



**International
Standard**

ISO 31512

**Cold chain logistics services in
the business to business (B to
B) sector — Requirements and
guidelines for storage and transport**

*Services logistiques de la chaîne du froid dans le secteur du
commerce interentreprises (B to B) — Cadre directeur et
exigences pour le stockage et le transport*

**First edition
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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Temperature ranges and target businesses	2
4.1 Temperature ranges.....	2
4.2 Target businesses.....	2
5 Refrigerated storage service	3
5.1 Confirmation of storage service condition.....	3
5.2 Unloading cargo into the refrigerated warehouse.....	4
5.3 Refrigerated storage.....	4
5.4 Handing over cargo from the refrigerated warehouse.....	5
5.5 Ensuring safety, hygiene and security.....	6
5.6 Education and training.....	6
5.7 Maintenance and management of devices, equipment and facilities.....	7
6 Refrigerated transport service	7
6.1 Confirmation of transport service condition.....	7
6.2 Loading cargo into the refrigerated vehicle.....	8
6.3 Transport.....	8
6.4 Transferring and unloading.....	9
6.5 Ensuring safety, hygiene and security.....	9
6.6 Education and training.....	10
6.7 Maintenance and management of equipment and facilities.....	10
Bibliography	12

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 315, *Cold chain logistics*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Steady economic growth and increasing incomes in the world in recent years have diversified food choices and created a heightened awareness of the need to maintain food freshness and safety. Such changes have led to an increase in demand for cold chain logistics services (e.g. refrigerated transport services and refrigerated storage services), primarily for foods such as agricultural and marine products and frozen foods. On the other hand, these business developments have been facing foodborne disease, as well as food loss and waste problems since some logistics service providers lack awareness and knowledge of proper operation measures for highly reliable cold chain functions for ensuring food quality.

To enhance the quality of cold chain logistics services that directly affect the condition of foods, appropriate handling of cargo, facilities, and equipment are indispensable, in addition to the development of infrastructure and equipment.

The aim of this document is to improve the quality level of local logistics services.

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Cold chain logistics services in the business to business (B to B) sector — Requirements and guidelines for storage and transport

1 Scope

This document specifies requirements and guidelines for refrigerated storage services and refrigerated transport services for foods, in the business to business (B to B) logistics sector in order to ensure that cold chains are properly maintained.

This document does not apply to logistics services for cosmetics, cigarettes, pharmaceutical and medical products, over-the-counter drugs and commercially available medicine.

This document does not apply to customs operations.

This document applies to environments where refrigeration must be created and maintained, and does not apply to environments needing to raise storage temperatures.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

food

substance (ingredient), whether processed, semi-processed or raw, which is intended for consumption, and includes drink and any substance which has been used in the manufacture, preparation or treatment of “food” but does not include cosmetics or tobacco or substances (ingredients) used only as drugs

[SOURCE: ISO 22000:2018, 3.18]

3.2

warehouse service provider

organization providing services to store cargo while keeping it at the required temperature using a *refrigerated warehouse* (3.8)

3.3

transport service provider

organization providing services either to move or distribute cargo, or both, while keeping it at the required temperature using a *refrigerated vehicle* (3.9)

3.4

service user

organization using a *refrigerated* (3.7) storage service or a refrigerated transport service, as per the agreement with a *warehouse service provider* (3.2) or a *transport service provider* (3.3)

3.5

loading area

space or area where cargo inspection takes place before cargo loading and unloading from a *refrigerated warehouse* (3.8) during provision of *refrigerated* (3.7) storage services or during provision of refrigerated transport services

3.6

cargo transfer

activity in which cargo is moved from one *refrigerated vehicle* (3.9) to another in the middle of the transport route, before the delivery is completed at the destination

3.7

refrigerated

state where a temperature is managed at either of the following temperature range: frozen, chilled or air conditioned

Note 1 to entry: CAC/RCP 8-1976 (Code of Practice for the Processing and Handling of Quick Frozen Foods) states in Clause 4.6 that cold stores should be designed and operated so as to maintain a product temperature of -18 °C or colder with a minimum of fluctuation.

3.8

refrigerated warehouse

fixed facilities for storage of cargo, with a cooling system for keeping cargo *refrigerated* (3.7)

3.9

refrigerated vehicle

means of transport containing at least one *refrigerated compartment* (3.11) to transport *refrigerated* (3.7) cargo

3.10

refrigerated room

space managed at *refrigerated* (3.7) temperature in a warehouse

3.11

refrigerated compartment

space managed at *refrigerated* (3.7) temperature in a vehicle

4 Temperature ranges and target businesses

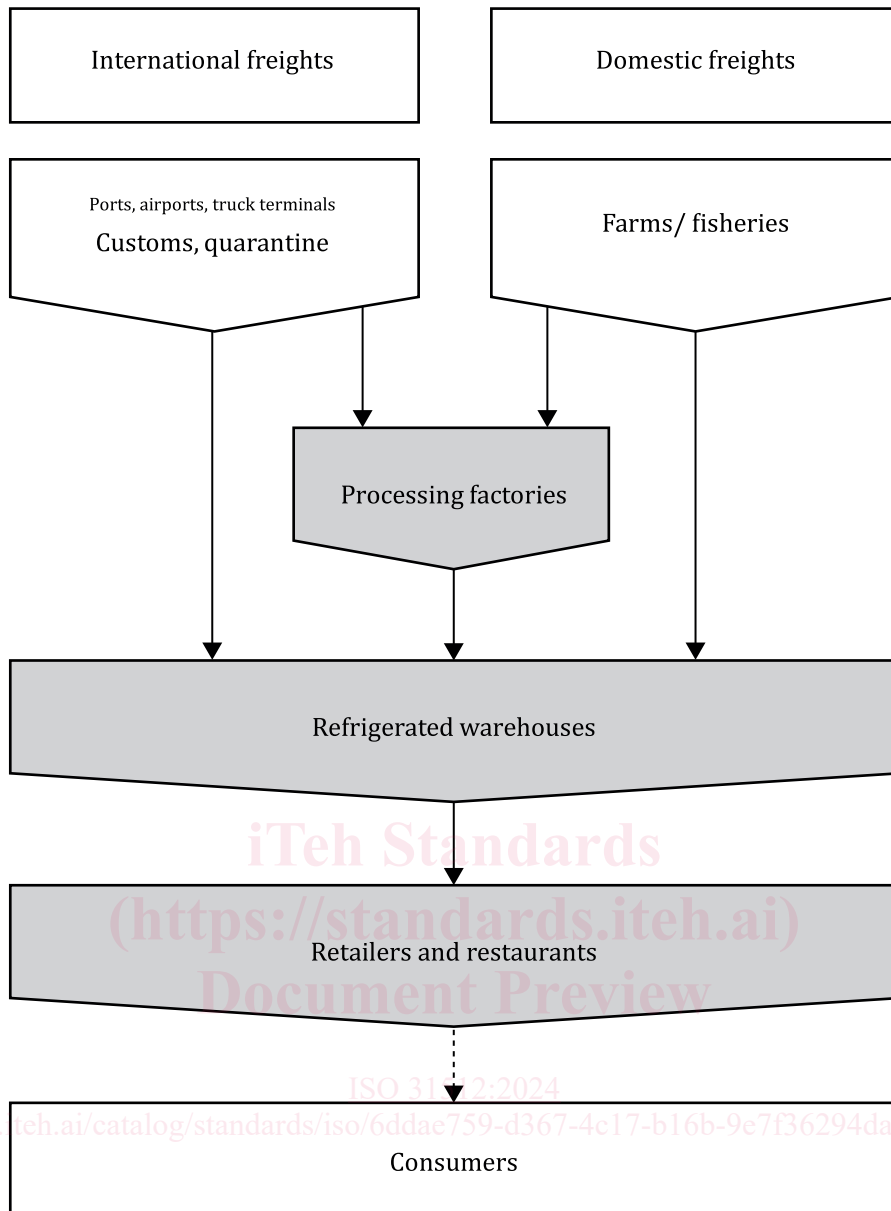
4.1 Temperature ranges

The temperature range applied is determined between the service provider and service user, as per the agreement.

4.2 Target businesses

The requirements and recommendations within this document focus on refrigerated storage services and refrigerated road transport services in the B to B sector. An example of target businesses is shown in [Figure 1](#).

This document for refrigerated storage services and refrigerated transport services is applicable for logistics required for handling food by processing factories, retail shops and restaurants.



NOTE Solid lines and shaded boxes show the temperature-controlled process covered by this document, while the dotted line shows logistics from retailers or restaurants to consumers.

Figure 1 — Example of target businesses (B to B logistics)

5 Refrigerated storage service

5.1 Confirmation of storage service condition

When a warehouse service provider receives a request for storage from a service user and they make an agreement, the warehouse service provider shall take into account how it will provide the service requested in terms of capacity and performance of facilities and equipment and storage period of the refrigerated warehouse to be used for the business.

NOTE Required temperature ranges vary depending on the type of food they store.

An example of implementation is as follows:

- not entering into an agreement to be a vendor for the service user when the warehouse service provider cannot provide refrigerated storage service under the proposed conditions.

5.2 Unloading cargo into the refrigerated warehouse

5.2.1 Before accepting cargo from a transport service provider, a warehouse service provider shall check the following within the temperature-controlled loading area:

- a) the types of cargo;
- b) the quantity of cargo; and
- c) whether there is any damage and soiling to the appearance of the cargo.

A warehouse service provider shall separate any cargo if it is found to be either damaged or contaminated, or both, during the warehousing process.

If a warehouse service provider finds any sign of damage or contamination with transport equipment of a transport service provider which can deteriorate the quality of cargo, the warehouse service provider shall take measures which are agreed upon with the service user.

A warehouse service provider shall check that the cargo temperature is as specified in the written agreement with the service user.

NOTE As long as the warehouse service provider can provide services that have been agreed upon with the service user, the temperature measuring method can vary depending on the country within which the refrigerated storage service is operating.

5.2.2 The warehouse service provider shall take measures to prevent temperature increases in a loading area when cargo is unloaded from the refrigerated vehicle.

Examples of implementation are as follows:

- placing cargo into the refrigerated warehouse promptly using material handling equipment such as pallets, carriages, and rollers, when accepting cargo;
- installing the dock shelter in the refrigerated warehouse so that the refrigerated vehicle can be parked in such a way that cargo is not exposed to the outside air.

5.3 Refrigerated storage

5.3.1 Warehouse service providers shall store the cargo within the temperature range that is agreed upon with the service user beforehand. Warehouse service providers shall keep a record of the temperature within the refrigerated warehouse, measured at regular intervals to enable the warehouse service provider to provide proof of the cargo having been stored at the required temperature.

Examples of implementation are as follows:

- installing temperature-measuring devices inside the refrigerated warehouse;
- storing refrigerated cargo in a refrigerated warehouse at a temperature range that is agreed upon with the service user beforehand, taking into account the temperature and humidity of the outside air;
- monitoring and recording the temperature in real time;
- building a system to send an alert when there are abnormal occurrences, such as the temperature inside the refrigerated warehouse greatly deviates from the pre-set temperature range;