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Working Party on the Transport of Dangerous Goods

**Joint Meeting of the RID Safety Committee
and the Working Party on the Transport of
Dangerous Goods**

(Bern, 11-15 September 2000,
agenda item 2 (d))

**Transmitted by the International Technical Committee for the Prevention
and extinction of fire (CTIF) */**

EMERGENCY ACTION CODE (EAC)

This document is intended to give the Joint Meeting a brief summary of a proposal which CTIF has been developed in the light of the discussion about future coded information systems.

For some time there has been debate in international circles about the best way to give immediate guidance to emergency services arriving at the scene of an incident involving hazard materials in transit.

It is the role of the emergency services to deal with chemical incidents with the maximum effectiveness so as to save lives, protect the public and to accomplish the task in a manner that minimises the risk to the firefighters and the threat to the environment.

*/ Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT/III/2000/20.

In response to a questionnaire circulated by the CTIF hazardous Materials Committee the majority of the CTIF member organisations are in favour of the use of an Emergency Action Code on transport units carrying hazardous substances under RID and ADR.

It is expected that :

- (a) The code would be appropriate for use by all emergency services.
- (b) The code should give guidance to firefighters to allow them to start and sustain safe actions at a hazmat incident to minimize danger to themselves and to other persons, to property and the environment. The guidance should be for the initial stage until more valid and detailed information and support becomes available.
- (c) The criteria for the EAC are that it should contain guidance on the correct medium for fighting fire and to control leakage or escape of a hazardous substance, in order to protect the environment.
- (d) The code should give guidance to protect rescue personnel from the risks to their respiratory systems and to their bodies.
- (e) The code should give guidance on actions to be taken for the immediate protection of the public and the environment.

This will offer a number of advantages to the operational efficiency when dealing with incidents together with greater safety to emergency workers, the public and the environment.

The proposed code is made up of three characters which contain guidance and warning about the following five areas :

- (a) Firefighting or controlling media;
- (b) Personal protective equipment;
- (c) Possibility of violent or explosive reaction (including fire);
- (d) Possibility of public safety hazard;
- (e) Containment or dilution of substance to protect the environment.

The first character of the code (numbers 1-6) denotes the firefighting or controlling media. The second character of the code (letters C-G and K-Q denotes both the level of personal protection required and whether the substance is likely to be violently reactive. The third character of the code (numbers 6-9) denotes whether the substance should be contained and also whether there could be a public safety hazard outside the immediate area of the incident.

From the attached chart, which is intended to be carried by emergency service personnel in the form of a pocket card, all the above risks and necessary actions can be quickly established. For example a code 2D9 will show that a fine water spray should be used as a firefighting or diluting media, that liquid-tight chemical protective clothing should be worn, that there is not a likelihood of a violent reaction, that the substance should be contained and that there may be a public safety hazard outside the immediate area of the incident.

CTIF Emergency Action Code Decode Chart					
1	Coarse Spray	2	Fine Spray	3	Alcohol Resistant Foam or Fine Spray
4	Normal Foam	5	Alcohol Resistant Foam or Normal Foam	6	Dry Agent
C	Breathing Apparatus				
D	Liquid Tight Chemical Protective Clothing				
E	Liquid Tight Chemical Protective Clothing + Thermal Protection				
F	Gas Tight Chemical Protective Clothing				
G	Gas Tight Chemical Protective Clothing + Thermal Protection				
K	Breathing Apparatus				Violent reaction
L	Liquid Tight Chemical Protective Clothing				
M	Liquid Tight Chemical Protective Clothing + Thermal Protection				
N	Gas Tight Chemical Protective Clothing				
Q	Gas Tight Chemical Protective Clothing + Thermal Protection				
6	No Public Safety Hazard				Dilute
7	Public Safety Hazard				
8	No Public Safety Hazard				Contain
9	Public Safety Hazard				

Justification

The use of an emergency action code system would offer the following benefits:

- (i) It is of secondary importance to have detailed information on the hazardous substance in the initial stages and an emergency action code can be implemented immediately, thus avoiding delays while basic essential information is being obtained on the substance concerned.
- (ii) Valuable time can be saved by emergency personnel wearing the correct protective clothing from the outset preventing associated dangers of being under protected whilst eliminating the costly and time consuming use of over protection.
- (iii) The code will indicate immediately whether there is a hazard that might spread to the surrounding area enabling immediate steps to be taken to carry out any necessary actions to protect the public.
- (iv) The code will indicate if it is essential to contain a spillage to protect the environment or if it can be safely diluted saving valuable time and resources and reducing a potential danger of the incident escalating more rapidly.
- (v) The code will take account of the type of danger involved i.e. for toxic substances it will take into account the danger from skin absorption as opposed to inhalation and also the degree of toxicity of the substance.
- (vi) The code is flexible enough to be able to provide advice on the appropriate action where mixed loads are involved.

- (vii) A risk assessment of every substance will have already been undertaken and therefore there will be no need to carry out a risk assessment for initial actions, saving valuable time and reducing the subjectivity required by non-specialist first responders.
- (viii) The code can easily be used by both sophisticated well-trained and equipped brigades or by the volunteer services and other emergency services.
- (ix) It does not rely on radio or other communication systems in order to obtain advice and guidance, which can be unreliable in some cases.
- (x) It does not require the driver to provide information or for an information card to be obtained from the cab of the vehicle.
- (xi) Because immediate action can be taken using the correct firefighting medium and protective clothing, together with action to protect the environment and the public, the use of emergency action codes is likely to result in the saving of lives.
- (xii) Although there would be an initial cost to industry as a result of changing to the new system, it is anticipated that in the longer term there would be savings in terms of dealing with incidents more efficiently, having regard to safety and environment and thus reducing costly clean up operations and possible litigation costs. As it is generally the polluter who pays, any reduction in the time and operational costs involved in an incident will be of benefit to industry.
- (xiii) Although there would be an initial training cost to emergency services and operators, the simplicity of the system might well mean that ongoing training costs could be less than those required to train responders to use the Kemler system.

The following are examples of how the emergency action code would be used as against the Kemler code :

UN 1203 Petroleum

On arrival at the incident the emergency service would most likely be unaware of what the substance was and would therefore be faced with either using the Kemler code or emergency action code markings to carry out initial actions. Using the Kemler code (33) they would know that substance was highly flammable which, although useful information, is limited. Using the proposed emergency action code, they would see a code of 4K9. This would tell them to use foam as a firefighting media, that they should wear breathing apparatus and firefighting kit, that it is violently reactive, that the substance should be contained and that there is the likelihood of a public safety hazard outside the immediate area.

UN 1017 Chlorine

In this case the Kemler code would show 268 indicating a toxic, corrosive gas. Again this is useful information but is limited and is information that is likely to be obtained from the hazard diamond. The proposed emergency action code would show 2G9. This will indicate the use of a fine water spray to knock down any gas cloud, that gas-tight chemical protection with thermal protection (for the low boiling point liquefied gas) should be worn, that there is not a danger from a violent reaction, that the substance should be contained and that there is the likelihood of a public safety hazard outside the immediate sea.


Possible system for the identification of the product, the hazard and the emergency actions

**Orange Plate with
UN-Number & Emergency Action Code & Placard/Label**

UN 1824 =
Sodium
hydroxide,
solution

2 D 6

1 8 2 4



Label 8 =
corrosive

- 2 = Fine spray for dilution
- D = liquid-tight chemical protective suit
no violent reaction
- 6 = no public safety hazard
dilute: *spillage may be washed to drain with large quantities of water*
