Heating a crucible for melting plastic

Objective To heat a crucible for a plastic melting application.

Material Stainless steel crucible, 3in.(76mm.) diameter, 18in.(457mm.) height, ground plastic compound

Temperature 400ºF (204ºC)

Frequency 288 kHz

Equipment
- Ambrell 5kW induction heating system, equipped with a remote workhead containing two 1.5µF capacitors for a total of 0.75µF
- An induction heating coil designed and developed specifically for this application.

Process A single-position 6-turn helical coil is used to generate the required heating for application. The crucible is heated in 70 seconds with the 5kW power supply. The plastic takes approximately 7 minutes to melt. This melting time may be decreased by either mixing, or by increasing the surface area in contact with the plastic material.

Narrative
- The customer is designing a medical disposal system. The medical bottles and pills are run through a grinding machine, and then put into the stainless steel crucible. They want to melt the material into a solid mass, and eventually empty the crucible through the bottom and dispose of the waste. What would benefit the customer is that induction heating would provide a small and portable process. Control of bio hazards would also be optimally maintained, as opposed to a more open heating environment.

Results/Benefits Induction heating provides:
- Flexible and cleanliness can not be duplicated by conventional methods.
- Fast, controllable temperature ramp, allowing for consistent, quality results.
- Faster startup/shutdown time saves energy

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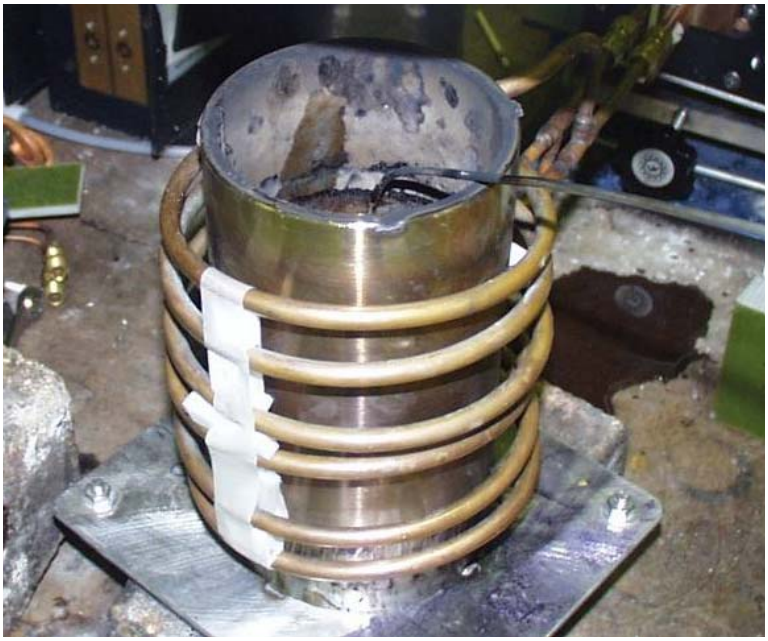
Heating plastics and medical products in steel crucible



Heating steel crucible for a melting application