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INLAND TRANSPORT COMMITTEE

**Working Party on the Transport
of Dangerous Goods**
(Seventy-first session,
Geneva, 5-9 November 2001)

UPDATING OF THE ADR (ECE/WP.15)

**Working Party on the Amendment of the Requirements
for Fire-Fighting Equipment in Munich from 27 June to 28 June 2001**

Transmitted by the Government of Germany

Summary record

The Working Party on the Amendment of the Requirements for Fire-Fighting Equipment organized by Germany met on 27 and 28 June 2001.

The meeting was held on the premises of the fire service in Munich on 27-28 June 2001.

The meeting opened at 2.00 p.m.

At the beginning of the meeting, Mr. Rein (Federal Ministry of Transport, Building and Housing) was entrusted with the chairmanship of the Working Party.

The following agenda was agreed:

- 1. Discussion on the current documents**
- 2. Practical exercise with fire-fighting equipment**

Which fire-extinguishing agents are appropriate?

Which sizes of fire-fighting equipment are necessary?

How often has the fire-fighting equipment to be inspected?

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3. Discussion on the practical exercise

4. Determination of further action and drafting of a new proposal

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1. Discussion on the current documents: TRANS/WP.15/2000/5 (Germany); INF 9 (Norway) concerning TRANS/WP.15/2000/5 (sixty-eighth session of WP15); INF 3 (United Kingdom) concerning TRANS/WP.15/2000/5 (sixty-ninth session of WP.15); TRANS/WP.15/2001/1 (IRU) (seventieth session of WP15); INF 3 (Germany - seventieth session of WP.15); INF 18 (IRU) was not discussed since it referred to a former proposal submitted by Germany (TRANS/WP.15/1999/42).

Report APRAGAZ – Belgium

Mr. Rein informed the participants about an e-mail from Norway supporting the German proposal with regard to the use of 2 x 6 kg fire-fighting equipment. This applies also to the annual inspection periods which are already in force in Norway.

The participants made the following comments on the afore-mentioned documents and information papers:

AD TRANS/WP.15/2000/5

Mr. Rein once again explained the three central points of the document:

If certain appropriate fire-extinguishing agents are laid down, it will be necessary to inspect the fire-fighting equipment at regular intervals and extinguishers of 2 kg and 6 kg will be sufficient for combating vehicle fires.

Ad TRANS/WP.15/2001/1 (IRU)

Mr. Rasmussen (IRU) was of the opinion that the current regulations in the ADR are, in principle, sufficient but that an updating of the regulations would have to be discussed in detail.

Mr. Huster (BSL/FIATA) advocated, in the case of a possible amendment of the regulations, to apply the vehicle size and the quantity of the dangerous goods carried as the decisive factors for the size of the fire-extinguishing equipment.

1. Practical exercise with fire-extinguishing equipment

In order to demonstrate the functioning of the different fire extinguishers, tests for the individual fire classes had been prepared.

- fire involving wood
- fire involving petrol

- fire involving hot fat
- fire involving aluminium shaving
- fire involving passenger vehicle tyres

The fire-extinguishers used were the appliances normally used at lorries:

- foam extinguisher
- dry-chemical fire extinguisher as cartridge-type extinguisher (extinguisher is activated before use) and
- stored-pressure extinguisher

For these tests, fire extinguishers of 2 kg and 6 kg were used, which were inspected for the last time 2 years and 8 months before and were used on commercial vehicles.

Results:

The use of extinguishers of 2 kg does not bring about any sustainable success for all types of fire, since the fires re-ignite after a short time already and it is no longer possible to extinguish them.

The extinguishing effect of dry-chemical fire extinguishers is satisfactory for all types of fire.

Fire-extinguishing with foam (water) is only useful in the case of fires involving solid substances. Thus, the use of foam extinguishers is very restricted.

The effect of a dry-chemical fire extinguisher is not due to the jet, but the cloud covering the location of the origin of fire which has a cooling effect and thus prevents re-ignition. A fire involving tyres can be combated quite well by the use of two dry-chemical fire extinguishers, owing to the larger cloud thus produced.

In the case of two dry-chemical extinguishers which were for the last time inspected in May 2000 and in January 1999, the extinguisher was unscrewed and the dry chemical was inspected. The contents of both appliances were all right although the dry chemical of the extinguisher inspected in January 1999 was significantly more compressed.

In the case of one fire extinguisher (date of last inspection: May 1998), the pistol was defective.

One cartridge-type extinguisher (date of last inspection: March 2000) did not function at all. This extinguisher was opened and it was found that the pressure cartridge was missing and the ejection piping for the dry chemical was cut off. On closer examination, it was found that there was a written instruction on the extinguisher that it should not be used and should be disposed of.

Note:

The complete practical exercise was documented, the pictures can be made available by the German delegation during WP.15.

2. Discussion on the practical exercise

Capacity of the fire extinguishers:

Fighting the fire with extinguishers of 2 kg does not entail visible advantages since the fire-extinguishing agent can be used for a few seconds only. It is not possible to use it several times in order to achieve a more effective cooling of the source of the fire.

The use of two fire extinguishers of 6 kg is sufficient if the fire has just started, even in the case of a fire involving tyres. Especially if two persons simultaneously use fire-fighting equipment it will be possible to safely extinguish a vehicle fire and it is usually also possible to fight a fire in the case of twin tyres on a medium-sized or large lorry owing to the dry chemical cloud which can thus be generated.

Fire-extinguishing agent:

The type of the fire-extinguishing agent to be used is always a compromise. A dry-chemical fire extinguisher is at the moment the best solution for the inflammatory classes A, B and C for the vehicle fires assumed (tyres, brakes, engine). This should, as a rule, be taken into consideration.

Types of fire extinguishers:

- Extinguishers without stored pressure (cartridge-type extinguishers)
- Extinguishers with stored pressure (stored-pressure extinguishers)

Owing to the practical experience made by the experts, extinguishers without stored pressure (cartridge-type extinguishers) have a higher operational safety since the pressure is not permanently exerted on the extinguisher and the gas filling is kept more tightly.

Most fire extinguishers today are cartridge-type extinguishers which are substantially more expensive than stored-pressure extinguishers but which can, if they are maintained at regular intervals, be used for an unrestricted period of time.

As a result, it can be stated that despite the advantages of cartridge-type extinguishers, first of all no regulation should be provided for in the ADR with regard to the functioning of fire extinguishers but that the associations should advise their members to generally use cartridge-type extinguishers.

The IRU suggested, if necessary, to issue general recommendations to that effect.

Inspection periods for the fire extinguishers

The practical demonstrations have not shown definitely that it is necessary to provide for an inspection to be performed once a year. The aim should, however, be to reach a harmonized regulation for the ADR. Standard EN 3 was discussed as a criterion which lays down a two-year period for new fire extinguishers to guarantee their absolute operational safety. This period was set in consideration of the fact that as long as the necessary pressure complies with the requirements the functioning of the extinguishers with regard to pressure conditions is guaranteed.

Mr. Leplat (Belgium – APRAGAZ) indicated that in Belgium fire extinguishers for vehicles carrying dangerous goods are completely exchanged for new ones after five years. In Sweden, extinguishers are inspected once a year which is absolutely necessary due to extreme weather conditions especially during the winter months, in order to guarantee functional safety (problems: frost, salt and other spreading agents).

Austria applies two-year inspection intervals.

There are currently no EN standards for maintenance and recurrent inspections.

Mr. Leplat presented the test made by the APRAGAZ:

The fire extinguishers (cartridge-type extinguishers with dry chemical) of commercial vehicles were essentially inspected by determining the weight before and after use and by comparing this difference with the net weight indicated. At the same time, the useful life of the extinguishing agent was investigated.

There were no major failures, on the average less than 10%.

In this connection, it was found out that at the time of the test extinguishers of 3 kg and 9 kg were being used for lorries in Belgium.

The Belgian fire extinguishers for lorries are especially marked in order to distinguish them from those used for buildings. This marking means that the manufacturers of the fire extinguishers have to comply with special quality standards.

In Belgium, the use of fire extinguishers at vehicles carrying dangerous goods is only permitted for a period of five years at the most.

In the other states no new fire extinguisher is required due to recurrent inspections. During these inspections, apart from the pressure and the extinguishing powder, the operating parts are also investigated. This is considered to be very important by the experts.

3. Determination of further action and drafting of a new proposal

Inspection periods

After the discussion, the representatives of the IRU and FIATA advocated, in principle, the introduction of two-year intervals for inspection. But alternative safety systems should also be permitted which probably offer the same level of safety. This should, however, not yet be formulated in such a way in the proposal. In order to enable other states, e.g. the Scandinavian states, to lay down shorter inspection intervals, it was decided to propose a two-year inspection period as the upper limit to the ECE-WP.15.

In order to re-confirm the two-year inspection period on the basis of practical experience, Mr. Rein proposes to perform a comparative practical test. On a motorway section (possibly between Aachen and Cologne) Belgian and German dangerous goods vehicles are to be checked for a whole

day, exchanging one fire extinguisher per vehicle. These extinguishers are then inspected according to the procedure applied by APRAGAZ. The members of the Working Party consider this to be very useful.

The organization of this project is taken over by the Federal Ministry of Transport, Building and Housing in cooperation with the APRAGAZ. If the exact date and the location of this project has been decided on, the associations will inform their members thereof so that there will be no problems when exchanging the equipment. It will be possible for the experts of the Working Party to take part in the action.

Number and size of the fire extinguishers

After the discussion and the experiences from the practical exercise with fire extinguishers, the Working Party agreed:

The fire extinguishers are only to be used in the case of a vehicle fire. Thus, the fire-extinguishing agent has not to be adapted to the load. The fire extinguishers should at least cover the inflammability classes A, B and C.

Moreover, a total capacity for fire-extinguishing agents per vehicle should be laid down. Finally, the experts proposed the following quantities of fire-extinguishing agents:

Vehicles of more than 7.5 tons	12 kg (two extinguishers at the most)
Vehicles between 3.5 and 7.5 tons	8 kg (two extinguishers at the most)
Vehicles of less than 3.5 tons	4 kg
Transport units in accordance with 1.1.3.6	2 kg <u>only</u>

Protection of the fire extinguisher:

The proposal submitted by Austria concerning the protection of the fire extinguishers against effects of the weather and other effects was adopted. Thus, it is also intended to improve their functional safety.

The proposed text reads as follows:

“The fire extinguishers have to be installed in such a way that they are easily accessible at any time and that they are protected against the effects of the weather so that their operational safety is not affected.”

Competence for recurrent inspections:

Recurrent inspections should be performed by a competent authority according to the regulations applicable at national level. If necessary, a regulation to this effect will be taken over from the revised version of the standard EN 3 at some later date.

Marking:

The date (month/year) of the next recurrent inspection is to be marked on the fire extinguisher. It is, thus, clearly visible up to which date the fire extinguisher can be used.

Germany is entrusted with the final wording of the application. The proposal is available to ECE-WP.15 in Annex 1.

At the end of the meeting, Mr. Rein thanked all participants for the constructive work. As a result, the German application can now be revised and there is a good chance of reaching a harmonization in this field, too.

Mr. Rein especially thanked the Munich fire service represented by Mr. Trepesch and Mr Bentz, who provided their support for the successful completion of the work.

Annex 1:

Amendment of the requirements for fire extinguishers:

The following amendments were proposed:

8.1.4. Fire-fighting equipment

8.1.4.1 Every transport unit carrying dangerous goods shall, depending on the permissible total weight of the vehicle, be equipped as follows:

- (a) Motor vehicles with a permissible total mass of more than 7.5 tons with two portable fire extinguishers for the inflammability classes A, B and C, with a minimum capacity of altogether 12 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent);
- (b) Motor vehicles with a permissible total mass from 3.5 tons up to and including 7.5 tons with two portable fire extinguishers for the inflammability classes A, B and C, with a minimum capacity of altogether 8 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent);
- (c) Motor vehicles with a permissible total mass of less than 3.5 tons with portable fire extinguishers for the inflammability classes A, B and C with a minimum capacity of altogether 4 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent);
- (d) Transport units carrying dangerous goods in accordance with 1.1.3.6 in deviation from a) – c) with one portable fire extinguisher for the inflammability classes A, B and C, with a minimum capacity of 2 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent).

- 8.1.4.2 The extinguishing agent must be suitable for use on a vehicle and must comply with the requirements of EN 3 and it must be such that its use does not aggravate the fire involving the load.

If the vehicle is equipped with a fixed fire extinguisher, automatic or easily brought into action for fighting a fire in the engine, the portable extinguisher need not be suitable for fighting a fire in the engine.

The extinguishing agents shall be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

- 8.1.4.3 The portable fire extinguishers conforming to the provisions of 8.1.4.1 shall be fitted with a seal verifying that they have not been used. In addition, they shall bear a mark of compliance with a standard recognized by a competent authority and an inscription at least indicating the date (month, year) of the next recurrent inspection or of the permissible period of use.

The fire extinguishers shall, at least every two years, be subjected to an inspection recognized by the competent authority in order to guarantee their functional safety.

- 8.1.4.4 The fire extinguishers shall be installed at the transport units to ensure that they are easily accessible to the vehicle crew at any time. The installation shall be carried out in such a way that the fire extinguishers shall be protected against effects of the weather so that their operational safety is not affected.

8.5

- S3 Special provisions for the transport of infectious substances

Only the provisions of 8.14.1(d) and 8.1.4.2 to 8.1.4.4 shall apply

- 1.6.5.5 Fire extinguishers complying with the provisions of 8.1.4 applicable until 30 June 2001 may be used until 31 December 2005.

- 1.1.3.6.2 ... – Part 8 with the exception of 8.1.4
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