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ENERGY LABELING, REFRIGERANTS AND BLOWING AGENTS

The case for an environmental workshop to be organized by WP.11 in 2010 or 2011

The transport of chilled and deep-frozen foodstuffs has an impact on global warming on a number of levels.

Firstly, it depends on containers or refrigerated vehicles which are insulated using foams. These foams were traditionally produced using chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) which are greenhouse gases dangerous for the ozone layer and which have been phased out in accordance with the Montreal Protocol. HCFCs are prohibited in all new equipment after the end of 2009 and there is a ban on the refilling of equipment (including recycled fluids) with HCFCs after the end of 2014. The EU has confirmed its target of a 20% reduction in greenhouse gas emissions by 2020 compared to 1990 levels. Now international negotiations are turning their attention to the phase-out of hydrofluorocarbons (HFCs).

In the last years in most if not all European countries, insulated foams are already blown with green gases (Pentane C5, N Pentane, Isopentane). Also, the major refrigerated transport equipment builders are already using green gases as the main fluids for their compression cycles (134A, 404A).

The refrigerated and chilled transport industry is actively involved in finding new insulating foams and blowing agents that are both safe for the ozone layer and highly effective so that energy can be saved in maintaining the desired temperature. The Working Party on the Transport of Perishable Foodstuffs (WP.11) is following closely developments in this field. It has a standing item on this subject on its agenda and will discuss the possibility of holding a workshop on environmental aspects of the industry in 2010 or 2011.

Energy efficiency is becoming a major concern both because of the scarcity of the primary sources but also because of the harmful CO₂ emissions that are released. In order to save energy, it is essential to measure fuel consumption. In this regard, the WP.11 has recently added to the ATP Handbook details of a procedure for determining the fuel consumption of vehicle-powered refrigeration units, or in other words the increase in diesel engine fuel consumption when the

refrigeration unit is on.

The K value, or heat transfer coefficient, which represents the insulating capacity of isothermal transport equipment has a direct influence on the final CO₂ emissions of a thermal engine. An increase of 30% in the K value due to the natural aging of the insulating foam used in the transport equipment has to be compensated by a direct increase of 30% in the working time of the thermal engine to compensate for this thermal loss. This increase in the working time of the engine leads to a direct increase of 30% in fuel consumption, which of course has a direct increase on CO₂ emissions.

The influence of aging on the K value and its interpretation is a subject of frequent discussion by WP.11. The Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP) defines the K coefficient and the method to be used in measuring it.

A way to clarify and establish a general approach to this problem among all ATP Contracting Parties would be the acceptance of a rule regarding the number of simplified renewal tests (pull-down tests) allowed. This is not currently specified in the ATP which leads to frequent renewals without any real control of the K value.

Energy labeling schemes or minimum efficiency standards already exist for many appliances used in the cold chain, for example domestic refrigerators or supermarket display cabinets. These schemes have been shown to have the effect of pushing the market towards more energy efficient products. Various proposals have been made to extend such schemes to the refrigerated transport industry. The International Institute of Refrigeration has a working party on energy labeling in the cold chain and Transfrigoroute International, an industry association of body builders and refrigerating equipment manufacturers, is also debating energy labelling.

The WP.11 will keep abreast of all developments in this field and also consider how environmental aspects could be incorporated into the ATP so that it remains relevant to the concerns of the twenty-first century.
