



Chapter 39 – Meat and Meat Products in Containers

39.1 Contamination by Odour

Meat is particularly vulnerable to foreign odours. Remedial treatment can be costly and substantial claims can result. If the intensity of the odour or its penetration of the meat surface is significant, the warehouse or cold store may reject it because of the risk of taint to other meat already in store. Modern cold stores usually have no facilities for carrying out remedial treatment for small quantities and it can be difficult and expensive to carry out the treatment at other premises.

39.2 Soft Condition

Damage may result from complete failure of the refrigeration plant, but is more usually brought about by incomplete closure of the vents at the connection point in controlled atmosphere containers, where the ship's refrigeration has been disconnected. Damage can comprise blood-stained and misshapen carcasses and the distortion and staining of meat in cartons in the area of the ambient airflow.

39.3 Chilled Beef

The shelf life of chilled beef is about 10 weeks from the time of slaughter and it may have been in store for some time before shipment. Occasionally, on arrival at destination, the amount of free blood in the vacuum pack is found to be in excess of normal. Provided there is no evidence of intramuscular icing at the time of discharge, any allegation that the transit temperatures were too low should be refuted. The cause could be that the meat has been kept below its freezing point of minus 2°C (-2°C) before shipment, in an effort to keep it as cool as possible and prolong its shelf life.

39.4 Vacuum-Packed Chilled Meat

The object of chilling is to provide meat that resembles, as closely as possible, fresh meat and to retain the maximum degree of flavour, texture, appearance and nutritive value. Chilled meat is often vacuum packed, a process used to reduce bacterial growth and surface dehydration activity and so prolong the storage life of chilled meat.

Meat is vacuum packed by first placing it in a gas impermeable plastic film bag at a temperature slightly above 0°C. The air is exhausted from the bag so that the film applies tightly to the meat surface. The temperature is then held at an appropriate level.

It should be noted that, because of the absence of air, chilled meat may show an abnormal discolouration and on removal of the vacuum packing can give off a distinctive odour. On exposure to air, the colour of the meat reverts to normal and the odour will disappear, so no immediate conclusions should be drawn as to the condition of the meat after removal of the packing.

In the past few years, a number of claims have been raised by receivers of chilled vacuum-packed meat, primarily in northern European ports citing that the meat had suffered a considerable depreciation as a result of the presence of ice crystals in the meat. The presence of ice crystals means that the meat can no longer be considered to be chilled (or fresh) meat but must be considered as 'frozen chilled meat'. The claims are for the difference in market value between chilled and frozen meat at the time of delivery at the discharge port, which may be as much as 20 to 25%.

The usual carrying temperature will range from minus 1.4°C (-1.4°C) to +2°C, but on short voyages the shippers may require a carrying temperature as high as 0°C. The shippers should normally issue precise instructions on this point and, if they do not, Masters should press for instructions to be provided, preferably in writing.

As the meat is vacuum packed, spike temperatures cannot be taken upon loading, but spot checks on individual cartons, placing thermometers between the layers, is recommended. Should there be any significant variation above or below the recommended carrying temperatures, it is suggested that a competent surveyor be called in.

For significant ice crystal formation to occur within the meat requires exposure to temperatures lower than minus 2°C (-2°C) for prolonged periods because the meat contains various salts that lower its freezing point. Minor quantities of crystal near the surface within the meat should not be taken to demonstrate a deterioration in condition

or value. Crystals may also form on the meat at temperatures of 0°C (the freezing point of water) and below. These crystals between the meat and the vacuum packing result from moisture migration and are not indicative of any deterioration in the quality of the meat or any fault in the carriage. Any claim presented on the basis of the presence of such crystals should be strongly resisted.

39.5 Transshipment

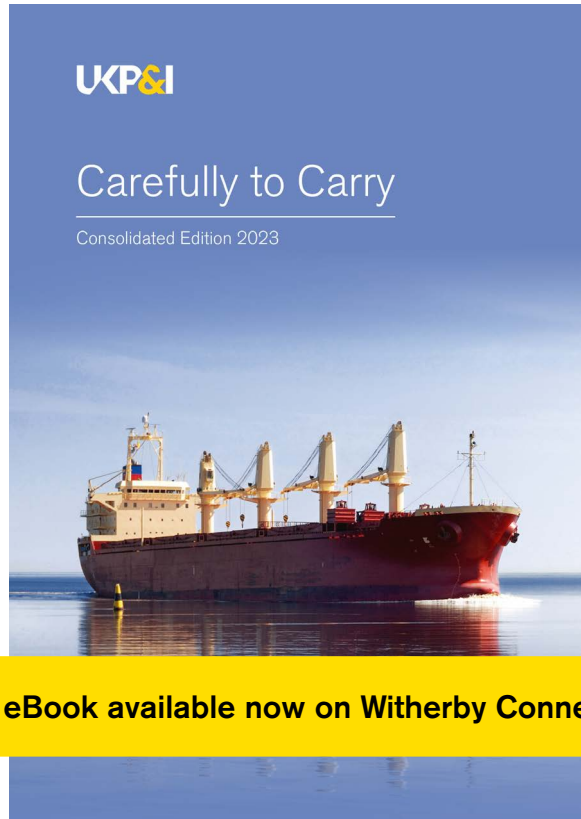
There have been isolated instances where, as a result of damage to the original container during transit, restowage of the cargo into a sound container has been necessary. If such a transfer is carried out without veterinary control, in a country designated as a 'disease pollution' area, the consignees in some countries may reject the consignment on the grounds that there has been a breach of their own health regulations.

39.6 Insulated and Integral Refrigeration Containers

The shipment of chilled meat in units has been accomplished with great success with carriage temperatures as low as minus 1.4°C (-1.4°C). However, when similar carriage temperatures are attempted in containers fitted with integral refrigeration equipment, problems with intra-muscular icing have been encountered. It is recommended that chilled meat shipments are not carried in integral refrigeration containers with temperature settings lower than minus 0.5°C (-0.5°C).



Price: £95



This comprehensive publication, compiled by the UK P&I Club, details best practice for the carriage, loading and storage requirements of a wide range of cargoes. It also contains essential information on draught surveys and preparing cargo plans.

Outlining and expanding on all major international cargo regulations and guidelines, it also includes detailed checklists, information on draught surveys and guides to preparing cargo plans. Cargoes covered include timber, gas, grain, steel and other metals, bulk goods and refrigerated goods.