruded products are annealed. Annealing is a stress relief process, which occurs when the material is exposed to heat (air or fluid) above its glass transition point, which allows the material to “decompress” back to a relaxed state. Annealing is important if you want a quality, finished part out of your stock shape.

### Annealing / Stress Relieving Procedures For Polypropylene

1. Place parts in air circulating oven on an open mesh platform at room temperature
2. Heat oven to 185°F at a maximum heating rate of 50°F per hour
3. Hold oven temperature at 185°F for 2 hours per 1" of thickness (under 1" should remain for 2 hours)
4. Cool oven down to ambient temperature at 50°F per hour
5. Turn off oven and allow to cool to room temperature before removing parts

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