

### GENERAL INFORMATION

ThermoChek is a high melting temperature thermoplastic material for the production of external orthoses and prosthetic check sockets:

- ThermoChek Stiff is a very stiff clear material with high impact resistance
- ThermoChek Extra Soft is a semi-transparent and flexible material

ThermoChek is not suitable for internal applications. It may not be used on open wounds or in the mouth.

ThermoChek Stiff is not suitable for orthoses that are subjected to a regular cyclic load.

### RECOMMENDED THERMOFORMING CONDITIONS

THERMOFORMING TEMPERATURES			
PRODUCT	OPTIMUM ACTIVATION TEMPERATURE	THICKNESS	AVERAGE ACTIVATION TIME
ThermoChek Stiff	170°C (338°F)	8mm (5/16")	20 minutes
		10mm (3/8")	25 minutes
		12mm (15/32")	28 minutes
		15mm (19/32")	40 minutes
ThermoChek Extra Soft	150°C (302°F)	9mm (11/32")	11 minutes
		12mm (15/32")	14 minutes
		15mm (19/32")	20 minutes

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The optimum activation temperatures shown previously are the recommended temperatures for the use of ThermoChek materials.

By increasing heating temperature, the flow of the material will be enhanced. This means that the sagging ("drop" formation) will probably be faster as well.

In theory, a user should expect a shorter activation time at higher temperature, because the flow of a polymer improves/increases at higher temperatures (in an exponential way).

This means that once the material is well heated (not only at the surface, but also in the core) the sagging will be faster.

This is the reason we strongly recommend that users monitor the sagging process. If the sagging process is not closely monitored the user may end up with a sticky substance on the bottom of the oven.

We are unable at this time to give you specific information regarding how long *ThermoChek* must remain in the oven when it is activated at temperatures above the recommended optimum activation temperature.

### **Temperature Range**

The maximum temperature that can be applied/used is contained in the following *Degradation Temperature* table. This is the temperature at which degradation sets in.

<b>DEGRADATION TEMPERATURE</b>	
<b>PRODUCT</b>	<b>DEGRADATION TEMPERATURE</b>
ThermoChek Stiff	300°C (572°F)
ThermoChek Extra Soft	230°C (446°F)

The temperature window for *ThermoChek* (optimum activation temperature — degradation temperature) is very broad.

However it does define the theoretical temperature range in which the customer could use our material.

Degradation causes discoloration, loss of mechanical properties, etc. Since degradation is a time-temperature dependent issue, we recommend that users stay well below the upper limit, which does narrow the temperature range.

The potential issues that might come up when the material is activated at temperatures above the optimum recommended activation temperatures are:

- a.** Once the sheet is completely molten, the sagging will be very fast (as the flow of the material is enhanced). As a result the material might drop out of the frame. Therefore, the sagging process must be monitored continuously!
- b.** After thermoforming the material should be kept longer on the mold. If not, additional shrinking will take place, due to the larger temperature difference between the oven and the working area.
- c.** The melt strength will be affected as well, although this should not pose any problem when using thick sheets. Nevertheless, care should be taken to avoid tearing.

The potential issues that might come up when the material is activated at temperatures above the optimum recommended activation temperature apply to all *ThermoChek* materials.