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PROPOSALS OF AMENDMENTS TO THE ATP

New issues

Updating ATP regulations

Transmitted by Transfrigoroute International (TI)

Note by the secretariat

The Programme of Work for 2006-2010 of the Inland Transport Committee adopted at its 68th session in 2006 (ECE/TRANS/166/Add.1, Item 2.11 (i)) requires the Working Party on the Transport of Perishable Foodstuffs (WP.11) to ensure the Harmonization of regulations and standards relating to the international transport of perishable foodstuffs and facilitation of its operations, *inter alia*, by the Consideration of amendment proposals to ATP to ensure it is updated as necessary. The present document is submitted in conformity with that mandate.

1. Following an initiative of the United Nations and the International Road Transport Union (IRU), Transfrigoroute International (TI) was founded more than 50 years ago in order to create the basis to facilitate the international transport of perishable food under harmonized international quality standards by means of a technical committee, the CCT (manufacturers of refrigerated vehicles, refrigeration machines and accessories), and a commercial committee, the FCI (refrigerated vehicle operators and freight loading companies). The ATP was created on the basis of the principles elaborated by these TI committees and in close cooperation with the International Institute of Refrigeration (IIR). However, many important details have unfortunately not been adjusted to keep pace with developments taking place in refrigerated vehicle technology and refrigeration logistics. This is the reason why today ATP is frequently interpreted in very different ways and national implementation varies.

2. Therefore, TI requests that WP.11, the working party responsible for the further development of the ATP, and sub-commission D2 “CERTE” of the IIR in Paris attend to the topics listed below to ensure that in future an internationally standardized interpretation of these issues (which in some cases have been the subject of many years of controversial discussion) is feasible. The ATP will otherwise inevitably move increasingly far away from daily practice in refrigerated transportation and in our opinion should then be replaced by new European regulations. An internationally varying interpretation of the ATP regulations contradicts the meaning and purpose of the ATP and generally calls the ATP into question in view of the fact that it was created to make it possible for perishable foodstuffs to be transported internationally under harmonized international quality standards.

Veto right

3. The TI considers that in the past ATP has very frequently been prevented from developing to keep pace with practice by individual member States exercising their veto right. In our view today, with more than 40 member States, this veto right, which is enshrined in the statutes of ATP, should therefore be abolished as soon as possible. At least the veto right should be restricted just to modifications to the general statutory basis (Articles 1-20), permitting the technical requirements defined in Annexes 1-3 to be adjusted faster to match the state-of-the-art.

4. It is recommended that the technical regulations of the ATP be brought up to date in appropriate international standards committees in future, allowing political decisions to focus on the fundamental issues of the ATP. Votes on technical items should be taken in the standards committees together with the ATP test stations and the industry involved.

Limiting K-value / ageing

5. The limiting K-values defined in the ATP should basically only apply to type-testing of new vehicles because today it is no longer possible to maintain them throughout the service life of the vehicles.

6. Ageing of the thermal insulation as defined to date generally takes place on a declining scale and - if the refrigerated vehicles are used properly and serviced regularly - is approximately 50 to 60% within 12 years. Therefore, a decision on a repeat K-value tunnel test in the course of the usual requalification tests after 6, 9 or 12 years should not be taken until international, practice-oriented, standardized ageing tolerances have been defined in the ATP.

Recognition of the type test reports

7. Type test reports, which are prepared exclusively by authorised ATP test stations, observing the defined conditions, must be recognized bilaterally among all member States. ATP certificates must therefore be issued without the additional costly and time-consuming duplicate tests, which are in some cases carried out randomly. Duplicate tests contradict the ATP agreement as well as the principles of free trading within the European Union.

8. If it remains impossible to lay this down in the ATP because of the veto right as it now stands, the ATP should - in our opinion - be incorporated into European law and further developed with the established majorities within the EU. This would certainly be a way of guaranteeing free trading within the EU as prescribed.

Tolerances for supplementary equipment

9. To make it possible to equip type-tested refrigerated vehicles, which have different accessories (refrigeration machines or systems, thermometers, temperature recording devices, load securing systems, remote controls, lighting etc.) depending on how they are used and for what purpose, the 1 per cent tolerance for the overall volume of foam which has already been decided on must be incorporated in the ATP regulations. This would have only a minimal effect on the overall K-value in the measuring tolerance range.

Pull-down test

10. As proof that the quality of the refrigerated vehicles is adequate and that they are fit for use, when the requalification test is carried out after 6, 9 or 12 years, in future the pull-down test should be used as a mandatory reference, because in this test the performance of the refrigeration machine, the thermal insulation of the body and the air distribution in the body can be proved at reasonable cost. If the pull-down test is passed, the product and temperature reliability is ensured for the next 3-year period of use. However, the K-value tunnel test, which is significantly more expensive, does not provide the basis for any such confirmation.

11. To further enhance the significance of this pull-down test, the maximum cooling-down time must be staggered because the required cooling-down speed is very much influenced by the mean ambient temperature, which can vary between +15 and +40°C during such tests carried out in the open air.

Adjustment of the ATP design factor value to 2.25

12. The adjustment of the ATP design factor to 2.25 has been overdue for a long time. Only with this design factor is it possible to guarantee a cooling-down time for the aged bodies of a maximum of six hours during the first six years of use, as has already been stipulated in the ATP for the requalification tests. In case of vehicles designed with the current design factor value of 1.75 or even just 1.35, this is not possible, as extensive measurements of aged bodies in France have shown.

Validity of the ATP type test

13. Recent proposals by some test stations to restrict the validity of the ATP type test reports for transport refrigeration machines to 6 years are objectively and economically unjustified, particularly if the manufacturer has not made any technical modifications to the type-tested series during this period. However, it is generally customary for ATP test stations to determine if the refrigeration machines match the type-tested prototypes (at the latest after six years) in the course of one of the regular quality tests at the manufacturers which are already provided for in the ATP.

14. In future the development cycles of refrigeration machines and insulated bodies must not be subject to a rigid 6-year cycle. Instead, as past experience has shown, development cycles will be determined, for example, by environmental issues and laws (CFC, HFC ban dates). This results in new development cycles e.g. in the field of thermal insulation and skin materials. Due to energy labelling (currently under discussion) additional development cycles arise for new developments in the field of control engineering, the electronics of refrigeration machines and in insulation engineering and door technology in the case of refrigerated bodies.

15. Therefore such development cycles must not be superimposed by a bureaucratically defined 6-year rhythm for the ATP type test. A new ATP type test is required for every technical modification in any case. In addition to this, clear provisions should be made in the ATP for in-plant quality monitoring which, as is usual, depending on the production numbers, can specify a performance check.

16. Equally, there is no justification for restricting the validity of ATP type-tests for refrigerated bodies, if the body has not been modified. Therefore, here too, as is already customary in most countries, local inspections are required to establish that the construction is identical with the tested prototype. With the current ATP regulation and the planned amendment, smaller manufacturers with a wide variety of products, but low production numbers, are subjected to an unreasonable financial burden because the overall production figures frequently do not permit a new development until significantly later than 6 years.

Multi-temperature vehicles

17. Meanwhile, after over 15 years' practical experience with multi-compartment / multi-temperature vehicles and over 10 years of discussions about a suitable ATP test method, practice-oriented and appropriate, internationally standardized ATP test conditions are yet to be laid down in the ATP. This applies to the use of multi-evaporator systems as well as to air distribution systems that ensure reliable temperatures and comply with European hygiene regulations.

18. In many countries today there are already approximately 20-30% multi-temperature vehicles in use, although there is no agreed, objective test method laid down in the ATP.

Justification

19. Since the ATP was introduced, the inventory of refrigerated vehicles has risen to over 500,000, and up to 10,000 units per type and year are being produced by big manufacturers. The great majority of these vehicles today have to be designed for double pallet width loads as well as for double height pallet loads based on euro-pallet dimensions. This means that today with the external dimensions of the refrigerated vehicles defined by law, only very thin thermal insulation can be installed in order to guarantee interior dimensions which meet market requirements.

20. Since the CFC/HFC/ozone/greenhouse problems have come into focus, the highly efficient heat-insulating foams containing the blowing agents R11, R141b and 142b (which due to the size of their molecules are very slow-diffusing) can no longer be used in the construction of refrigerated vehicle bodies. That is why in the case of most refrigerated vehicles, it is no longer feasible to observe the limiting K-value of 0.40 W/m² K as defined by ATP over the entire service life of the vehicle with specified internal and external dimensions. However, over 90% of all new refrigerated vehicles being used internationally are subject to the limiting K-value of 0.40 W/m² K.

21. Following the introduction of double pallet width loads, this limiting K-value of 0.40 W/m² K can be met only in the case of new vehicles of monocoque design and with enormous technical endeavour, using highly efficient thermal insulation materials with correspondingly highly heat-insulating blowing agents. Currently the K-values of all type-tested larger refrigerated vehicles in use in international transport therefore are very close to 0.40 W/m² K even when new.

22. As a consequence of the inevitable ageing of the thermal insulation (blowing agents diffusing outwards, air diffusing inwards, cell enlargement due to thermal and mechanical fatigue of the foams, penetration of water vapour etc.) these vehicles inevitably exceed the limiting K-value of 0.40 W/m² K within a short period in use.

23. Only a very small percentage of smaller refrigerated vehicles that are not as wide as two pallets on the inside and which have an interior height that is not capable of accommodating a double height pallet load, are the exception here. However, this involves no more than 5% of the refrigerated vehicles in use today in international long-distance traffic, because the economically efficient use of these vehicles is only possible in exceptional cases.

24. With an allowed deviation in the ATP (±20% of the surface) and due to the inevitable spread of standard factory models, even if production quality is monitored, new vehicles should nevertheless show a K-value slightly above 0.40 W/m² K. This means that the limiting K-value stipulated in the ATP should only be applied during the type approval test. Today the ATP type test is generally performed without a refrigeration machine. The K-value of a new vehicle may therefore be slightly higher than 0.40 W/m² K after the refrigeration machine has been installed.

25. In this respect all companies belonging to TI have been engaged for years in the endeavour to achieve a practical and, above all, internationally standardized interpretation of the ATP provisions, which are not clear in all details. There is no objective, economic, or environmental justification for the high financial costs that affect the industry, for example when refrigerated vehicles are declassified as a result of the requalification test.

26. Since these declassified vehicles are not permitted to be used for back loads of deep frozen goods, this leads to significantly more empty runs given the normal cross flow of goods in Europe (e.g. citrus fruit from Southern Europe to Central/Eastern Europe, deep frozen food from Eastern Europe to Central/Southern Europe, flowers from the Netherlands with the return transport of deep frozen food). This means that each declassification contributes towards increasing the traffic volume and hence to increasing the burden on the environment.

27. The frequently quoted comment that vacuum thermal insulation should be used in refrigerated vehicles, is unrealistic in view of the fact that all attempts to use vacuum thermal insulation in refrigerated vehicle construction have failed after a short trial period. The extremely high requirements in terms of no diffusion leakage from any part of vacuum thermal insulation elements cannot be ensured in day-to-day use.

28. Internal damage when loading with forklift trucks, external damage owing to accidents or contact with trees, the constant extreme mechanical strain owing to driving vibrations and temperature changes inevitably cause vacuum thermal insulation to age at an unacceptable rate and to an unacceptable degree. This means that within a very short time in use, the K-values are higher than the high-performance thermal insulation materials being used today.

29. Besides, vacuum thermal insulation is too expensive and, owing to its weight, it imposes an extreme limitation on the payload of the vehicles. Furthermore, vacuum thermal insulation is out of the question for the larger refrigerated vehicles of monocoque design because the necessary mechanical bond is not available owing to the lack of an adhesive bond between the skin material and the foam core. As a matter of principle the decision to use new thermal insulating materials cannot be taken until these have been sufficiently investigated and are available at reasonable cost and in the quantities required for mass production. Besides, proof must be available of several years of positive and practical experience with any new materials.

30. The declassification of refrigerated vehicles with K-values above 0.40 W/m^2K would inevitably mean that double pallet width loading would cease, with the effect that approximately 20% more refrigerated vehicles would be in circulation on our roads. In some sectors, if there was no longer any double-deck loading, up to 100% more refrigerated vehicles would be required. It would also no longer be possible to use longitudinally divided multi-compartment vehicles, although one 3-compartment vehicle very frequently replaces three individual deliveries.

31. For all decisions it must be taken into account that a transport refrigeration machine causes only approximately 10% of the total energy consumption of a refrigerated vehicle. However, even in long distance traffic, at most half of these 10% are affected by ageing and the K-value. Over half the energy consumption of the refrigeration machine is caused by losses during loading and unloading and by the necessary regular cooling-down or heating-up of the refrigerated vehicles and their inner walls.

32. In order to establish the total energy consumption, an average two-hour transport time in Europe must be assumed so that on average a loading and unloading process every two hours must be taken into account. This causes the influence of the K-value and of the ageing of the thermal insulation to drop further and it then only influences approximately 30% of the overall

refrigeration requirement and hence approximately 3% of the total energy consumption of a refrigerated vehicle.

33. The demand for lower K-values inevitably leads to thicker walls and hence to less space in terms of width and height, making loading and unloading pallets significantly more difficult. Because of this the loading and unloading times are prolonged and therefore the energy losses during loading and unloading rise disproportionately. Indeed, in spite of the better K-value, the overall energy consumption of the refrigeration machine actually rises.

34. To minimize the overall energy consumption, depending on the type and tolerance of the packaging on the pallets, modern refrigerated vehicles must be designed with a 2,460 to 2,500 mm clear loading width. Furthermore a loading height clearance of 100 to 150 mm must be taken into account to facilitate loading and unloading with euro-pallets in an appropriate time with reasonable energy losses. In the case of double height pallet loading this requires a loading height clearance of 2,600 to 2,700 mm. Besides, only these internal dimensions guarantee the required cold air circulation around all sides of the load.

35. Today, modern refrigerated vehicles are designed and optimised in terms of energy consumption, taking into account all these influential variables. Considering only the K-values, as has recently been the case at WP.11 and the IIR, inevitably leads to absolutely non-practice-oriented, unrealistic results.
