Can the European Union's Specific Concentration Limits for Skin Sensitization Be Used in the United States and Canada?

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US OSHA Guidelines for Evaluating Concentration Limits

Skin Sensitizers with Data[1]

Appendix A to §1910.1200—Health Hazard Criteria, A.0.4.3.2:

- "If the classifier has information that the hazard of an ingredient will be evident (i.e., it presents a health risk) below the specified cut-off value/concentration limit, the mixture containing that ingredient shall be classified accordingly."

Skin Sensitizer on OSHA's Toxic and Hazardous Substances, 29 CFR Part 1910, Subpart Z[1]

- Substances defined as hazardous by OSHA and listed in 29 CFR Part 1910, Subpart Z, should be considered a "floor" to which other hazardous chemicals should be added.
- If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer or importer may use whatever scientifically valid data are available to evaluate the physical hazards of the mixture.
- If there is evidence that a component is present at less than one percent and could be released into the workplace environment in concentrations that would exceed an OSHA permissible exposure limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV), or present a health risk in those concentrations, the mixture is assumed to present the same hazard.

Other US Guidance

Correspondence with OSHA[2]

Regarding interpretation of the 2012 Hazard Communication Standard (HCS), the public asked OSHA, "Would you consider an EU GHS label sufficient to meet the spirit and intent of OSHA's current HCS?" OSHA stated the following on October 6, 2009:

- "Classification schemes in the EU and other countries may be different from those in OSHA's HCS. These classification schemes may affect the information provided on both the safety data sheet and the label. However, as long as the EU GHS label contains the information required by the HCS, OSHA will consider the EU GHS label sufficient."

National Toxicology Program (2011)[3]

- It was concluded that the LLNA can be used to categorize substances as strong sensitizers when the estimated concentration that produces a positive LLNA result (i.e., EC3) is ≤ 2%.

Abstract

The European Union (EU) has adopted a specific concentration limit (SCL) for numerous chemicals that are considered potent skin sensitizers. Under the EU's Classification, Labeling and Packaging (CLP) of substances and mixtures guidance, extreme sensitizers can have an SCL that is lower than the generic concentration limit (GCL) for Sub-Category 1A. Values for the concentration may be set at 0.001% or an individual value based on reliable data. Therefore, a mixture may be classified as sensitizing if it contains a sensitizing substance at a concentration of at least one tenth of the generic/specific classification limit. This policy of adopting SCLs for potent sensitizers is not common in the United States or Canada. This poster presents relevant sections of the US and Canadian regulations and/or guidance documents that show when concentrations other than the GCL may be adopted for classification in the US and Canada. This poster also illustrates the value of a weight-of-evidence approach in the determination of a chemical's classification. Companies should develop their own best practices, and recognize the importance of consistent execution of these internal best practices supported by strong documentation.

Product-specific issues that affect skin sensitization classification

- Current regulations in both the US and Canada state that the existence of a classified sensitizer must be disclosed on the product-specific safety data sheet when present above the concentration limit that is designated for the hazard class.
- Both the US and Canada state that the GCL may be lowered if there are data to support this decision. The LLNA is considered a suitable study for determining skin sensitizing potency. If there is an LLNA study available for the sensitizing component, the EC3 values may provide an effective and quantitative basis to determine whether or not the GCL may be lowered.
- Whenever available, human skin sensitization data should be incorporated into an assessment of relative potency.
- Companies should develop their own best practice to determine whether or not the GCL should be lowered due to a potent skin sensitizer. In doing so, companies may have to build a weight-of-evidence argument. Therefore, all data regarding the component's skin sensitizing potential should be considered as a whole. Data may consist of human patch testing, human case studies, epidemiological studies, and animal studies. Decision also should be made regarding the conduct of the study, the severity of the reaction, and the concentration of the chemical.

Canadian HPR Guidelines for Evaluating Concentration Limits

Skin Sensitizers with Data

The Hazardous Products Regulations (SOR/2015-17), Section 2.5[4]:

"In the case of Subparts 1 to 10 and 12 of Part 8, if an ingredient is present in a mixture at a lower concentration than the concentration limit for a particular category or subcategory of a health hazard class, but still presents the hazard identified by the category or subcategory of that hazard class at that concentration, the mixture must be classified in that category or subcategory."

GHS Guidelines for Evaluating Concentration Limits

"While the current cut-off values reflect existing systems, all recognize that special cases may require information to be conveyed below that level." Additionally:

"Some chemicals that are classified as sensitizers may elicit a response, when present in a mixture in quantities below the cut-offs established in Table 3.4.5, in individuals who are already sensitized to the chemicals. To protect these individuals, certain authorities may choose to require the name of the ingredient as a supplemental label element whether or not the mixture as a whole is not classified as sensitizer."

Concentration Limits for Classifications

Concentration limits of components classified as a skin sensitizer that will trigger classification of the overall mixture on the safety data sheet and label

Ingredient classified as:	Cut-off/concentration limits triggering classification of a mixture as:	
	Category 1A skin sensitizer	Category 1B skin sensitizer
Category 1 skin sensitizer	≥ 0.1%	—
Category 1A skin sensitizer	≥ 0.1%	—
Category 1B skin sensitizer	—	≥ 1.0%

1. United States Department of Labor, Occupational Safety and Health Administration (2012). Appendix A TO §1910.1200—Health Hazard Criteria (Mandatory).
2. United States Department of Labor, Occupational Safety and Health Administration (2009). Using the Globally Harmonized System (GHS) to Comply with OSHA's Hazard Communication Standard.
3. National Toxicology Program (2011). ICCVAM Test Method Evaluation Report: Usefulness and Limitations of the Murine Local Lymph Node Assay for Potency Categorization of Chemicals Causing Allergic Contact Dermatitis in Humans.
4. Canada (2018). Hazardous Products Regulations (SOR/2015-17).

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