

**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals**

28 November 2014

**Sub-Committee of Experts on the
Transport of Dangerous Goods**

Forty-sixth session

Geneva, 1–9 December 2014

Item 8 (g) of the provisional agenda

**Issues relating to the Globally Harmonized System
of Classification and Labelling of Chemicals:
corrosivity criteria**

**Sub-Committee of Experts on the Globally Harmonized
System of Classification and Labelling of Chemicals**

Twenty-eighth session

Geneva, 10–12 (a.m.) December 2014

Item 2 (d) of the provisional agenda

**Classification criteria and related hazard
communication: Work of the TDG-GHS working group
on corrosivity criteria**

**Proposal for revision of Chapter 2.8 of the Model
Regulations: explanatory notes, editorial changes**

Transmitted by the expert from the Netherlands

Introduction

1. Reference is made to document ST/SG/AC.10/C.3/2014/69 – ST/SG/AC.10/C.4/2014/12, the working document submitted by the expert from the Netherlands including a proposal for revision of Chapter 2.8 of the Model Regulations. Since the submission of the document other proposals for revision of Chapter 2.8 have been submitted. These include working document ST/SG/AC.10/C.3/2014/99 – ST/SG/AC.10/C./2014/18 and information document UN/SCETDG/46/INF.35 – UN/SCEGHS/28/INF.20 by the expert of the United States of America, and information documents UN/SCETDG/46/INF.15 - UN/SCEGHS/28/INF.7 from CEFIC. Furthermore the Expert from the United Kingdom presented the opinion on the default assignment of Packing Group in working document ST/SG/AC.10/C.3/2014/104.

2. In this information document we present explanatory notes and editorial changes to the Dutch proposal in working document ST/SG/AC.10/C.3/2014/69 – ST/SG/AC.10/C.4/2014/12.

Explanatory notes

3. To the explanatory notes in ST/SG/AC.10/C.3/2014/69 – ST/SG/AC.10/C./2014/12 the following paragraph should be added:

“(j) The proposal is a straightforward alignment of GHS criteria, where the packing group I, II or III is assigned based on the outcome of the hazard assessment 8A, 8B or 8C, respectively.

Packing group I is assigned as default to substances and mixtures where the outcome of the hazard assessment is 8 without sub-classification.

However for two specific situations a separate method may be used to assign the packing group:

- (1) Mixtures classified in Class 8A based on the additivity calculations, and
- (2) Mixtures classified in Class 8 without sub-classification.

The approach proposed for mixtures classified in Class 8 without sub-classification needs further explanation. This approach is proposed for all mixtures, irrespective the background of the classification in Class 8.

Mixtures can be classified in Class 8 without sub-classification for several reasons, for example:

- Classification is based on pH value only,
- Information on sub-classification is not available,
- Classification is based on non-additivity.

For all mixtures classified as Class 8 without sub-classification, the packing group of the mixture may be derived using the approach in section 2.8.3.5 including table 2.8.4 and figure 2.8.3.

In this approach, the mixture will be assigned a packing group based on the packing group of the individual ingredients:

For ingredients listed by name on the Dangerous Goods List (DGL), the packing group listed in DGL will be used.

For ingredients not listed by name on the DGL for which information on corrosivity is available, the packing group is derived using the methods provided in Chapter 2.8.

For ingredients without a named entry and for which no information on corrosivity is available, packing group I applies in accordance with proposed section 2.8.3.3. (d).

After a packing group is assigned to all individual ingredients the packing group of the mixture can subsequently be deducted using figure 2.8.3, using concentration limits from table 2.8.4.”

4. In our discussions on the proposal we have learned that section 2.8.3 needs a few editorial amendments. In the annex to this document we present the amended proposal with additions provided in **bold underlined** font and deletions as ~~double strike through~~.

Annex

Editorial changes in section 2.8.3 of Chapter 2.8 as proposed in document ST/SG/AC.10/C.3/2014/69 – ST/SG/AC.10/C./2014/12

2.8.3 Assignment of packing group

2.8.3.1 Substances and mixtures of Class 8 are divided among three packing groups according to their degree of danger in transport as follows:

- (a) Packing group I: Very dangerous substances and mixtures;
- (b) Packing group II: Substances and mixtures presenting medium danger;
- (c) Packing group III: Substances and mixtures presenting minor danger.

2.8.3.2 Allocation of substances and mixtures listed in the Dangerous Goods List in Chapter 3.2 to packing groups in Class 8 has been made on the basis of experience taking into account such additional factors as inhalation risk (see 2.8.1.4) and reactivity with water (including the formation of dangerous decomposition products).

2.8.3.3 Unless otherwise specified in section 2.8.3.4 to 2.8.3.5, substances and mixtures not listed by name in the Dangerous Goods List shall be assigned to packing groups as follows:

- (a) Substances and mixtures classified as Class 8A are assigned to packing group I
- (b) Substances and mixtures classified as Class 8B are assigned to packing group II
- (c) Substances and mixtures classified as Class 8C are assigned to packing group III
- (d) Substances and mixtures classified as Class 8 without sub-classification are assigned to packing group I.

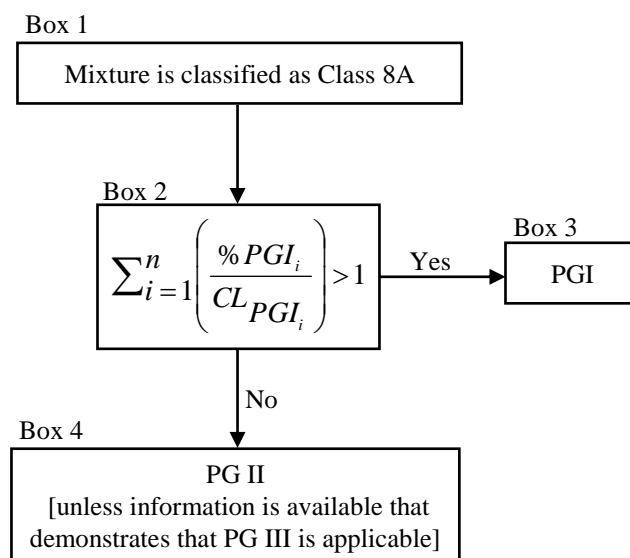
2.8.3.4 Notwithstanding 2.8.3.3(a), the packing group of mixtures classified as Class 8A based on additivity calculations (see 2.8.2.3.3.2 and 2.8.2.3.3.3) may be assigned using the following method:

- (a) Derive the packing group for each individual ingredient. For substances listed by name in the Dangerous Goods List, the packing group shall be taken directly from the list. For substances not listed by name, the packing group from the most appropriate n.o.s entry shall be used;
- (b) Identify the specific or generic concentration threshold for each individual ingredient. For some substances listed by name on the Dangerous Goods List, the concentration threshold can be taken directly from the list. If no specific concentration threshold is available, generic concentration threshold listed in Table 2.8.3 shall be used;
- (c) Assign the packing group for the mixture in accordance with Figure 2.8.2 [unless information is available that demonstrates that packing group III is applicable].

Table 2.8.3: Generic concentration limit for determination of the packing group of mixtures classified as Class 8A based on additivity calculations

Generic Concentration Limit	Concentration
CL PG I	[5%]

Figure 2.8.2: Flow chart scheme for assignment of packing group for mixtures with hazard classification 8A based on additivity calculations



Notes to Figure 2.8.2:

% PGI_i is the concentration of ingredient i assigned to packing group I.

CL_{PGI_i} is the concentration limit for ingredient i with packing group I. This concentration limit can be either a specific concentration limit from the Dangerous Goods List or generic concentration limit from Table 2.8.3.

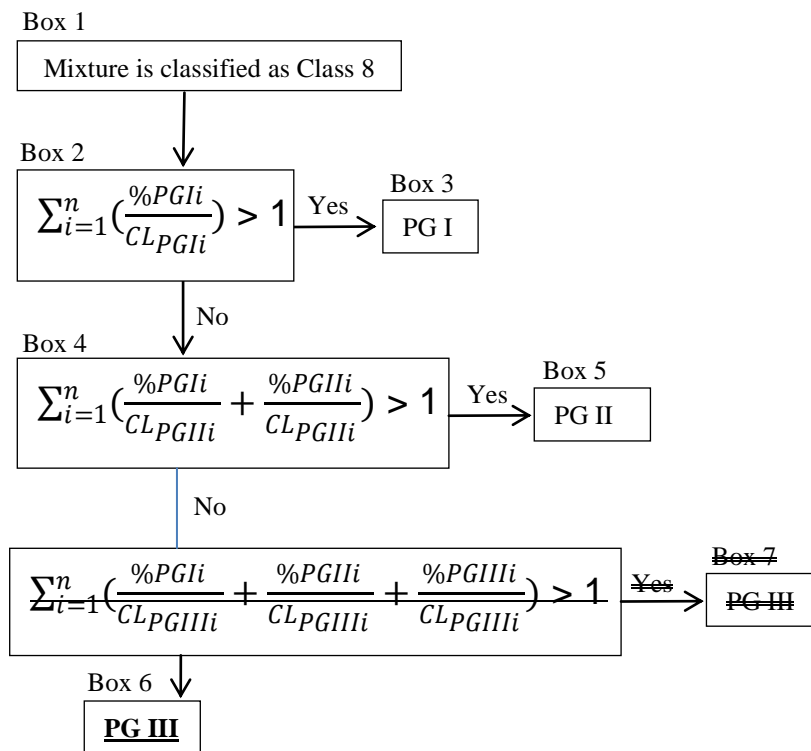
2.8.3.5 Notwithstanding 2.8.3.3(d), the packing group of mixtures classified as Class 8 without sub-classification may be assigned using the following method:

- Derive the packing group for each individual ingredient. For substances listed by name in the Dangerous Goods List, the packing group shall be taken directly from the list. For substances not listed by name, the packing group from the most appropriate n.o.s entry shall be used;
- Identify the specific or generic concentration threshold for each individual ingredient. For some substances listed by name on the Dangerous Goods List, the concentration threshold can be taken directly from the list. If no specific concentration threshold is available, generic concentration threshold listed in Table 2.8.4 shall be used;
- Assign the packing group for the mixture in accordance with Figure 2.8.3.

Table 2.8.4: Generic concentration limit for determination of the packing group of mixtures classified as Class 8 without sub-classification

Generic Concentration Limit	Concentration
CL PG I	[5%]
CL PG II	[3%]
CL PG III	[1%]

Figure 2.8.3: Flow chart scheme for assignment of packing group for mixtures classified as Class 8 without sub-classification ~~based on non-additivity~~



Notes to Figure 2.8.3:

% PG I_i is the concentration of ingredient i assigned to packing group I.

% PG II_i is the concentration of ingredient i assigned to packing group II.

~~% PG III_i is the concentration of ingredient i assigned to packing group III.~~

CL_{PG I_i} is the concentration limit for ingredient i in PG I. This concentration limit can be either a specific concentration limit taken from the Dangerous Goods List or the generic concentration limit from Table 2.8.4.

CL_{PG II_i} is the concentration limit for ingredient i in PG II. This concentration limit can be either a specific concentration limit taken from the Dangerous Goods List or the generic concentration limit from Table 2.8.4.

~~*CL_{PG III} is the concentration limit for ingredient i in PG III. This concentration limit can be either a specific concentration limit taken from the Dangerous Goods List or the generic concentration limit from Table 2.8.4.*~~

2.8.4 Corrosive to metals

2.8.4.1 Liquids, and solids which may become liquid during transport, which are judged not to be corrosive to skin, but which exhibit a corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 °C when tested on both materials are assigned to Class 8.

2.8.4.2 For the purposes of testing steel, type S235JR+CR (1.0037 resp. St 37-2), S275J2G3+CR (1.0144 resp. St 44-3), ISO 3574 or Unified Numbering System (UNS) G10200 or a similar type or SAE 1020, and for testing aluminium, non-clad, types 7075-T6 or AZ5GU-T6 shall be used. An acceptable test is prescribed in the Manual of Tests and Criteria, Part III, Section 37.

NOTE: Where an initial test on either steel or aluminium indicates the substance being tested is corrosive the follow up test on the other metal is not required.

2.8.4.3 Packing group III is assigned in accordance with Table 2.8.5.

Table 2.8.5

Packing Group	Effect
III	Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 °C when tested on both materials