

TEST REPORT**N° P-21.249A-VAL****REPORT DATE:** 23/11/2021**SUBJECT:** Validation report according to AFNOR S99-700 Summer cycle serie -70°C dry ice**BY ORDER OF:** **Corkconcept SA**
Rue Zénobe Gramme 39
4821 Andrimont
Belgium

The results of this report are exclusively related to the submitted and tested items as received.
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Recognition:



Len D'heygere
Analyst - Consultant
Physical Testing



An Van Geite
Head of Department
Physical Testing

1. Received samples

Receiving date of the samples: 22/07/2021

Contact person: Alexandre Narinx
E-mail contact person: anarinx@corkconcept.com

Description of the received samples:

1 isothermal boxes / type: 3L72HC ; 11L72HC ;21L72HC
Cooling elements : dry ice by a IBE-BVI supplier

The samples were taken and sent by CORKCONCEPT to IBE-BVI.

2. Preconditioning

The samples were conditioned as described in 4. Results

3. Executed tests

Testing date: 17/08-21/08/2021
Executor: Len D'heygere

climatic test -70° ; according to AFNOR NF S99-700, cycle ST-96-b

Cycle N° ST-96-b:

Sequence	Test Time (h)	Temperature (°C)
1	3	22
2	4	25
3	9	20
4	8	25
5	4	32
6	3	25
7	9	20
8	8	25
9	3	22
10	4	25
11	9	20
12	8	25
13	4	32
14	3	25
15	9	20
16	8	25

4. Results

4.1. Protocol preconditioning

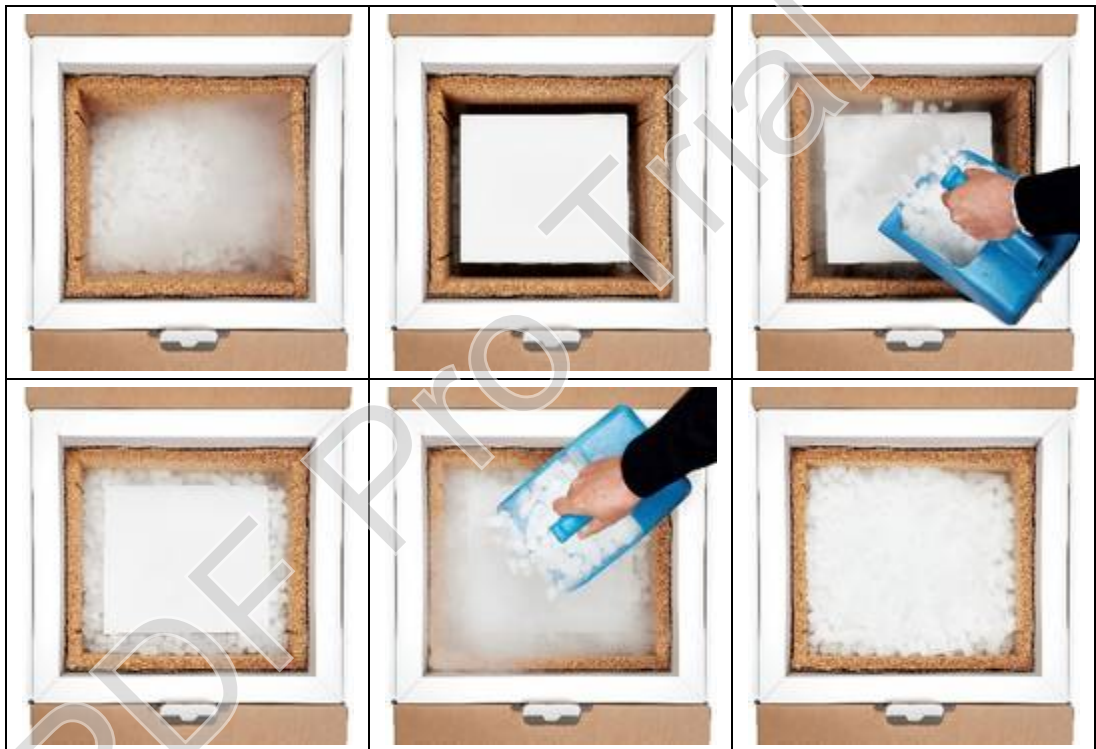
Isothermal Box & Product (empty box inside):

- ✓ Min. 24h at $(+18 \pm 2)^{\circ}\text{C}$

4.2. Protocol preparation packaging

Boxes are prepared according to the protocol from the Customer

About 3cm of dry ice (fresh – with diameter of 16mm) is poured in the isothermal box, on which the product box, with TempTale logger, is placed. The isothermal box is then filled completely with dry ice.



The climatic test is started immediately after preparation.

Used Equipment: Climatic Room GH-023
Manufacturer: CTS
Type: TW-40/15
Serial number: 129606
Range: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$

Temperature is measured in the centre of the box.

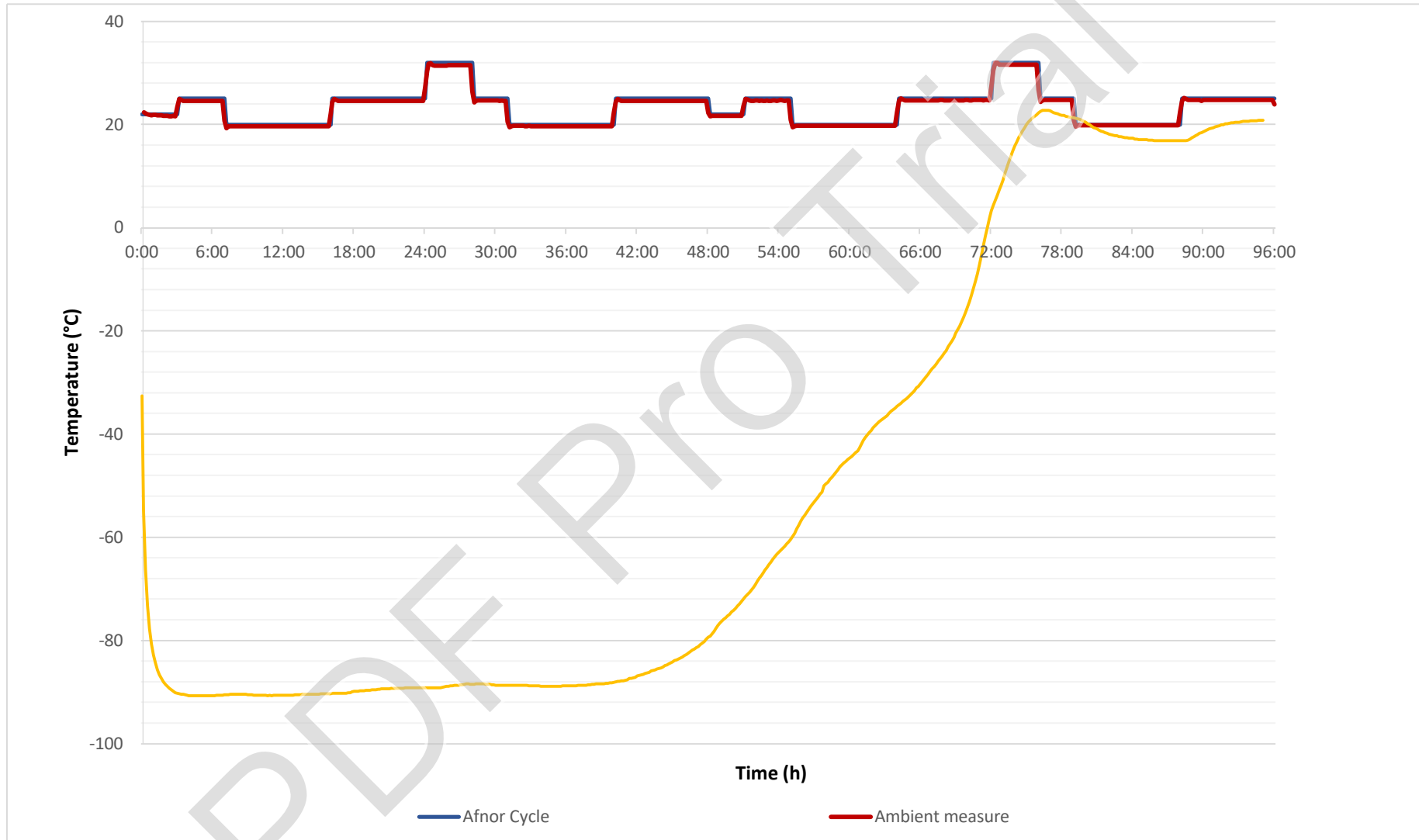


Loggers: GL-155 Waranet Pucés:
TP006 for ambient temperature

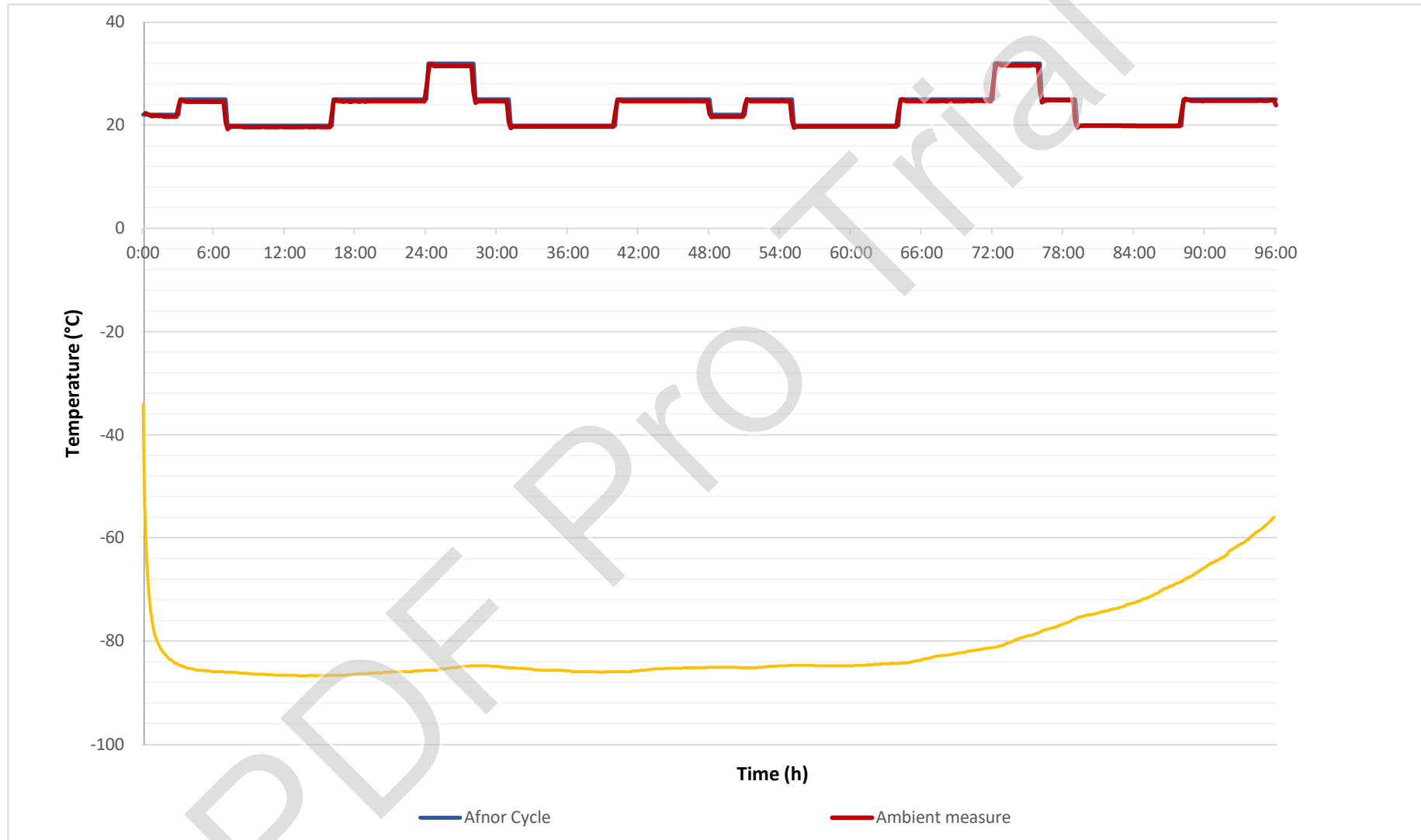
TempTale Ultra Loggers:
JBA4T077N0 for 3L72HC
JBA4T077C0 for 11L72HC
JBA4T06F80 for 21L72HC

PDF Pro Trial

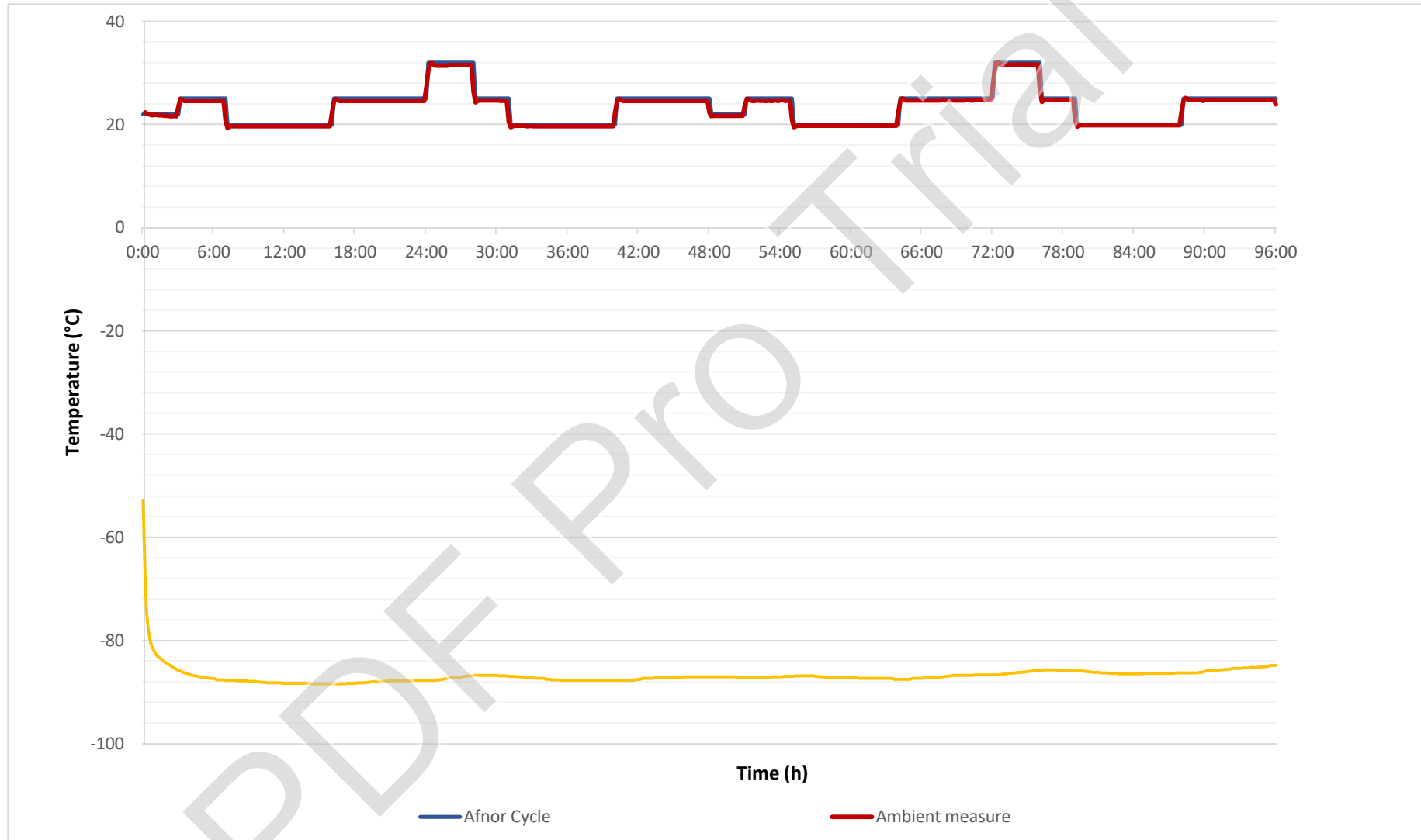
4.3. Graph 3L72HC



4.4. Graph 11L72HC



4.5. Graph 21L72HC



The graphs above are the summary of logged data. All data is shared in Excel file with customer – "Corkconcept P-21.249A Validation dry ice – data".

During the AFNOR NF S99-700, cycle ST-96-b samples 11L72HC & 21L72HC are < 0°C.

Sample 3L72HC was after 72h above 0°C, and therefore not in accordance with validation criteria.

5. Conclusion

Based on the results obtained from the tested material, 11L72HC & 21L72HC are validated for the dry ice configuration in accordance to AFNOR NF S99-700, cycle ST-96-b.



Len D'heygere

Analyst – Consultant
Physical Department

PDF PRO Trial

Annex A – Protocol

Protocole d'utilisation simplifié

CARBOGLACE



Température : -70°C

1) Conditionnement de la carboglace

De préférence utiliser de la carboglace livrée le jour-même.

Si la carboglace a été livrée les jours précédents la préparation, elle doit être stockée à -80 C dans un endroit spécifique.

NB : l'utilisateur doit respecter les règles de stockage et de maintenance sur la MSDS de la carboglace de son fournisseur.

Carboglace



A utiliser le plus rapidement possible et maintenue dans un local prévu à cet effet

2) Quantité de carboglace

En fonction de la configuration choisie

3L



11L



21L



3) Placement de la carboglace

- 3cm de carboglace dans le fond sous la boîte produit
- 3cm de carboglace tout autour de la boîte produit
- Remplir le dessus sans déborder de l'espace prévu (hauteur maximum ne pas dépasser la hauteur des côtés en liège)