

Visual Guide to Effective Heating

MATERIAL USE GUIDELINES

While surface temperature measurement tools are useful, high quality forming depends on achieving the right temperature at the core of the sheet. This helps relieve internal stresses in the material, and yields parts with consistent quality, uniformity, and dimensional stability. However, it is also difficult to measure.

In addition to cycle times, many experienced operators rely on the visual appearance of a heated sheet to determine its suitability for forming. This has proven to be an effective complement to cycle time guidelines.

SIMONA Boltaron sheet goes through four visible phases during heating. The appearance of the sheet in these phases can help operators make appropriate oven adjustments and determine whether the sheet is in the best state for forming:

Phase 1: Sheet softens, billows

The sheet softens from the heat under it and will slightly bulge or billow upward

Phase 2: Rippling occurs

Near its forming temperature, ripples or undulations can be seen on the sheet. This is caused by the release of stresses induced in all materials during sheet manufacturing

Phase 3: Ripples begin to disappear

Ripples begin to smooth out during this phase. The sheet is not yet at an optimum temperature. Forming at this point would likely result in poor definition and thinning.

Note: if measurements indicate the sheet surface is at the recommended forming temperature, the sheet may be heating too quickly, requiring adjustment of oven settings and dwell time.

Phase 4: Sheet is smooth, sags slightly

A smooth, ripple-free sheet with a slight sag indicates that the sheet has reached the right core temperature, with minimal internal stress levels. SIMONA Boltaron sheet sags less than ABS and many other materials due to its higher melt strength. At this point, the sheet is ready for forming in the 10-30 seconds after achieving this visible phase.

Note: smoking or blistering on the sheet before achieving this stage indicates that it is being heated too fast or excessively. Reduce temperatures and increase dwell times.



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