

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

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

15 June 2011

Twenty-first session

Geneva, 27–29 June 2011

Item 2 (a) of the provisional agenda

**Updating of the Globally Harmonized System of Classification
and Labelling of Chemicals (GHS) – Physical hazards**

Meeting of the dust explosion hazard correspondence group

**Transmitted by the expert from the United States of America on behalf
of the informal correspondence group on dust explosion hazards**

Introduction

1. At the 17th session of the Sub-Committee, a correspondence group was formed, comprised of representatives that are subject matter experts, to collect information on dust explosion hazards from the members. The information to be requested includes:
 - (a) Existing definitions or criteria for dust explosion hazards including any analytical methods used and any methods for determining related relevant safety data used;
 - (b) Requirements (if any) for hazard communication on labels and SDSs;
 - (c) Explosion protection concept and derived safety measures; and
 - (d) Identification of issues related to addressing dust explosion hazards in the GHS, if any.

Background

2. At the 20th session of the Sub-Committee, the correspondence group submitted an informal paper providing a status report of the activities to date. The correspondence group explained that a survey was sent to GHS member countries and non-governmental organizations.
3. The correspondence group also proposed terms of reference for the next biennium in the informal paper. The terms of reference for the 2011-2012 biennium are:
 - Continue to compile and analyze the dust explosion hazard survey responses received from the heads of delegation from the member countries and the NGO representatives.
 - Identify common themes in the responses and missing information.
 - Determine the follow-up required to capture any missing information.
 - Determine what and how information (if any) should be conveyed in the GHS.
4. The correspondence group met during the 20th session to discuss the survey results.

Meeting at the 21st session of the Sub-Committee

5. A thought starter is attached for discussion at the 21st session of the Sub-Committee.

Annex

Dust explosion hazards thought starter

Background

1. Dust explosion hazards involve a solid material composed of distinct particles or pieces which presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations. If such a dust is suspended in air in the right concentration, it can become explosive.
2. Materials that may present dust explosion hazards include metals (such as aluminum and magnesium), wood, coal, plastics, bio-solids, sugar, paper, soap, dried blood, and certain textiles.
3. Examples of dust explosion hazards include materials that may exist in a variety of industries, including: food (e.g., candy, sugar, spice, starch, flour, feed), grain, tobacco, plastics, wood, paper, pulp, rubber, furniture, textiles, pesticides, pharmaceuticals, dyes, coal, metals (e.g., aluminum, chromium, iron, magnesium, and zinc), and fossil fuel power generation.

Introduction

4. At the December 2010 Dust Explosion Hazard Correspondence Group meeting, we agreed that dust explosion hazards are a problem in industry and that it is important to communicate the hazard. We also began a preliminary discussion on hazard communication. However, we had trouble agreeing upon a definition.
5. The research on the definition of the hazard indicates that there are several varying definitions and consensus organizations (both nationally and internationally) are continuing to develop a definition using input from experts in safety and health. To give these consensus organizations time to develop an agreed definition, I propose we move on to discussing the hazard communication elements of this hazard.
6. According to the survey results received, some countries have label requirements for chemicals that pose dust explosion hazards (e.g., China), while others do not (e.g., Australia, Germany, Ireland, South Africa, United States of America).
7. While some member countries require that SDSs address dust explosion hazards, most industries provide dust hazard information on SDSs. For example, in the European Union, the REACH Regulation 1907/2006, as updated by Regulation 453/2010 identifies the requirements of safety data sheets. Annex II of this regulation identifies the need to include dust explosion hazards under Section 2.3 (Other hazards) within Section 2 (Hazards identification) of the SDS. But, the survey results also indicate that there are a number of countries where information on SDSs is either not provided or not specifically required.
8. Most member countries and industry representatives who responded to the survey indicated that the hazards of dust explosions are communicated through training. The SDS is a primary tool used in the training and seems a reasonable place to start the discussion of communicating the hazard.

9. As we have talked about in the past, there are several areas that should be discussed during the course of the correspondence work on dust explosion hazards. These areas include the definition, classification and test criteria, labelling elements (i.e., agreeing on what if any pictograms, signal words, hazard statements, and precautionary statements apply), and SDS elements. The discussion of this paper focuses on the SDS communication elements.

10. I believe we have also acknowledged that dust explosion hazards may exist in materials as supplied to the workplace (such as cellulose acetate), as well as materials that are processed in such a way that they become dust explosion hazards (such as dust resulting from the processing of metals). To move our discussion forward, let us focus on the SDS communication elements regardless of the original state of the material.

Discussion

11. Chapter 1.5, Table 1.5.2, Section 2, sub-paragraph (c) of the GHS requires that hazards which do not result in classification be identified on the SDS. Member countries are addressing this issue and most agree that the information on these hazards need to be disseminated in one way or another. For example, as mentioned above, the European Union is requiring industry to include dust explosion hazards on SDSs. The United States of America also has proposed something similar for industry in Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard.

12. Dust explosions typically occur as a result of processing materials in the workplace. Since the SDS is used to communicate hazards in the workplace, it seems reasonable that it should contain information about these hazards. There are several advantages of communicating the hazard through the use of the SDS. The SDS design allows flexibility when identifying what and how information should be conveyed. For those member countries that are in the midst of implementation, providing information about dust explosion hazards on the SDS doesn't add anything significant to implementation efforts. As mentioned above, the SDS is used routinely in workplace training to communicate hazards.

Proposals

13. At present, the GHS does not contain a standardized or harmonized way to communicate information for hazards that do not result in classification. Since dust explosion hazards are considered such a hazard, this thought starter proposes the consideration of developing harmonized approach to communicate this information.

14. Three options on methods to include dust explosion hazards in the GHS are listed below; are there others? Some very initial advantages and disadvantages are provided for each of the options; please be prepared to discuss others at the meeting.

Option 1

Create a new chapter in the GHS to cover hazard communication elements for hazards identified in Table 1.5.2, Section 2 (c) - *other hazards which do not result in classification (e.g., “dust explosion hazards”) or are not covered by the GHS*. The chapter would provide guidance on how to communicate the hazard information. This chapter may help those countries that need a trigger mechanism in order to communicate the hazard.

Required actions:

- (a) Define how to capture new hazards until such time (if ever) as a GHS hazard classification is identified. Examples of hazards that have been brought before the Sub-Committee include formation of air contaminants during hardening or processing, dust explosion hazards, suffocation (simple asphyxiants), and nano-materials. This correspondence group would address dust explosion hazards.
- (b) Establish format of the chapter (identify how, when, and where to communicate the hazards).

PROs:

- Provides a harmonized and standardized mechanism to communicate those hazards which do not result in classification (e.g., “dust explosion hazards”) or are not covered by the GHS in the GHS
- New chapter allows the group to define what and how to communicate the hazard, including all communication elements necessary for such hazards
- New format must be developed
- Others?

CONs:

- New format must be developed
- Others?

Option 2

Focus the change to updating the guidance in A4.3.2.3 (Annex 4) - only.

Required actions:

- (a) Provide more detailed guidance on when to communicate a dust explosion hazard.
- (b) Identify what information should be included in the communication on the SDS in Section 2

PROs:

- The guidance will start with the SDS and may (?) add label elements in future
- Others?

CONs:

- At this time, the option is limited to SDS guidance and does not include labels
- Others?

Option 3

Create a new sub-category in the GHS explosives hazard classification chapter where we address dust explosion hazards.

Required actions:

- (a) Identify definition (including application to supply and use)
- (b) Identify classification criteria and test method
- (c) Identify hazard communication elements (symbol, signal word, hazard statement, precautionary statement)
- (d) Identify/modify Decision logic
- (e) Identify/modify classification guidance (if appropriate)
- (f) Determine where information belongs on the SDS

PROs:

- Takes advantage of existing GHS hazard classification and testing criteria
- Others?

CONs:

- Additional testing may need to be identified
 - Classification criteria, including decision logics, may need to be adjusted
 - How does this fit into the existing GHS chapter since it is often considered a workplace processing hazard?
 - Hazards resulting from workplace processes is not considered in the GHS
 - Others?
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