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| **INF.13** |
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Considerations by the Netherlands on ECE/TRANS/WP.11/2020/5/Rev1

Transmitted by the Government of the Netherlands

1. Annex 1, Appendix 2 paragraph 3.2.6 deals in particular with cases where the thermal appliance is tested separately, while the air flow requirement is also applicable to cases where the thermal appliance is tested together with the insulated body. It is therefore proposed to introduce the air flow requirements as 3.2.6 and renumber the current 3.2.6 and 3.2.7 as 3.2.7 and 3.2.8 respectively.

2. FRC equipment is the most common equipment used for international transport. As Class C should be able to maintain an internal temperature (Ti) that may be chosen between +12 °C and -20 °C it shall always comply with requirement for the more severe volume rate of the chilled mode.

3. In regulation it is normal to give minimum requirements to be met. It should be preferred therefore to apply Option 2a of the proposal that gives a minimum number of air changes per hour, that is also in line with calculated minimum for the chill mode taking into account a safety factor of 1.75.

4. If equipment exist that only operates at -20 °C an additional sentence may be proposed to allow a lower rate of N is greater of equal to 40.

5. When internal capacities of the insulated equipment is equal or less than 2 m3 and equal of more than 100 m3 it should not be left to a competent authority to decide what volume rate should be applicable. This will inevitably lead to dis-harmonization and problems with acceptance of equipment.

6. The proposal may read as follows:

*“3.2.6 The required airflow for mechanically refrigerated equipment is calculated using the following formula:*

*Vl= N. V*

*Where airflow rate Vl is air changes per hour, N, multiplied by the empty volume, V.*

*With N is >55*

*[ For mechanically refrigerated equipment of Class F the airflow may be reduced   
with N > 40.]*

*Where V exceeds 100 m3 Vl may be limited to 5500 m3 per hour.”*

7. Justification for limiting the air flow above a capacity of 100 *m3*:

Thermal units shall be able to circulate air in a sufficient amount to maintain temperature. As in practical use this will also depend on the volume of foodstuffs in the equipment and the way these are placed inside the equipment empty volume is chosen as a general rule for a minimum requirement. Earlier attempts to include air flow requirements failed based on larger equipment used in particular countries that allow greater heights of road vehicles. As thermal units are not lay-out for this a deviation may be taken above 100 *m3*. This may be justified by accepting that in practice equipment is not used empty and the volume of the foodstuffs load will increase air flow. The way of loading and air conducting may have a negative influence but a safety factor of 1.75 is introduced.