

Sustainable sealing – How ultrasound is shaping the future of food packaging

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SIEVING



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Sustainability, process reliability, and efficiency—three requirements that modern packaging technologies must meet simultaneously today. Ultrasonic welding shows how this can be achieved.

The packaging industry is undergoing change. Legal requirements, corporate sustainability goals, and growing environmental awareness among consumers are leading to a rethink of materials and processes.

Monomaterials and paper-based packaging are considered promising alternatives to traditional plastic composites – but their processing poses technical challenges for conventional joining methods such as heat sealing.

Material trends: monomaterials and paper with barriers

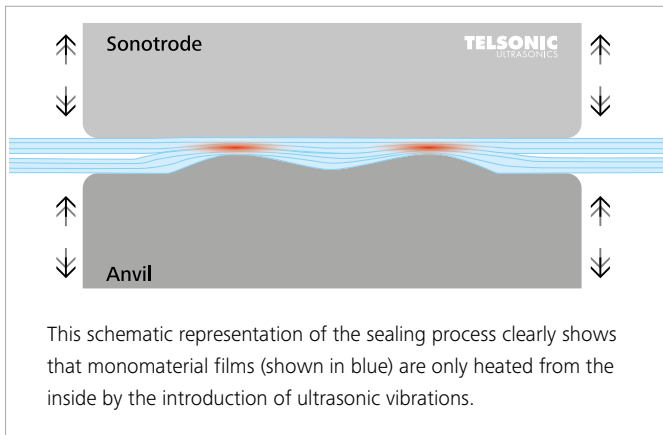
Single-material materials such as OPP/PP or PE are particularly easy to recycle and are already used in products such as pre-cut salad and pet food. Paper-based packaging is also gaining in importance – usually with a thin plastic layer (< 5%) that acts as a barrier against moisture and aroma.

However, these materials are sensitive to heat and mechanical stress. Shrinkage, wrinkling, and leaks are common problems in heat sealing processes. The result: high scrap rates, product losses, and limited recyclability.

Ultrasound as a key technology

Ultrasonic welding offers a material-friendly and reliable alternative. The technology uses high-frequency mechanical vibrations to apply energy to the seam area in a targeted manner—without external heat or adhesives.

- **Targeted heat application:** Energy is generated only inside the seam – the tools remain cold.
- **Fabric-bonded connection:** The materials fuse at the molecular level – tight, stable, and hygienic.
- **High seam precision:** Clean, reproducible results are achieved even with narrow process windows.
- **Short setup times:** Digital parameterization and quick tool changes reduce downtime.
- **Easy cleaning:** No adhesive residues, no thermal deposits.
- **Material diversity:** Suitable for monomaterials, paper with barriers, and recyclable composites.



Efficiency counts – even in numbers

Production managers appreciate the high process stability and repeatability of ultrasonic welding. The technology makes a measurable contribution to overall equipment effectiveness – with less scrap, higher availability, and consistently high quality. The concrete OEE values speak for themselves.

Conclusion: Sustainable, safe, economical

Ultrasonic welding is more than just an alternative joining process—it is key to the sustainable transformation of the packaging industry. It combines environmental responsibility with industrial efficiency and ensures safe, leak-proof, and visually flawless packaging—especially in the sensitive food sector.

Get advice now –

Telsonic application experts are here to help

Whether you need monomaterial, paper with a barrier, or complex packaging geometries:

Our application consultants will help you find the optimal solution for your application. In feasibility studies, laboratory tests, and process analyses, we work with you to develop a reliable welding concept – precisely tailored to your requirements.

Contact Telsonic for your individual packaging solution.

Author:

Dirk Schnur, Senior Advisor – Patents & Communications at Telsonic AG