

Hydropac

Flexible Cooling
Solutions for a wide
range of applications



Hydropac Ltd.
Duration Ice Pack Test Report

Test Number: PICOTEST0306001
Test Start Date: 18th March 2006

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1.0 Contact details

Customer

Company: _____

Contact: _____

Address: _____

Telephone: _____

Fax: _____

Product Supplier

Company: Hydropac Ltd.

Contact: Adam Hart

Address: 76 Lincoln Road
Cressex Business Park
High Wycombe
HP12 3RH

Telephone: 01494 530 182

Fax: 01494 538 539

2.0 Test approval

Hydropac Ltd.

Test Manager

Michael Adams
QA Manager
Hydropac Ltd.

_____ signed

_____ date

Report approval

Adam Hart
Sales Manager
Hydropac Ltd.

_____ signed

_____ date

Customer.

Customer approval

[Name]
[Company]

_____ signed

_____ date

3.0 Requirements of the test

A comparison was required between the customer's current gel ice pack product and Hydropac's Duration Ice Packs. Both cooling mediums were to be tested with customer supplied meat products and polystyrene insulated containers.

Both of the cooling mediums should maintain the meat products at a temperature below positive 8°C for more than 24 hours at an ambient air temperature of positive 18°C.

It is believed that the Hydropac 660gms Duration Ice Packs will show a sizable performance advantage over the customer's current gel ice pack product.

4.0 Products tested

	Box 1 (current gel pack)	Box 2 (Hydropac Duration Ice)
Insulated container	Customer supplied Styropack polystyrene 20kg	Customer supplied Styropack polystyrene 20kg
Product load	Customer supplied meat (20kg): 2 x trays of chicken breasts 2 x trays of sausages 2 x packs of bacon 1 x bag of chops	Customer supplied meat (20kg): 2 x trays of chicken breasts 2 x trays of sausages 2 x packs of bacon 1 x bag of chops
Meat conditioning	Stored at 0°C for 24 hours prior to the start of the test. Packed at 0°C.	Stored at 0°C for 24 hours prior to the start of the test. Packed at 0°C.
Cooling media	Customer supplied gel ice single layer PE film branded by the manufacturer in a 2 pocket configuration.	Hydropac Duration Ice Packs 4 layers of clear PE film (unbranded) in a 2 pocket configuration.
Quantity of cool charges	4 units per box	4 units per box
Cooling media conditioning	Frozen at -25°C for 72 hours prior to the start of the test.	Frozen at -25°C for 72 hours prior to the start of the test.

5.0 Equipment used

- Data logging device (8 channels) supplied by Pico Technologies, model TC-08, for recording product and air temperatures.
- In house Hydropac computer, serial number 00043-518-805-240, to control the temperature logging interface.
- Temperature data recorded through Pico Technologies software; Pico-Log Recorder version 5.11.6.
- The test was conducted inside Hydropac's environmental test chamber; a Unitemp Thermotron SM16-SLE, ID no. 0783.

6.0 Test methodology

To ensure a fair a test, the 2 customer supplied polystyrene containers were packed with the same products in exactly the same positions inside the box.

The cooling mediums and temperature probes were also placed in identical positions inside each of the customer supplied polystyrene containers.

Each polystyrene container was packed with 2 cool charges in the base, one box with the customer's current gel pack and the other with Hydropac's Duration Ice Packs.

A temperature recording probe was placed on of one of these cool charges in each of the polystyrene containers to recording the coolant temperature during the test.

A layer of bubble wrap was placed into the polystyrene containers on top of the cool charges. The various meat products were then packed into each of the polystyrene containers, directly on top of the cool charges. These meat products were placed in identical positions inside each box.

A temperature recording probe was attached to the top meat product in each of the polystyrene containers to record the product temperature experienced during the test.

A second layer of bubble wrap was placed on top of the meat products and a further 2 cool charges were placed in the top of polystyrene container. These containers were sealed with clear vinyl parcel tape and placed into the environmental test chamber at a constant 18°C for the duration of the test.

It was decided that the test would run for 48 hours, or until the meat products reached a temperature of 12°C.

7.0 Test results

	Box 1 (current gel pack)	Box 2 (Hydropac Duration Ice)
Meat temperature at 12 hours	0.59°C	-0.93°C
Meat temperature at 24 hours	1.62°C	-0.33°C
Meat temperature at 36 hours	3.49°C	1.62°C
Meat temperature at 48 hours	5.44°C	2.15°C
Meat temperature at 72 hours	9.86°C	4.55°C

Time recorded below 8°C

57.83 hours

85.33 hours

20kg EPS Box @ 18°C Air Temperature
Hydropac Duration Ice / customer's current gel

