



Product data, safety sheet and test report for Gel packs -21 °C



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1. Description and how to use

Gel packs are used to keep temperature sensitive products, refrigerated or frozen during shipments. The gel packs are meant for single use, but can be used multiple times if cleaned properly with lukewarm water and normal household soap.

-21 °C gel packs are normally used for products that needs to be kept at -21 °C to -18 °C.

However, this depends on the shipping method used, how and how many gel packs used.

The gel packs must be frozen at -27 °C or colder to be fully charged. When the gel pack is completely solid and changes color from yellow to white/yellow, then they are ready for use.

Contact us for technical details.

2. Sizes

2.1 Article number

2015400-21-400 ml

2018800-21 -800 ml

2.2 Standard dim

2015400-21-400 ml+/-5 ml
(200 x 150 x ca. 25 mm)

2018800-21 -800 ml +/-10 ml
(200 x 190 x ca. 35 mm)

2.3 Standard packaging – Dim. Cardboard (379x 284x 165mm)

2015400-21-400 ml-30 pcs

2018800-21 -800 ml -16 pcs

56 cardboard boxes on a euro pallet (400 ml)/

48 cardboard boxes (800 ml)

3. Foil

The foil consists of OPA-transparent and PE-transparent.

Thickness 15 + 70 my.

ASTM 3985 -ASTM 1249 / DIN 53122

Shelf life: Minimum 2 years
(avoid direct sunlight).

4. Gel mass

The main ingredient is water, mixed with a natural chemical to lower the melting point. We also add a bit of super absorbent to make it jelly.

6. Disposal

After use, dispose with normal household trash (plastic).

5. Dosage of preservative

SunWac chlorine: 0.0013 g pr. 400 ml gel pack

Oxyplus: 0.008 ml pr. 400 ml gel pack

7. Material properties

Thermal conductivity: 0,6 W (m x k) at 20 °C

Density: 1,11 kg/l at 18 °C

Volume expansion: 5-7 %

Flash point: Non-flammable

Slightly Corrosive to metals

8. Safety

The gel packs are not harmful to humans or the environment.

Don't eat or feed to animals. Gel packs are not meant for human or animal consumption.

Don't use as ice cubes in beverage or drinks.

If eaten or swallowed seek doctor or hospital and show this data sheet.

Phone this number incase of an emergency:

+45 61132000

9. Import / Export tariff code

3824999699

10. Correct Freezing of gelpacks

The gelpacks need to be proper frozen to give the maximum energy.



not frozen



partly frozen

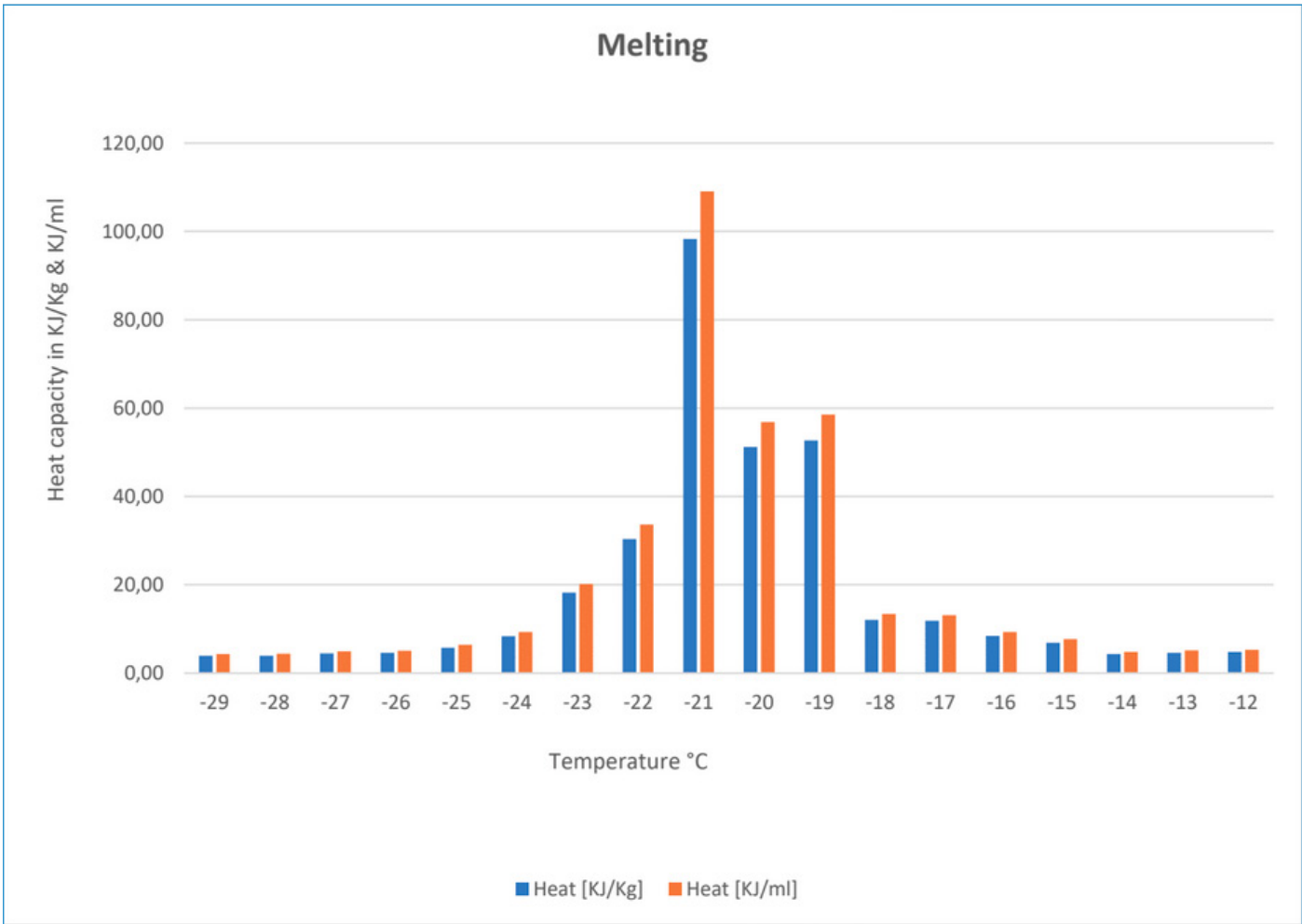


completely frozen

11. Energy content

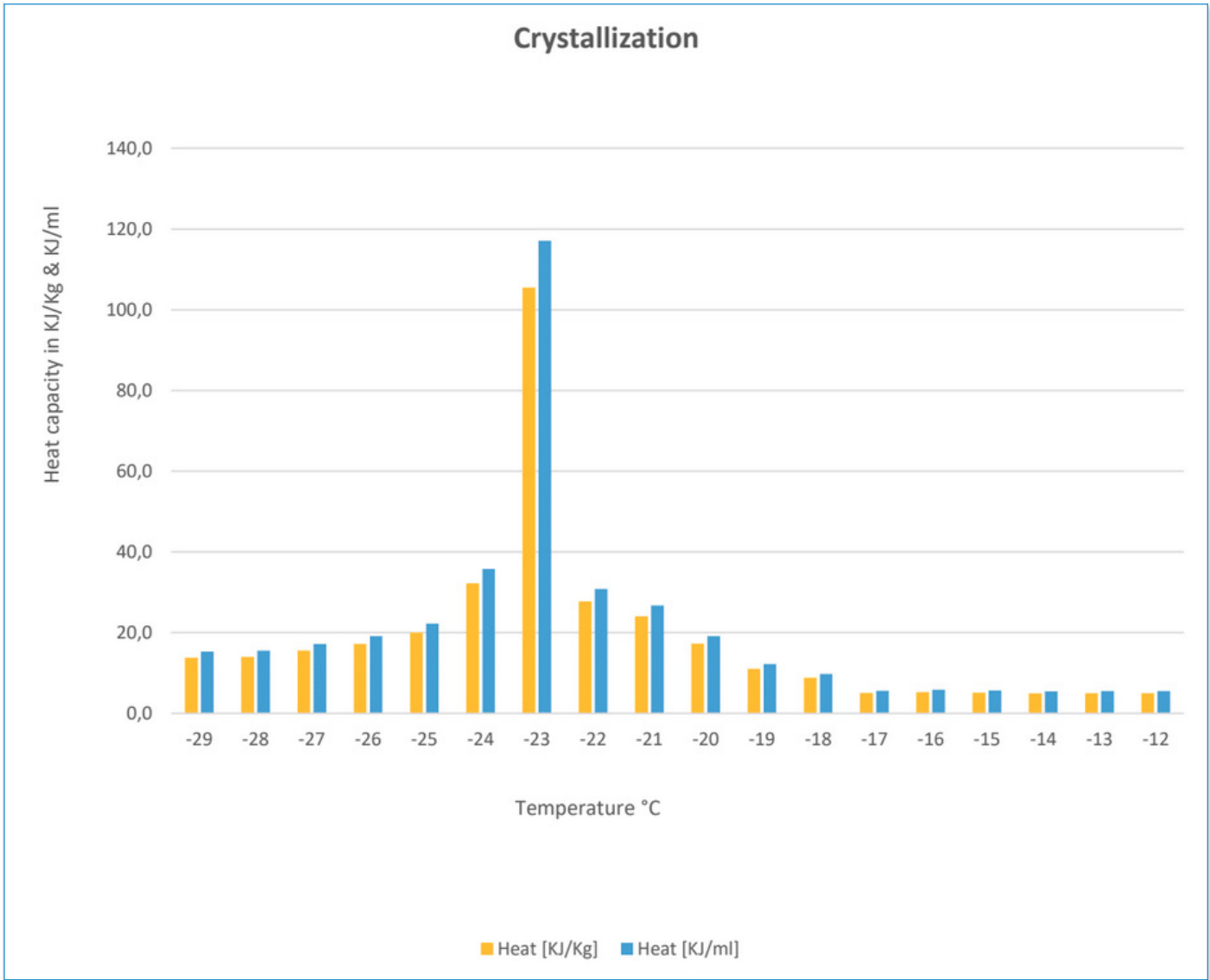
3 layer calorimeter test of FriloTech Frilo -21C gelpacks (-29 to -12 °C)*

Melting -29 to -12 °C				
Onset (°C)	Peak (°C)	Offset (°C)	Capacity (KJ/Kg)	Capacity (KJ/Kg) Phase changing
-23	-21	-19	334,69	250,68



Melting - Temperature distribution *					
Temperature interval				Stored heat	
(°C)				Heat (KJ/Kg)	Heat (KJ/ml)
-29	-28,5	-	-29,5	3,93	4,37
-28	-27,5	-	-28,5	3,96	4,39
-27	-26,5	-	-27,5	4,46	4,95
-26	-25,5	-	-26,5	4,60	5,11
-25	-24,5	-	-25,5	5,77	6,40
-24	-23,5	-	-24,5	8,37	9,29
-23	-22,5	-	-23,5	18,19	20,19
-22	-21,5	-	-22,5	30,34	33,68
-21	-20,5	-	-21,5	98,25	109,06
-20	-19,5	-	-20,5	51,19	56,82
-19	-18,5	-	-19,5	52,71	58,51
-18	-17,5	-	-18,5	12,07	13,40
-17	-16,5	-	-17,5	11,83	13,13
-16	-15,5	-	-16,5	8,40	9,33
-15	-14,5	-	-15,5	6,91	7,67
-14	-13,5	-	-14,5	4,31	4,78
-13	-12,5	-	-13,5	4,62	5,13
-12	-11,5	-	-12,5	4,79	5,31
				Total	
Density at +18 °C		kg/l	1,11	334,69	371,50

Crystallization -12 to -29 °C				
Onset (°C)	Peak (°C)	Offset (°C)	Capacity (KJ/Kg)	Capacity (KJ/Kg) Phase changing
-20	-23	-25	337,4	374,5



Crystallization - Temperature distribution *					
Temperature interval				Stored heat	
(°C)				Heat (KJ/Kg)	Heat (KJ/ml)
-29	-28,5	-	-29,5	13,8	15,3
-28	-27,5	-	-28,5	14,0	15,5
-27	-26,5	-	-27,5	15,5	17,2
-26	-25,5	-	-26,5	17,2	19,1
-25	-24,5	-	-25,5	20,0	22,2
-24	-23,5	-	-24,5	32,2	35,8
-23	-22,5	-	-23,5	105,5	117,1
-22	-21,5	-	-22,5	27,7	30,8
-21	-20,5	-	-21,5	24,1	26,7
-20	-19,5	-	-20,5	17,3	19,2
-19	-18,5	-	-19,5	11,0	12,2
-18	-17,5	-	-18,5	8,8	9,8
-17	-16,5	-	-17,5	5,0	5,6
-16	-15,5	-	-16,5	5,3	5,9
-15	-14,5	-	-15,5	5,1	5,7
-14	-13,5	-	-14,5	4,9	5,4
-13	-12,5	-	-13,5	5,0	5,5
-12	-11,5	-	-12,5	5,0	5,6
				Total	
Density at +18 °C		kg/l	1,11	337,4	374,5

12. Climate chamber test report 24 & 48hours transport

12.1 Setup before 24 hours test

Test is made from the 18 to 19 of February -2021.*

Test performed in our EPS box 210.

Exterior dimensions: 350 x 350 x 300 mm

Internal dimensions: 250 x 250 x 200 mm

Wall thickness: 50 mm

Density: 25 g / liter

Thermal properties: 0,034 w/(m x k)

Number of gel packs: 7 pcs. 400 ml -21 °C

Gel packs frozen at -29 to -27 °C for 48 hours.

Gel packs are not acclimatized, they are packed directly after the freezing process.

Payload: Test is performed without payload

Logger used in test: 4 channel MadgetechQuadTCTempV2

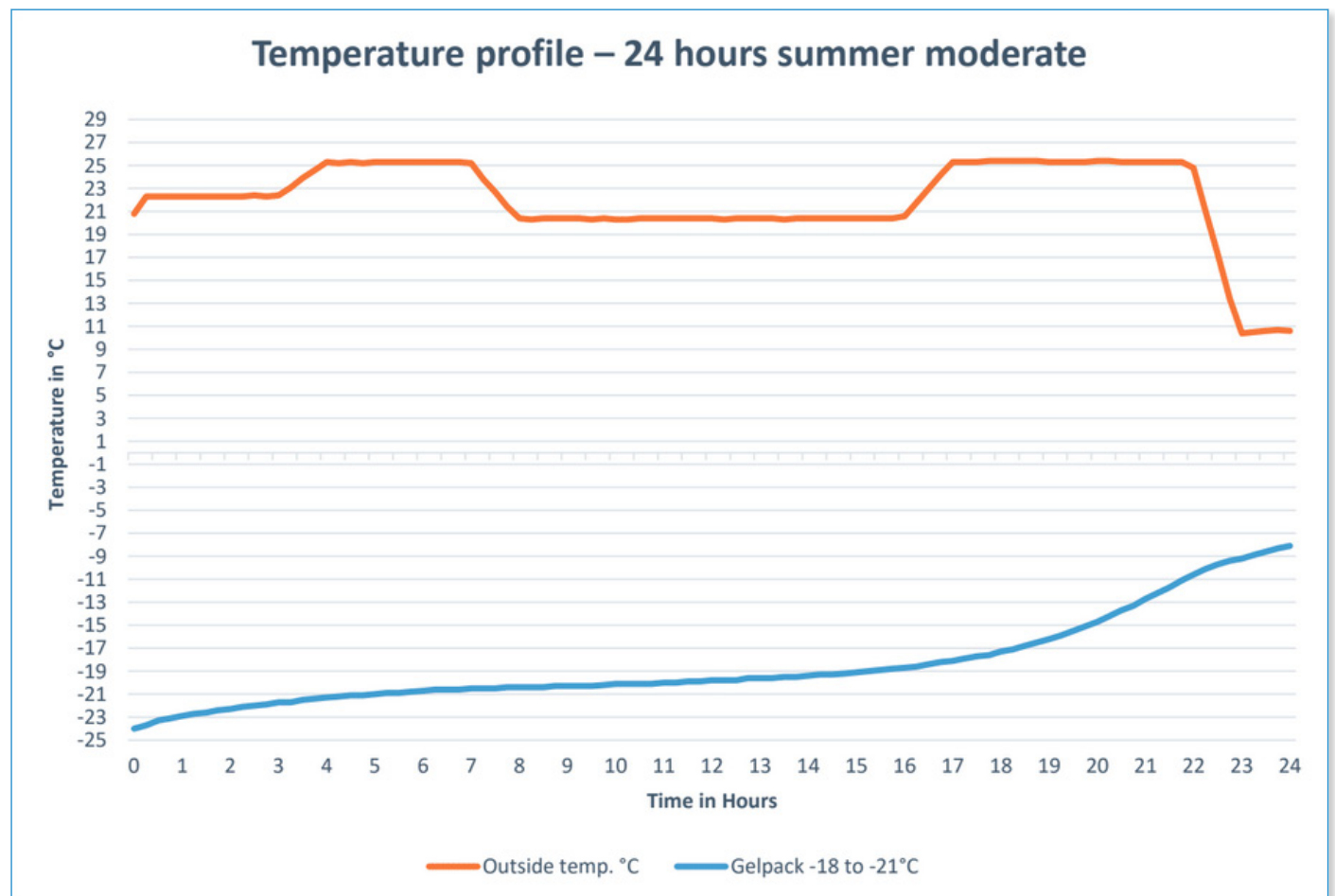
Logging every 15 min.

Average outside temperature: +22.02 °C

Average inside product: -18,42 °C



EPS box 210



12.2 Setup before 28 hours test

Test is made from the 9 to 11 of April -2018.*

Test performed in our EPS box 210.

Exterior dimensions: 350 x 350 x 300 mml

nternal dimensions: 250 x 250 x 200 mm

Wall thickness: 50 mm

Density: 25 g / liter

Thermal properties: 0,034 w/(m x k)

Number of gel packs: 11 pcs. 400 ml -21 °C

Gel packs frozen at -30 to -29 °C for 72 hours.

Gel packs are not acclimatized, they are packed directly after the freezing process.

Payload: 1,5 liter of frozen water, with a start temperature of -30 °C

Logger used in test: 4 channel Madgetech QuadTCTempV2

Logging every 15 min.

Average outside temperature: +20.92 °C

Average inside product: -18,04 °C

