

# ICCT

## INTERNATIONAL COLD CHAIN TECHNOLOGY

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**REPORTING FORMAT GUIDELINES**  
**TO SURVEYORS**  
**Refrigerated cargo ships and**  
**refrigerated containers and trailers**

September 2002

Produced in conjunction with [VAN AMEYDE MARINE](#)



## INTRODUCTION

International Cold Chain Technology, in conjunction with van Ameyde Marine, has produced these reporting format guidelines for surveyors in the hope that they will assist both surveyors of refrigerated cargoes and those appointing them.

ICCT members are aware that many surveys fail to note information which may be required in dealing with subsequent claims. These guidelines are designed to overcome this.

The guidelines take the form of two separate documents, the first for reefer ships and the second for containers and trailers. Each document comprises a check list of information which may be recorded, followed by narrative which provides explanation. It is appreciated that not all the information listed will be needed for every survey. Several issues (such as fresh air ventilation) do not arise for non-respiring cargoes. It is up to the surveyor to consider which items may legitimately be omitted on any particular occasion. Nevertheless it is recommended that all headings be considered every time.

The electronic format of these documents allows entries to be made in tables, which will expand to accommodate that which is written. The documents may also be used to generate paper checklists. They may be freely used without copyright restriction, but acknowledgement of ICCT is always welcomed. It is hoped that these guidelines will be widely used and recommended.

Whilst care has been taken in the preparation of these guidelines, neither ICCT nor any of its members can be responsible for the way in which they are used, which is beyond their control. ICCT will welcome information about any perceived errors or omissions.

These guidelines, guidelines on the definition of carriage conditions, and information on ICCT may be found at [www.crtech.co.uk/icct](http://www.crtech.co.uk/icct).

Robert D Heap MBE  
ICCT Chairman  
September 2002

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### REPORTING FORMAT GUIDELINES TO SURVEYORS Refrigerated cargo ships

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<b>Instructing party</b>	
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<b>Date and time of</b>	
-instruction	
-survey	

<b>Origin and nature of cargo</b>	
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<b>Place of survey</b>	
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<b>Reason for survey (alleged damage/condition)</b>	
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<b>Name of ship</b>	
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<b>Voyage number</b>	
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<b>Name of</b>	
-Master	
-Chief officer	
-Chief engineer	
-Reefer engineer	
-persons from whom information was obtained	

<b>General particulars of ship</b>	
-former names of ship	
-flag	
-port of registry	
-year of build	
-official number	
-IMO number	
-class	
-gross tonnage	
-net tonnage	
-summer deadweight	
-length	
-beam	
-max summer draught	
-service speed	
-main engine type	
-generators type and capacity	
-number of generators	
-max capacity hfo/ifo	
-max capacity mdo/go	
-daily consumption of fuel oil (type)	
-daily consumption mdo/go	
-Owners	
-Operators	
-Managers	
-Voyage charterers	
-Time charterers	

<b>Certificates</b>	
-Certificate of registry	
-Class certificate	
-Class RMC	
-International tonnage certificate	
-Safety construction certificate	
-Safety equipment certificate	
-Cargo gear	

<b>General arrangement of ship</b> (see Appendix no.1)	
-number of holds	
-type of hatch covers	
-hatch square minimum opening sizes	
-number of decks	
-capacity of each deck	
-deck area of each cargo compartment	
-deck heights	
-type of gratings	
-type of cargo gear	
-location of superstructure compared to hatchways	

<b>Refrigeration arrangement</b>	
-type of refrigeration machinery	
-type of air circulation in the compartments, and whether decks are paired or independent	
-capacity of air circulation	
-type of refrigerant, and whether direct or indirect system	
-location of air coolers and fans in the compartments (see Appendix no.2)	
-type of fresh air system	
-capacity of fresh air system	
-location of fresh air inlets	
-location of fresh air outlets	
-records about calibration of temperature-, humidity-, etc., sensors	

<b>Controlled atmosphere arrangement</b>	
-type of equipment (fixed or portable)	
-classification society (if portable)	
-type of machinery	
-type of control equipment	
-condition of equipment for injection	
-condition of equipment for monitoring of atmospheres	
-arrangement of injection and control to decks	
-separation zones	
-arrangement of electrical supply	

<b>History</b>	
-previous loading/discharge port	
-previous cargo carried	
-hold cleaning method after discharge of previous cargo	

<b>Cargo particulars</b>	
-b/l number	
-b/l place and date of issue	
-type of b/l	
-description of commodity	
-marks and numbers	
-shippers	
-consignee	
-notify address	

<b>Loading particulars</b>	
-name of load port	
-date and time of arrival at load port	
-cargo hold inspection before loading	
-where was the cargo stored before loading	
-how was the cargo brought alongside	
-how was the cargo loaded on board	
-type of forklift trucks used in the cargo holds (electric/combustion)	
-delay, during removal of the cargo from cold store, truck, etc. and loading on board	
-weather conditions during loading	
-stoppages during loading	
-times of loading of each individual deck	
-did cargo cover entire deck area	
-way of securing of cargo in the decks	
-who secured the cargo in the decks	
-was cargo properly stowed/secured	
-extent of free area for circulating air above the cargo	
-particular occurrences during the loading	
-remarks on the cargo documents	

<b>Stowage plan</b> (see Appendix no.1)	
-number of packages and weight in each deck	
-volume of cargo in each deck	
-extent of un-covered deck area	
-actual stowage factor of the cargo in each deck	

<b>Voyage particulars</b>	
-date and time of departure from load port	
-weather during the voyage to discharge port (wind force/direction and course of the ship)	
-particular occurrences during the voyage	
-inspection of cargo in compartments during the voyage	

<b>Discharge particulars</b>	
-name of discharge port	
-date and time of arrival at discharge port	
-inspection of cargo in compartments before the discharge	
-how was cargo discharged (lifting, rolling, etc.)	
-cargo was discharged into (shed, truck, etc)	
-type of forklift trucks used in the cargo holds (electric/combustion)	
-weather conditions during discharge	
-stoppages during discharge	
-times of discharge of each individual compartment	

<b>Temperatures</b>	
-carriage instructions	
-pre-cooling of cargo compartments before loading	
-spike/pulp temperatures of the cargo during loading (individual readings; no averages)	
-outside air temperature during the loading	
-temperatures in compartments on commencement of the loading	
-temperatures and other parameters (delivery air, return air, space, RH, CO <sub>2</sub> , O <sub>2</sub> ) in compartments after final closing (see Appendix no.3)	
-temperature and other parameters (delivery air, return air, space, RH, CO <sub>2</sub> , O <sub>2</sub> ) during voyage	
-reduction period (see Appendix no. 4)	
-fresh air inlet regime during voyage	
-temperatures and other parameters (delivery air, return air, space, RH, CO <sub>2</sub> , O <sub>2</sub> ) in compartments on opening for discharge of cargo (see Appendix no.5)	
-spike/pulp temperatures of the cargo before the discharge (individual readings; no averages)	
-spike/pulp temperatures of the cargo during discharge(individual readings; no averages)	
-spike/pulp temperatures of the cargo during the survey (individual readings; no averages)	
-USDA sensors	

<b>Condition of cargo</b>	
-details of the commodity involved (variety, count, number per package)	
-description of package	
-marks and numbers of packages	
-picking and packing dates	
-name of grower/packing station	
-other codes on packaging	
-description of condition of the cargo	
-number of cartons on the pallet	
-construction of pallet load	
-difference in condition when considering grower, picking date, packing date, variety, count, location on pallet, location in cargo compartment or other compartment	
-location in cargo compartment of cargo claimed upon	
-history of commodity before loading	
-estimated sound market value of the cargo (c.i.f./f.o.b.)	
-estimated depreciated value of the cargo	
-estimated total extent of the claim	

<b>Further particulars</b>	
-condition and cleanliness of cargo holds and air ventilation/circulating ducts	
-presence and condition of gratings	
-presence and condition of side shoring	
-presence and condition of blocking of air gaps in the stow and behind side shoring	
-cleanliness of discharge premises	

<b>Further points of interest</b>

<b>Documents to be attached</b>	
-copy of B/L (both sides)	
-copy of cargo manifest	
-copy of mate's receipt	
-copy of certificate of origin	
-copy of phytosanitary certificate	
-copy of letters of protest	
-copy of sea protest	
-copy of commercial invoice	
-copy of document validating the sound market value of the goods	
-copy of packing list	
-copy of carriage instructions	
-copy of temperature records, recording discs (partlow), other temperature records	
-copy of comparative seal discrepancy	
-copy of charter party	
-copy of statement of facts	
-copy of notice of readiness	
-copy of ship's deck log book	
-copy of ship's engine room log book	
-copy of relevant scrap notes	
-copy of statements	
-copy of relevant ship's certificates	
-photographs taken by other parties	
-set of photographs	

**Appendix no. 1**

**General arrangement and stowage**

	4	3	2	1
A				
B				
C				
D				
E				

**Appendix no.2**

**Refrigeration arrangement and airflow**

	4	3	2	1
A				
B				
C				
D				
E				





## **Narrative**

The aim of this form is to obtain an uniform and comprehensive reporting format and at the same time it is a aide memoir for the surveyor. The questions should be answered as much as possible but at the same time it is to be considered that the questions to be answered should be in relation with the claim or survey on hand. In the block "further points of interest" there is room for additional observations or remarks.

### *General arrangement*

Appendix no.1 can be used for indicating the number of holds and the number of decks as well as for the capacities and dimensions of the compartments.

Most of the reefer ships have hydraulic operated folding hatch covers, however, other ships have single wire pull hatch covers and older ships may have insulated pontoons.

Nowadays most of the ships have so-called "warkaus" gratings which are sheets of perforated multiplex of approx. 1X1 meter. Another type of grating uses perforated sheets of moulded aluminium.

The cargo gear is cranes or derricks. Some ships have additional pallet cranes. These cranes are restricted in load but have a higher working speed.

### *Refrigeration arrangement*

The most common refrigeration machineries work on refrigerants like freon. These machineries are of the direct expansion type; the evaporators are present in the cargo compartments.

Other ships have machineries with brine as cooling intermediate. The evaporators, with which the brine is cooled, are outside the cargo compartments. The brine is circulated through pipes inside the cargo compartment in the circulating airflow.

The most common type of air circulation is that the cooled air (after having passed the evaporator) is introduced into the cargo compartment in the forward or aft end (at some ships in the forward end as well as in the aft end) under the gratings from side to side. The cooled air is forced through the cargo and removed from the compartment via gratings along the ceiling at the same end of the compartment where the cooled air was introduced.

Some ships have a Robson type of air circulation. With this type the air is introduced into the compartment over its full length at port and starboard side under the gratings. After having been forced through the cargo the air is removed via gratings along the ceiling of the compartment.

Appendix no. 2 can be used to indicate the location of the machinery of refrigeration machinery and the direction of the circulation airflow as well as to show the location of the insulated decks.

### *Loading particulars*

This block is to indicate the Port arrival and berthing times as well as the times of each loading (discharging) period for each compartment. Further more all relevant details about the loading can be recorded.

### *Condition of cargo*

This block is for the description of the particulars of the cargo and in particular about the condition of it. The most common type of packaging is open folded cartons made of cardboard, but also telescopic cartons are used, in particular for bananas.

There is also room to indicate whether the condition of cargo of a specific grower, packing date, etc. differs from the cargo of other growers, packing dates, etc. Also the position in the compartment of the cargo concerned is of importance as well as whether the condition of the cargo on the individual pallet is uniform.

It should be considered that most of the shore-based cargo pre-cooling units are on horizontal airflow. Also the packaging (position and number of air slots) is mostly on the basis of horizontal airflow.

In this block there is also room to describe the pallet load, i.e. the number of packages per layer and also the number of layers of packages. Also the construction of the pallet load is to be mentioned, such as (but not restricted to) whether sheets of cardboard or other material are present between the layers or on the top of the pallet load and whether the layers of packages are full, i.e. no chimneys present in the centre of the pallet load.

#### *Further points of interest*

This block can be used for all particulars which are considered to be of importance or of interest in connection with the subject matter. Some further points of interest are;

#### *Load readiness*

Investigate all fittings in good condition – gratings, side shoring, lighting, ladders, access openings, cooler room doors, hatches operable and water tight with no hydraulic leaks, plugs fitted as necessary at access hatches, or as required by the ventilation arrangements, drains, scuppers and bilge wells, compartments be odour free (low temperatures mask odours), no remnants of previous carried cargoes.

#### *Instrumentation*

Investigate last calibration in ice (each voyage) and last electronic calibration (each docking or as required). Inspect data loggers and printouts working properly. Coloured trace recorders to be properly supplied with ink. Also check for slackness in the pen drive wire which should be tight.

#### *USDA equipment*

Not recommended for use if USDA not fully certificated as for a USDA voyage.

Note that these fittings are at the ships side or on the deck head where there is a strong airflow, sometimes without a box cover. Due to the strong airflow, the temperatures are likely to be significantly higher in the cargo than recorded by the nearby USDA sensor not placed within the cargo itself.

#### *Pre-cooling*

Investigate details of pre-cooling and compliance with instructions.

In the event that pre-cooling is not completed in time for loading bananas or exotic fruits as required by the carriage instructions, and providing the plant is fully operable and the shippers issue full indemnities in agreement with owners / operators, it will sometimes be preferable to load the cargo as soon as possible, rather than to leave it in open shed s or transport with no cooling.

Special attention is to be paid to the time of loading of (for example) bananas and thus the time that the fruit is exposed to the cooling down temperature being lower than the carriage temperature.

#### *Carriage instructions*

Investigate crew understanding the carriage instructions and any ambiguities or errors. Were the carriage instructions available for all relevant officers / engineers? ICCT guidelines on carriage instructions are available at [www.crtech.co.uk/ICCT](http://www.crtech.co.uk/ICCT)

#### *Pulp temperatures*

No average temperatures to be reported, unless the maximum and minimum temperatures are mentioned as well as the tenor of the differences.

#### *The voyage*

The voyage begins for each compartment on final closing at the load port where after the data logger will record the compartment air circulation delivery and return temperatures, CO<sub>2</sub> content and humidity (also CA parameters) every four hours.

Normally the plant will produce 90 air circulations per hour at full speed (by volume of empty hold space). Usually the cooler rooms will be inspected once or twice daily for the purpose of taking manual temperatures of the cargo in the hold through the cooler room access doors. Also CO<sub>2</sub> and humidity can be examined at the same time if required.

Investigate if fixed equipment (hot gas for example) has been used for defrosting. If manual defrosting has been carried out find out why. Check the dimensions / construction of the drain pan under the evaporators and was crew in attendance in cooler rooms to observe the defrost operation and to see to it that the drain pan did not overflow into cargo compartment.

#### *Fresh air ventilation*

Where applicable control of the fresh air ventilation is equally important as the air circulation and requires proper attention. Fresh air may be bled into the air circulation as required. For frozen cargoes and some groundnuts fresh air is not required and the circulation fans and fresh air ventilation should both be shut off as stated in the carriage instructions.

Fruit and vegetable cargoes are nearly always ventilated (as well as being cooled) to reduce the ethylene gas produced, (as reflected by the CO<sub>2</sub> content), which is detrimental to the condition of the produce and in the case of fruit may lead to early ripening.

Fresh air ventilation can be controlled generally between the 2 – 6 changes per hour (by volume of empty hold space) utilising the fan speed and adjustment of fresh air ventilation flaps which can be opened and closed according requirements.

In colder weather there may be a conflict between the need to maintain circulated air delivery temperatures and the need to ventilate and to introduce cold fresh air.

Air circulation fans are normally run on the specified speed. It is a good idea to check the remote fan switches in the deckhouses personally when possible.

Any difficulties with the operation of the air circulation of the fresh air ventilation systems or with the maintenance of temperatures should be reported to all parties.

#### *Arrival discharge port*

For vessels discharging under survey it is customary for the surveyor to visit all the cooler rooms in turn to take temperatures and other prior to discharge commencing

In addition the surveyor may wish to see the data logger before all the circulation fans are switched off.

#### *Discharging*

Care of the cargo and cargo records should be carried out as if the vessel were at sea.

#### *Tight stowage*

It is the ship's responsibility to supervise the loading and discharging of the cargo for the purpose of maintaining a tight seaworthy stow and to prevent or minimise any shifting damage, tight stowage also being necessary to maintain proper air circulation. For these purposes it is necessary to visit working compartments at frequent intervals and to point out any problems to the stevedore foreman.

When necessary protests should be made in writing to the ship's agent and the stevedores, with instructions to the agent to forward the stevedores copy to the stevedore on board and to their management on shore as soon as possible.

# ICCT

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### REPORTING FORMAT GUIDELINES TO SURVEYORS Refrigerated container / trailer

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<b>Basic information</b>	
- party inviting for survey	
- name of surveyor of inviting party	
- date(s) and time(s) that survey was performed	
- location of survey	
- container number	
- type of container	
- date of manufacture	
- make, type, serial number and date of manufacture of refrigeration machinery	

<b>Particulars about the carrying period</b>	
- name of first loading vessel and voyage no.	
- port of loading	
- date of loading	
- transshipment port(s)	
- vessel(s) receiving, voyage no(s)	
- date of transshipment(s)	
- discharge port	
- name of discharging vessel and voyage no.	
- date of discharge	
- final destination	
- date of container delivery	
- stowage position(s) on ship(s)	
- date and place container stuffed	
- transport from port terminal, mode, duration, when on refrigeration	
- date, place and time container unstuffed	

<b>Cargo particulars</b>	
- b/l number	
- b/l place and date of issue	
- type of b/l	
- description of commodity	
- marks and numbers	
- shippers	
- consignee	
- notify address	

<b>Condition of cargo (can be simplified for non-respiring cargoes)</b>	
- details of the commodity involved (variety, count, number per package)	
- description of package	
- marks and numbers of packages	
- picking and packing dates	
- name of grower/packing station	
- other codes on packaging	
- details of any carton seals	
- description of condition of the cargo	
- number of cartons on the pallet	
- were carton ventilation holes aligned properly	
- condition of packaging	
- construction of pallet load	
- difference in condition when considering grower, picking date, packing date, variety, count, location on pallet, location in container	
- history of commodity before loading	
- details of thermometers used at survey and of calibrations	
- records of temperatures including locations and measurement methods	
- ambient/store temperatures at survey	

<b>Particulars about the stowage of the cargo in the container</b>	
- how was cargo stowed in the container	
- was dunnage present	
- was entire T-bar floor of container covered with cargo	
- was top of stow below maximum loading level (red line)	
- were photographs taken of the stowage	
- was there air space between cargo and doors	
- were "ventilation slots" of dry van containers unobstructed	
- was cargo secured in container (how)	
- was there any cargo movement in transit	
- have USDA sensors been used in the cargo	
- were cargo data loggers/recorders present	
- have USDA sensors been calibrated If so, give details	
- is this type of container appropriate for the present shipment	

<b>Particulars about the container</b>	
- temperature setting	
- fresh air vents open/closed, if open what amount (cu.m. per hour, or %)	
- humidity setting	
- controlled atmosphere (CA) settings	
- method of CA (Transfresh or other)	
- is unit equipped with temperature recording disc (Partlow), was a copy taken	
- is unit equipped with data logger	
- has data recorded during carrying period been retrieved	
- if survey is from container, how long was the container off power before survey	
- where was container stored before survey	
- are hazardous/odorous materials present	
- during breaks in unstuffing, were doors closed, was refrigeration on	
- unstuffed in open or in store or on bay	

<b>Inspection of the container</b>	
- condition of exterior of container	
- condition of door seals	
- is light visible from inside closed container	
- were seals broken in your presence	
- were locking bars correctly secured	
- seal number(s)	
- condition of interior of container (position of hinge plate)	
- are delivery and return air channels free (not blocked)	
- number of, position of and condition of drains in corners of container, whether open or not	
- is drain of drip tray under evaporator open	
- working condition of machinery including sight glass level	
- air circulation fans working properly	
- is delivery air introduced over full width of floor	
- are displayed temperatures in accordance with actual temperatures (check with calibrated thermometer in delivery/return air flows)	
- water level in tank for humidity control	
- cleanliness of container	
- when/where was last Pre-Trip Inspection	
- temperature according to recording chart	
- temperatures according to data logger	
- alarms during carrying period	
- have stoppages of machinery occurred	
- have repairs been carried out	
- Pre-Trip Inspection after subject carrying period	

<b>REFRIGERATED TRAILERS – additional points</b>	
- type of trailer and manufacturing date	
- registration / licence plate	
- chassis number	
- owner of trailer	
- ATP class/date	
- general arrangement of interior of trailer	
- make, type and i.d. number and manufacturing date of refrigeration machinery	
- maintenance records	
- have repairs been carried out	
- condition of interior/exterior of trailer and refrigeration machinery	
- setting of temperature	
- position of fresh air opening if any	
- temperature logging system	
- had machinery been working continuously	
- number of running hours at time of stuffing of trailer	
- number of running hours at time of survey	
- temperature of the cargo	
- condition of the cargo surveyed as above	
- packaging at time of survey	

<b>Claims summary</b>	
- nature of consignee complaint	
- name of complainant	
- is there a record from a customer datalogger	
- who caused the damage or loss	
- where did the damage or loss take place (before, during or after carriage)	
- in whose custody was container when the damage or loss took place	
- has the “causal” party been held responsible/liable	
- if the loss took place on board a ship did the Master issue Sea protest, report, etc.	
- have cargo quality tests been carried out, if so with what results	
- estimated sound market value of the cargo (c.i.f./f.o.b.)	
- estimated depreciated value of the cargo	
- estimated total extent of the claim	
- details of agreed depreciations	
- cargo condemnation certificates if issued	

<b>Further points of interest</b>

<b>Documents to be attached</b>	
- copy of B/L (both sides)	
- copy of certificate of origin	
- copy of phytosanitary certificate	
- copy of letters of protest	
- copy of commercial invoice	
- copy of document validating the sound market value of the goods	
- copy of packing list	
- copy of carriage instructions	
- copies of container interchange receipts	
- copies of ships' loadplans	
- copy of temperature records, recording discs (Partlow), other temperature records	
- copy of comparative seal discrepancy	
- photographs taken by other parties	
- set of photographs	

### **Narrative**

The aim of this form is to obtain a uniform and comprehensive reporting format and at the same time it is an aide memoir for the surveyor. The questions should be answered as fully as possible but at the same time it is to be considered that the questions to be answered should be in proportion to the claim or survey on hand. In the block "further points of interest" there is room for additional observations or remarks.

Considerable detail is included for live (respiring) cargoes, which will not be necessary for "dead" cargoes (e.g. confectionery, pharmaceuticals, etc.).