

Carriage of Organic Bulk Grain Cargoes

INTRODUCTION

Organically labelled food is now commonly sold in supermarkets across Europe and the United States. Foods that are certified organic have been grown and produced under strict guidelines which are set out by a country's individual organic certification body. These guidelines promote the use of farming practice that aims to reduce agro-chemical inputs and prohibit the use of synthetic pesticides.

Organic farming is implemented on a much smaller scale compared to conventional farming practises and as a result of the small economies of scale and additional certification processes, a premium price is associated with organic products. For example, the market price of organic grain may be between two and three times greater than the price per metric tonne of the conventionally grown equivalent.

There are no international guidelines to which all organic certification bodies adhere, but in the EU, for example, there is regulation (EC No. 834/2007 and EC No. 889/2008) governing the standards to which all European organic certification bodies must ensure their certified organic food growers and producers conform.



Organically grown wheat



Oilseed rape field in flower

RECENT DEVELOPMENTS IN THE TRADE OF ORGANIC CARGOES

Transport of organic foods is market-driven. Originally, organic products were only transported locally, but as a result of improved refrigeration technology, organic tropical fruits, vegetables and pre-packaged products are now transported internationally from suppliers in South America, Africa and Asia to the fastest growing organic markets in the Northern Hemisphere.

These organic food products are primarily transported on container ships in both refrigerated and dry box containers. As consumers in Europe and the US continue to become more aware about conventional farming practises and social attitudes continue to shift towards foods which are allegedly 'chemical-free', the desire for organic foods and ingredients from further afield can be expected to continue to increase. In particular, the market for products such as organic speciality breads and craft beers has grown over the last few years, resulting in an increase in the amount of the raw material, bulk organic grain, being shipped across Europe and the US.

A recent accomplishment of the global trade in organic products was the launch of the 2012 Organic Equivalence Arrangement between the EU and the US. This initiative has greatly boosted the trade of organic products between countries since an organic product certified in EU country can now be traded under the same organic certification in the US. Since 2012, other countries including Japan and Canada have also become part of the agreement.

SPECIFIC FUMIGATION ISSUES

Conventional bulk grain cargoes can harbour insects and sometimes vermin pests. To prevent pests damaging grain cargoes during marine transport and to reduce the risk of transporting invasive species and diseases from one country to another, conventional bulk grain cargoes are routinely fumigated before a voyage. Standard fumigation practice involves the use of a toxic chemical gas which kills these pest organisms. Phosphine gas, applied in the solid form of aluminium phosphide or magnesium phosphide, is routinely used to fumigate conventional bulk grain cargoes within the holds of a ship upon completion of loading. If performed correctly, all living organisms in the hold will be killed without leaving toxic residues on the grain or compromising the quality of the grain.

However, this is not the case for the fumigation of organic bulk grain cargoes. The use of phosphine or any other fumigants is strictly forbidden by organic certification bodies around the world. Currently, there are no organically approved fumigants that can be practically applied to organic bulk grain cargoes. As a result, all organic bulk grain cargoes must be transported without fumigation.

If organic cargoes are mistakenly fumigated using phosphine, the consequences can be serious. There is a significant risk that the cargo will lose its organic certification at disport if phosphine is detected and will then be considered as conventional grain. This 'decertification' results in the immediate loss of the premiums associated with organic products and in some cases the cargo can lose 50% of its original value.

TREATING INFESTED ORGANIC GRAIN CARGOES AT DISPORT

Organic bulk grain cargoes may be at a higher risk of arriving infested at disport, compared to conventional bulk grain due to the lack of fumigation. This can of course be a problem for Port Health or Phytosanitary Authorities and there is always a high risk that infested cargoes can be rejected. To try and reduce the risk of insect infestation, good hygiene practice is often more stringent during production, storage and transport of organic grain. Keeping machinery and silos as clean as possible, as well as efficient transport chains are considered best practice.

Recent developments in controlled atmosphere technology mean that there are a range of facilities available, mainly across European ports, which can treat infested organic grain cargoes without the use of phosphine. These treatments mainly rely on the use of specialised airtight chambers to reduce the oxygen content of the air surrounding the grain in order to suffocate the insects and other pests present within the infested cargoes.

A container of infested grain can be delivered to one of these modified chambers or the grain can be physically discharged into airtight chambers on modified barges. These modified chambers are designed with a variety of temperature and oxygen sensors located around the chamber to monitor the environment. The treatment relies on the circulation of air around the chamber after which the levels of oxygen and temperature are adjusted to the specific insect and product that needs to be treated. Air with a low oxygen content is circulated around the chamber and the chamber is heated to increase the rate of insect respiration. As the insect becomes more active with the increasing temperature, it is no longer able to respire at such low oxygen levels and eventually dies. Each treatment program is uniquely designed so that the level of oxygen and temperature is tailored to suit the specific insect and specific type of grain. This treatment is organically approved and so provides a solution to treating an infestation without risking the loss of the organic status (and thus value) of the cargo, but is not without the obvious safety risks to those engaged in this activity.

LOSS PREVENTION TIPS

When carrying organic bulk grain cargoes, members are advised to take the following precautions to ensure that the cargo maintains its organic certification and thus its premium value:

1. LOADPORT

- It is important that the master and crew are made aware of the complications that can be associated with these types of specialised cargoes, as they will locally hold the responsibility for cargo care on board the vessel.
- Good storage practice involving the cleaning of the holds via sweeping and sea-water and fresh water washing is paramount.
- It is advisable that only cleaning chemicals approved in the food industry are applied to the hold if necessary.
- Any residues should be totally removed before loading of the organic grain.
- These cleaning procedures should be documented clearly.
- It is also important that there is no co-storage of organic and non-organic grain in the same holds, as this admixture could also lead to de-classification of the organic status of that portion of the grain.

2. FUMIGATION

- Fumigation of organic bulk grain is not permitted. The use of phosphine and other synthetic chemicals used in the industry are forbidden by organic certifications bodies.
- Although Fumigation is typically the responsibility of Shippers/Charterers, the Master should not permit the fumigators to fumigate the cargo on board the vessel without seeking clarification from his owners and written approval from shipper/charterers.
- If a cargo is found to be infested, there are now facilities in various US and European ports which allow organic approved, controlled atmosphere treatment of such cargoes.

3. DOCUMENTATION

- The correct paperwork should be obtained prior to the voyage according to organic certification regulations enforced by the country of import. Organic bulk grain cargoes often require additional documentation to that needed for conventional bulk grain cargoes. This normally includes the following documentation, although this may change depending on the country of import and whether both countries are part of an Organic Equivalency Arrangement:
 - Clean Bills of Lading, usually describing Organic Status of the cargo
 - Phytosanitary certificates
 - Holds Cleanliness certificates
 - Documented process of Holds cleaning
 - Organic certification of the cargo by a local organic certification body
- Members should be aware that if the cargo originates from outside the EU, the shipment may be subject to an inspection by the local Port Health Official on arrival and so holding the correct documentation is essential.



Organic certification labels of USA, UK, France, Canada, Japan and Australia

CASE STUDY

A general carrier with a single hold, divided into three sections by moveable bulkheads, was loaded with 1,300 mt of certified organic sunflower seeds into Sections 1 and 2, and 1,883 mt of certified organic soft wheat into Section 3. The Bills of Lading clearly described both cargoes as certified organic according to EC REG 834/2007 and 889/2008.

Section 3 was fumigated with aluminium phosphide tablets at the Loadport. The vessel then sailed from Ukraine to Rotterdam. During the inspection of the cargo at disport, 0.12 ppm phosphine gas was detected in Section 3 of the hold, as well as 0.05 ppm phosphine gas detected in Sections 1 and 2.

As described previously, the use of phosphine to fumigate organic food and feed is prohibited internationally. Both cargoes were subsequently de-certified by the local organic certification body and were sold for 50% of their original value. The original claim on this cargo was for \$700,000 for just 3,183 mt of cargo, highlighting that the claims are significantly high for a relatively small tonnage of cargo given the premiums associated with organic grain.

CREDITS

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http://www.cwa.international/food_and_other_dry_commodities.php

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