

# **COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION**

## **(Q COLD CHAIN)**



**FREIGHT TRANSPORT BUREAU,  
DEPARTMENT OF LAND TRANSPORT, MINISTRY OF TRANSPORT, THAILAND**

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## ➤ Purposes

- To develop cold chain management for transport operation in Thailand
- To reduce food loss and food deterioration caused by inefficient transport to promote food safety and security
- To raise the awareness of cold chain transportation to the industry and develop mindset of those who are related in agri-food business

## ➤ Voluntary Standard

- **An add-on to Q Mark for truck operators who provide temperature-controlled transportation business**

Q Mark



Q Cold Chain



The Effectiveness and Competitiveness  
of Temperature-Controlled Transport Services

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## ➤ Scope of Q Cold Chain

### Type of Product



Frozen Product (<-18°C)

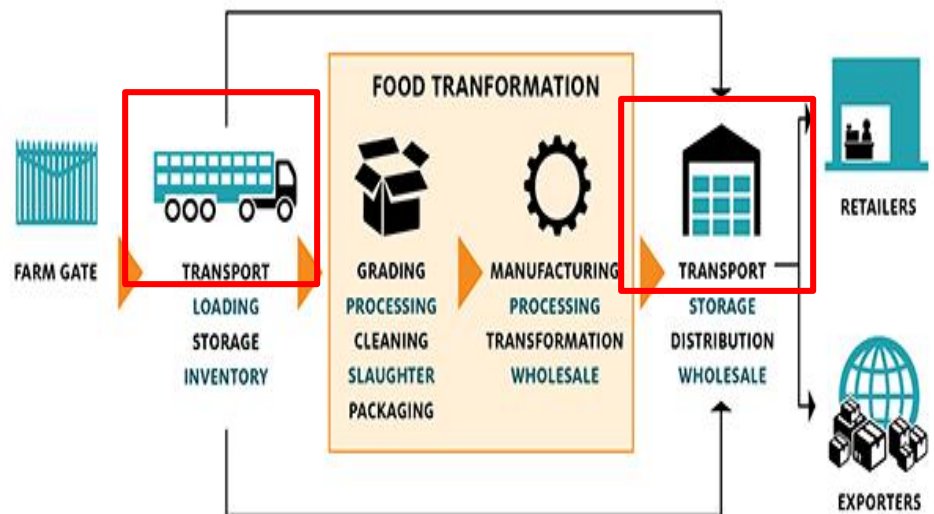


Chilled Product (0 – 4°C)



Fruit and Vegetable (4 – 15°C)

### B to B road freight transport



# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## ➤ Q Cold Chain Requirements



### Q Mark

- Organization
- Transport Operation
- Personnel
- Vehicle
- Customer Responsibility



### Q Cold Chain

- Transport Operation
- Sanitation
- Refrigerated Truck Standard and Maintenance
- Human Resource Development

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## 1. Transport Operation

No.	Requirements	Assessment Guidelines
1.1	Transport operators have the process to evaluate the company readiness and capacity prior to propose the temperature-controlled transportation contract to customer.	<p>Transport operators can describe the process for assessing their readiness and capability before making business proposal to the customer. This may include the information as below;</p> <ul style="list-style-type: none"><li>• Type and quantity of transported products that the operators are able to handle</li><li>• Transportation plan</li><li>• Technology used to measure, record and monitor the temperature during transport</li><li>• Packaging used during transport</li><li>• Type of vehicle and refrigerators</li><li>• Cold chain transportation crew capability</li><li>• Insurance and scope of responsibility</li><li>• Product consolidation</li></ul>

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## 1. Transport Operation (Continue)

No.	Requirements	Assessment Guidelines
1.2	Transport operators have cold chain operational handbook covering working processes from receiving orders to delivering products.	<p>The cold chain operational handbook should describe procedures covering major transport activities; for example,</p> <ul style="list-style-type: none"><li>• Process for checking the condition and temperature of product before delivery</li><li>• Pre-cooling process</li><li>• Loading and unloading process</li><li>• Handling emergency cases</li><li>• Calibration and verification of equipment used for measuring and recoding temperature</li><li>• Cleaning process</li><li>• Food sanitation rule aligning with GMP standard</li><li>• Coordinating plan with warehouse/factory/farm</li></ul>

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## 1. Transport Operation (Continue)

No.	Requirements	Assessment Guidelines
1.3	Transport operators have an emergency response plan for handling cases relating to refrigerators' breakdown during transport to avoid broken cold chain.	<ul style="list-style-type: none"><li>• Transport operators should prepare their readiness for emergency cases related to refrigerators' breakdown; for example,<ul style="list-style-type: none"><li>• Providing a mobile service unit</li><li>• Having a list of relevant business operators such as warehouses, car/refrigerator service center and other transport operators</li></ul></li><li>• Always make a record when unusual situations occur, and analyze corrective and preventive action measure of the situations.</li><li>• Provide the emergency plan guideline and proper training for relevant staff.</li></ul>

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## 2. Sanitation

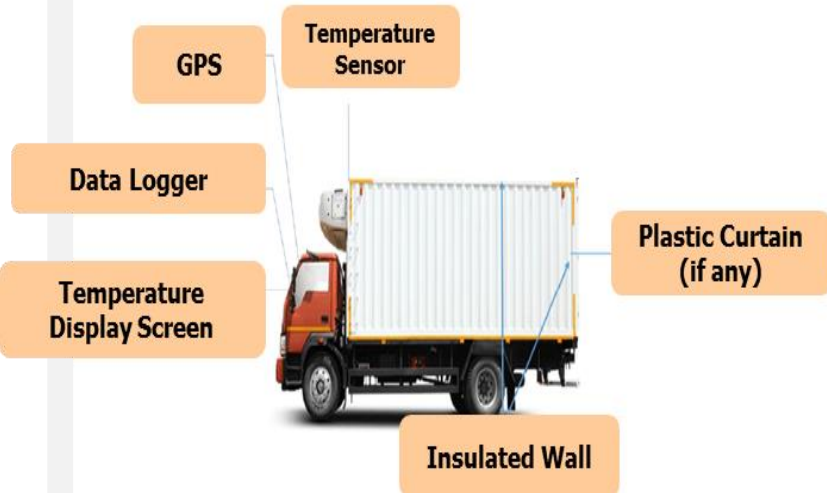
No.	Requirements	Assessment Guidelines
2.1	Transport operators have a proper method for cleaning refrigerated chambers at appropriate intervals.	<ul style="list-style-type: none"><li>• Cleaning procedure should be in appropriate way to prevent contamination.</li><li>• The record of cleaning examination is needed.</li><li>• Inspector should randomly check the cleanliness inside chambers such as floor, wall, drainage pipe and plastic curtain.</li><li>• Operator should have a proper water treatment plan to prevent water pollution caused by wastewater from cleaning process.</li></ul>
2.2	The chemical substances used for cleaning refrigerated chambers should be hygienic and safe for products and consumers.	<ul style="list-style-type: none"><li>• Type of chemical substances for cleaning refrigerated chamber must be hygienic, safe and no odor left.</li><li>• The substances that are allowed to use can be seen in the list of Notification of Food and Drug Administration (FDA), Thailand.</li></ul>



# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## 3. Refrigerated Truck Standard and Maintenance

No.	Requirements	Assessment Guidelines
3.1	The operator should install devices for measuring and recording temperature in the refrigerated chamber. These should be always in proper condition during transportation	<ul style="list-style-type: none"><li>• The refrigerated chamber should be in good condition and equipped with appropriate devices in order to maintain temperature inside.</li><li>• The list below indicates some devices that should be installed in the chamber;<ul style="list-style-type: none"><li>• Devices for measuring and recording temperature such as thermometer, data logger and GPS</li><li>• Temperature display screen (installed in driver's cabinet)</li><li>• Drainage pipe</li><li>• Etc.</li></ul></li><li>• Refrigerant should comply with Montreal Protocol.</li></ul>



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## 3. Refrigerated Truck Standard and Maintenance (Continue)

No.	Requirements	Assessment Guidelines
3.2	<p>Transport operators have the preventive maintenance plan of refrigerators and temperature monitoring devices. The result of examination and maintenance activity should be recorded.</p>	<ul style="list-style-type: none"><li>• The preventive maintenance plan and its examination record are needed.</li><li>• The result of thermometer calibration or verification is required.</li><li>• In case that the result of thermometer calibration or verification is not in acceptable levels, it should be adjusted or replaced as appropriate.</li></ul>

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## 4. Human Resource Development

No.	Requirements	Assessment Guidelines
4.1	Transport operators must provide a training program on topics related to temperature – controlled transportation.	<p>Operators should have annual training plan in the topics related to temperature – controlled transportation such as;</p> <ul style="list-style-type: none"> <li>• Basic knowledge of temperature – controlled vehicles and all installed devices in refrigerated chamber</li> <li>• Basic knowledge of transported products such as appropriate storage temperature and packaging</li> <li>• Pre-cooling process</li> <li>• Loading and unloading process</li> <li>• Handling emergency cases</li> <li>• Cleaning process</li> <li>• Food safety</li> <li>• Personal hygiene</li> </ul> <p>The evidence of conducted training according to annual training plan should be provided for inspection.</p>

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## 4. Human Resource Development

No.	Requirements	Assessment Guidelines
4.2	The operator should provide annual medical health check – up for drivers and related operational staff focusing on serious contagious diseases or any disease carrier according to the Notification of Ministry of Public Health, Thailand.	The result of annual medical health check – up for drivers and related operational staff in serious contagious diseases or any disease carrier according to the Notification of Ministry of Public Health, Thailand should be provided; for example, <ul style="list-style-type: none"><li>• Tuberculosis at the dangerous period (T.B.)</li><li>• Leprosy</li><li>• Elephantiasis</li><li>• Offensive dermatology</li></ul>
4.3	Drivers and related operational staff who have symptoms of serious disease as mentioned in 4.2, gastrointestinal illness or respiratory – related diseases are not allowed to operate transportation.	Operators should have a policy or regulation to refrain their staffs who have diarrhea or the disease with the respiratory symptom such as flu from handling product. This is to prevent the occurrence of cross – contamination.

# COLD CHAIN QUALITY STANDARD FOR TRUCK OPERATION (Q COLD CHAIN)

## ➤ Guideline on Q Cold Chain



**คู่มือปฏิบัติงาน**  
มาตรฐานคุณภาพการขนส่งสินค้าเกษตรและอาหาร  
ด้วยรถบรรทุกแบบควบคุมอุณหภูมิ

Cold Chain Quality Standard  
for Truck Operation  
[www.thaitruckcenter.com/tdsc](http://www.thaitruckcenter.com/tdsc)



- To raise the ability of transport operators to comply with Q Cold Chain
- To support transport operators for performing their business with efficient cold supply chain
- To prepare the readiness of transport operators for business competitiveness and challenges



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