

Test Start Date: August 20, 2005

Container: Kodiak D36—Super Insulated

Test Method:

The payload for was empty to indicate a worse-case scenario.

The D36 *payload area* was preconditioned with 5 lbs of dry ice to simulate a preconditioned payload. A box was loaded with 20 lbs of dry-ice and placed in the payload area.

The program for the 120 D36 Profile was executed on the certified S-16 Thermotron for the R36 with the final temperature of 23 °C set for indefinite soak. The test was run for an indefinite duration.

The data was recorded using Virtual Bench by National Instruments (NI). The measurement devices were T type thermocouples attached to an NI TC-2190 (shielded rack-mount adapter for 14 thermocouples). This was attached to an NI 4350 (High Resolution Voltage and Temperature Data Logger). This was attached to the PC which ran the Virtual Bench software.

This test was run in the Kodiak lab with the D36 on a digital platform scale to read and monitor the container weight as the dry ice would sublime.

Results:

1. The load sensor measured a minimum temperature of -56 °C at 53.74 hours and a maximum (after conditioning) of 0 °C at 125 hours.

2. The ambient environment was set at constant 23 °C to indicate an average environment.

3. The load was successfully maintained below -22 °C for 118.75 hours.



**Kodiak Thermal Technologies, Inc. —
Test Results**

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Test Results**

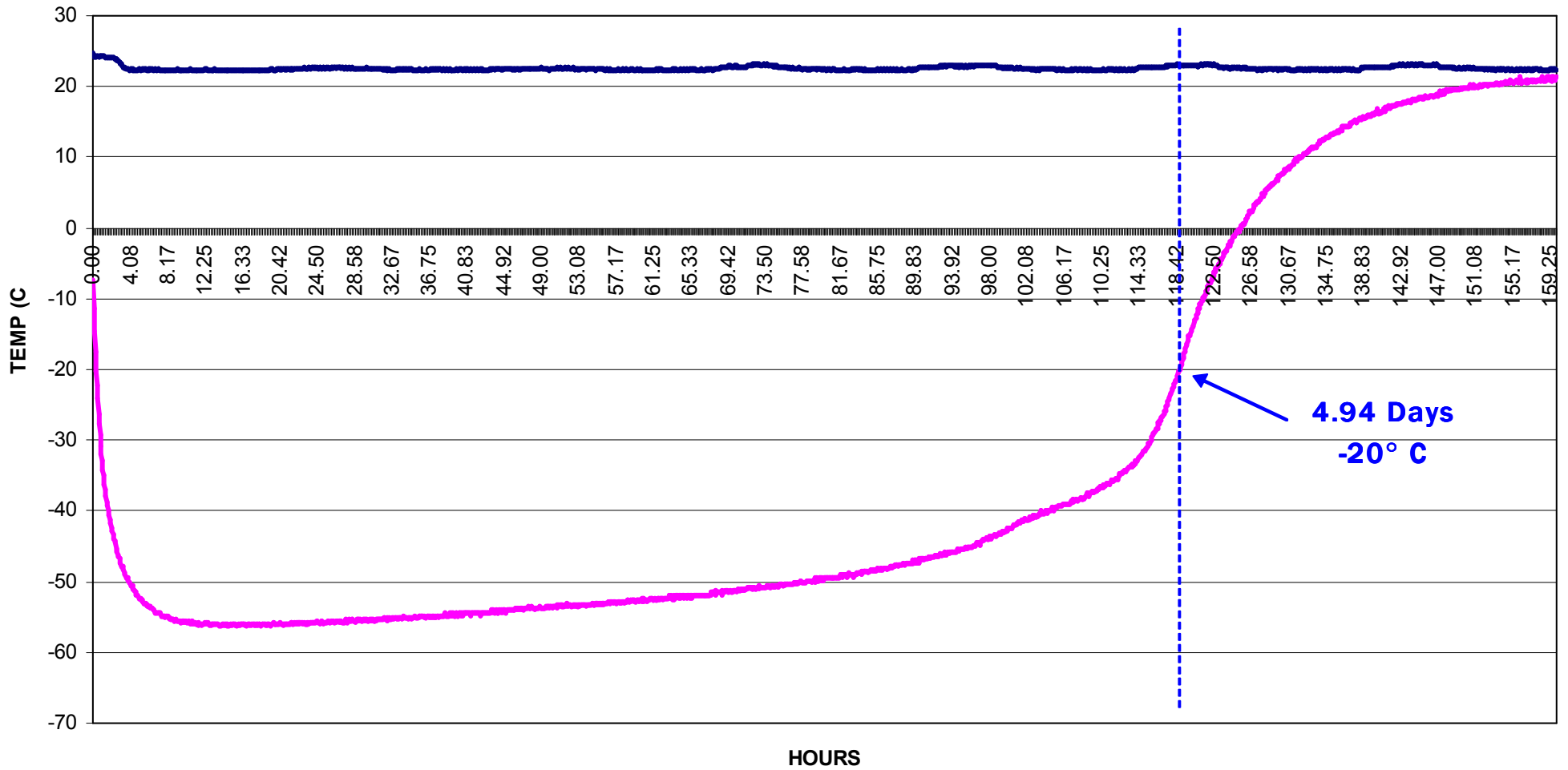
Kodiak D36 120 Hour Profile Validation Results



Revolutionizing the Cold Chain



KODIAK D36 120-HOUR TEST
No Payload / 20 lbs Dry-Ice



— Ambient Temp — Internal Temp