



SIDEWINDER DRUM HEATER

WHITE PAPER



PURPOSE

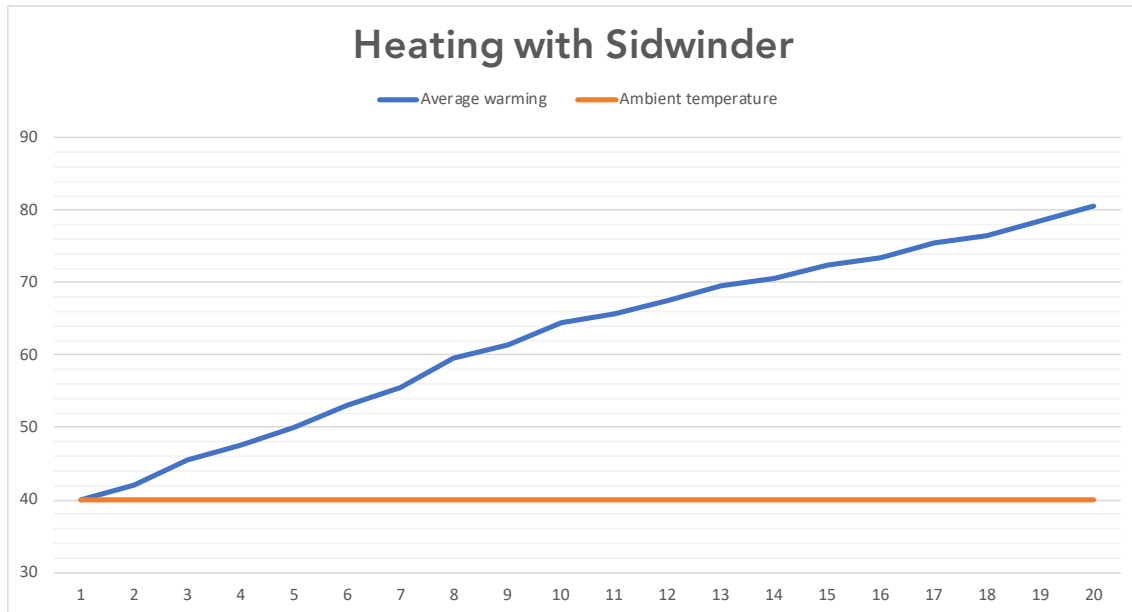
The purpose of this document is to display research results for understanding the heating cycle and insulation properties of the Sidewinder Drum Heater. The product was tested to determine the duration of time required to warm liquid from 40°F to 80°F. Data was also captured to measure the drum heater effectiveness on retaining temperature by documenting the duration of time for liquid to cool after reaching 80°F.

SETUP

Researchers filled two steel drums (one with water and one with hydraulic oil) and placed each in a refrigerated truck set at 40°F. Four temperature probes were placed: one in the center of the liquid inside the drum, two placed parallel from each other centered outside of steel drum and one reading ambient temperature. Data was sampled every 30 seconds. The charts below show the averages.

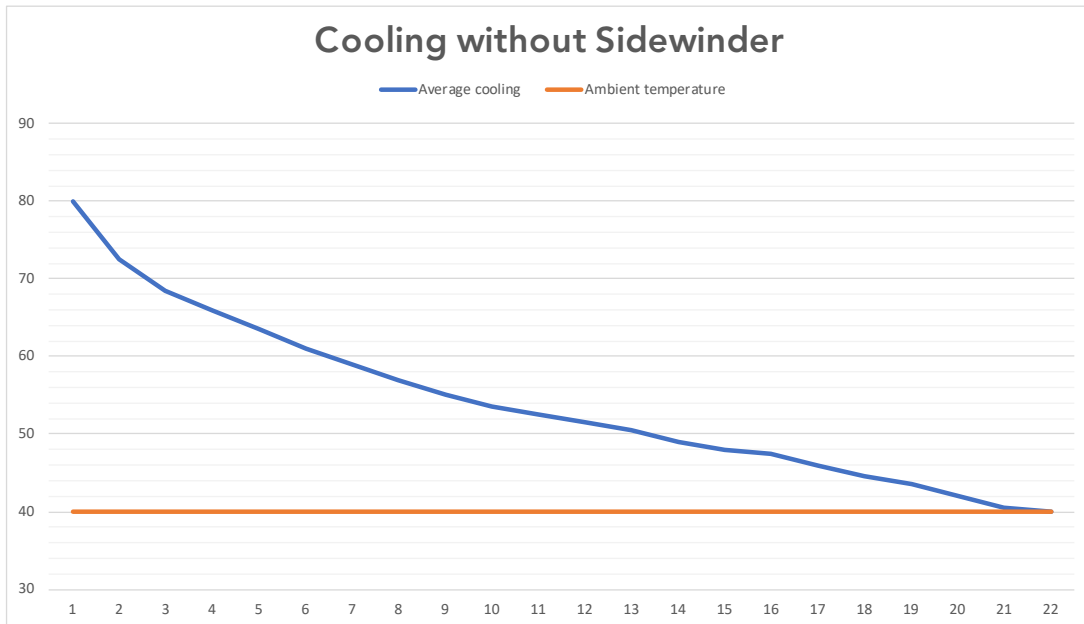
FIRST TEST

The Sidewinder Drum Heater is installed with a timer set to monitor the climb from 40°F to 80°F. As shown in the graph, the liquid reaches it's optimal temperature of 80°F after 20 hours of operation.



SECOND TEST

The liquid is cooled down from 80°F to 40°F without a drum heater. As the graph shows, it takes 22 hours for the liquid to reach the ambient temperature. The liquid dropped 10°F in the first 2.5 hours.



THIRD TEST

The liquid is cooled down from 80°F to 40°F with the Sidewinder Drum Heater installed but powered off. As shown in the graph, liquid sat in the drum for 60 hours until reaching the 40°F temperature. The liquid dropped 10°F in 7 hours.

