Innovative heating technology for best forming and sealing performance of pharmaceutical packages

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The quality of thermoformed pharmaceutical packages and the contained products is affected by two main processes: the production of the blister and the sealing of the lid. Thermoforming is a very cost-efficient way to produce packages made from plastics. But, due to the demands on wall thickness distribution this process is limited especially for complex applications.

Cera2Heat – More Efficiency in Thermoforming

One challenge in thermoforming is to achieve an appropriate wall thickness distribution, particularly for capsules. A novel heating technology called cera2heat was introduced by watttron to overcome the present limitations in thermoforming. The ceramic based heaters allow to apply a defined temperature profile on the films that are thermoformed. The heater has many independently controllable heat circuits, so called heat pixels. This allows a highly flexible adaption of the optimal temperature profile which is required to achieve an appropriate wall thickness distribution. This technology allows the basic idea to apply less heat to areas that should be deformed less and have a thicker wall and more heat to areas that shall be stretched more. Consequently, the wall thickness can just be controlled by temperature distribution. A pre-stretching plug is no more necessary even for large deformation degrees.

The technology was already approved on several thermoformed containers and cups, and blisters. Within this presentation an introduction into this very unique and sophisticated technology is provides as well as a demonstration of the significant benefits by means of several examples.

Cera2Heat – More Dynamic and Process Control in Sealing

Additionally, this technology can also provide advantages in used for sealing of blisters and cups. The ceramic heating elements with integrated temperature sensors are placed close to the sealing surface to achieve a very short closed loop control. The integrated control electronics additionally provide a very fast temperature control

up to 1000 times a second. In summary this leads to a very precise temperature control and process stability for sealing applications. The heaters are also perfect thermally insulated and can be heated up within several seconds and thus immediately reach a ready to operation status without temperature overshooting.