# Heating a 4” Tubular Carbon Susceptor to 5400 °F (3000 °C)

**Objective**  
A tubular carbon susceptor is held within an atmosphere-controlled quartz chamber. Induction is used to heat the susceptor.

**Material**  
Customer supplied carbon tube, 36” long, 4” Ø

**Temperature**  
5400 °F (3000 °C)

**Frequency**  
8.5 kHz

**Equipment**  
- Ambrell EKOHEAT 50/10 induction heating system, equipped with a remote workhead containing three 26μF capacitors for a total of 78 μF  
- A combination induction heating coil designed and developed specifically for this application.

**Process**  
A 24-turn helical coil has been wound in three 1-foot sections with 14” Ø. The large ID of the coil is required to overcome the radiant losses at these high temperatures. Graphite felt insulation is used to fill the gap between the OD of the graphite and the ID of the coil/chamber. Testing supports feasibility of this application.

**Results/Benefits**  
Induction heating provides:  
- Flameless, precision heating of the susceptor  
- Uniform distribution and control of susceptor heating  
- Reduced conductive thermal losses