

Sealing aluminum foil caps to plastic bottles

- Objective:** To seal a 1.5" (38.1 mm) diameter cap with foil to a plastic bottle.
- Equipment:** Ambrell EASYHEAT™ 2 kW, 150-400 kHz solid state induction power supply with a workhead and coil specifically designed for this application.
- Frequency:** 309 kHz
- Material:** 1.5" (38.1mm) diameter cap with 1.5" (38.1mm) diameter aluminum seal, plastic bottle
- Temperature:** 250-300 °F (121-149 °C)
- Testing:** A single turn helical coil of rectangular tube was designed to uniformly heat the entire perimeter of the aluminum foil. In production, the bottle passes under the induction coil. For testing, a silicon rubber was placed on the coil and then the aluminum seal was placed on the silicon rubber and heat was applied for .5 seconds. The bottle was placed on the aluminum seal and pressure was applied causing the aluminum to seal to the plastic bottle.
- Benefits:**
- **Speed:** Induction met the client's time requirements and is generally faster than other heating methods.
 - **Throughput:** Induction's fast heating is conducive to production lines in the food industry thanks to its rapid heating and versatility.
 - **Repeatability:** The client can expect the same result in the same amount of time every single time with induction heating.
 - **Coil Design:** It can be designed to fit a wide array of production set ups.



Applying the plastic bottle to the heated cap.



The finished and sealed plastic bottles.