INFORMATION RE TEMPERATURE RECORDERS

Air Temperature Monitoring

Although routine monitoring of product temperature would be the ideal, it may result in destructive testing rendering some food unfit for sale. There is also a high consequent risk of breakage of the product sensors and for these principle reasons product temperature measurement is not normally undertaken when the load is in transit.

A refrigerated distribution vehicle maintains the chilled or frozen status of a properly pre-cooled load by surrounding the load with an air blanket at the correct temperature. Consequently the most effective way of proving that the transport company has done its job correctly is to monitor the temperature of the air within the vehicle chamber.

Therefore, air temperature monitoring is a means of assessing the performance of the vehicle chamber and its refrigeration system. The differential between the temperature of the return air to the cooler and the cold air to the load is important in this respect.

A large or variable difference normally indicates any combination of warm load, incorrect stowage, uneven air distribution or an unnecessary delay in closing the compartment doors.

Temperature Sensors and Their Location

The temperature monitor has become an important part of the specification of a refrigerated delivery vehicle and nowadays virtually all operators of vehicles carrying chilled or frozen foods will ask for a temperature monitoring system to be fitted to any new vehicle they acquire.

Increasingly these systems are microprocessor based electronic units rather than the more basic chart recorder types that were popular for many years. However, regardless of the type of system preferred by the user, the essential objectives of taking and maintaining temperature records are the same.

The most effective method of air temperature monitoring is the permanent fitting of two sensors in the vehicle chamber. One should be positioned below the cooling unit to measure return air temperature and the other in the ceiling of the chamber about three quarters of the way down the length of the chamber.

The sensors are connected to a suitable recording instrument which is permanently fitted to the trailer or vehicle cab. In the case of a cooling unit which does not used forced air, the air temperature should be measured above and below the load, in order to take into account likely vertical temperature gradients.

Multi-compartment vehicles are designed to carry food at differed temperatures in different compartments. Air temperature measurements should be made for each compartment so that the performance of each can be confidently assessed. If only one sensor is installed, then it should be positioned to measure return air temperature.

Using Temperature Monitoring Equipment

Regardless of the type of product carried or the temperature range involved, the key issue in the use of air temperature monitoring equipment in the UK is the ability to provide adequate evidence of due diligence under the general provisions of the Food Safety Act 1990.

This requires a potential offender to prove that he took all reasonable precautions to prevent the offence. The Food Safety Act covers all food products intended for human consumption and is concerned with food safety, with implications for controls throughout the entire process to ensure that product remains fit for consumption.

Distributors of chilled and frozen foods are required to keep the food that they handle at specific temperatures. If there is a temperature related problem, it is unlikely that due diligence will be proved unless adequate records, which demonstrate compliance with the temperature requirements, have been maintained. The interval between each record for electronic measuring systems is dependant upon the length of journey up to 8 hours in duration.

Temperature records must be dated and retained by the operator of the vehicle for at least one year, and it is recommended that the measuring system is checked at regular intervals (at least once a year) to ensure correct operation and accuracy of measurement.

Frozen Food

The Quick-Frozen Foodstuffs (Amendment) Regulations 1994 (SI1994/298) came into force on 1st September 1994 and detail mandatory temperature monitoring and measurement requirements. The Regulations apply to products labelled as 'quick-frozen', but not to ice cream nor to products not intended for human consumption, and are based on EEC Commission Directive 92/1/EEC of 13th January 1992.

In practice, the term 'quick-frozen' should be regarded as synonymous with 'deep-frozen' and applied to all foodstuffs held at a temperature below -18C.

The Regulations are concerned with product temperatures and not air temperatures. However, there, is a legal requirement to monitor air temperatures - which could be central to the establishment of a defence of 'due diligence' in the event of a prosecution.

Chilled Food

The Food Safety (Temperature Control) Regulation 1995 came into force in September 1995 and has replaced earlier controls under the Food Hygiene (Amendment) Regulations 1990 and 1991.

Whilst these regulations stipulate a single temperature limit of 8C for the storage and transportation of chilled foods, there is no specific legal requirement covering the fitment or use of automatic temperature monitoring devices.

However, there is an obligation to measure air temperature at regular intervals and keep records to prove compliance with the regulations. These records can be produced manually or automatically at the operator's discretion.

Courtesy of Seven Asset Management 2009 (Manufacturer of Transcan Temperature Recorders)