U.S. Department of Labor

Occupational Safety and Health Administration
Washington, D.C. 20210

DEC 01 2022

Mr. George A. Kerchner
Executive Director
The Rechargeable Battery Association
1776 K Street
Washington, DC 20006

Dear Mr. Kerchner:

Thank you for your letter to the Occupational Safety and Health Administration (OSHA) Directorate of Enforcement Programs. You requested clarification of OSHA's application of its Hazard Communication Standard (HCS), 29 CFR § 1910.1200, to lithium-ion batteries, cells, and battery packs. This letter constitutes OSHA's interpretation only of the requirements herein and may not be applicable to any questions not delineated within your original correspondence. Please excuse the delay in our response.

Background: The [Portable] Rechargeable Battery Association (PRBA) is a trade association representing manufacturers of lithium ion (Li-ion) batteries and end-use products powered by them. These end-use products include but are not limited to: mobile phones, tablet computers, laptop computers, point-of-sale terminals, hand-held scanners, power tools, flashlights, and other common devices.

The PRBA has additional questions related to previous letters of interpretation (LOI) OSHA issued related to Li-ion batteries, HCS LOIs regarding article exemption and coverage of products during normal condition of use and foreseeable emergencies. The PRBA asserts that in preparing the 2015 LOIs, OSHA did not consider a number of relevant factors including differing battery chemistries, form factors (*i.e.*, shapes and sizes), and specific-use scenarios. The PRBA believes these considerations are pertinent to determining the applicability of the article exemption under 29 CFR § 1910.1200 (or other applicable exemptions) in particular circumstances.

The PRBA also stated the LOIs did not distinguish between cells and batteries. A cell consists of an assembly of electrodes, separators, electrolytes, containers, and terminals and is the basic electrochemical unit providing a source of electrical energy. A battery consists of one or more cells, electrically connected in an appropriate series/parallel arrangement to provide the required operating voltage and current levels. When more than one cell is used to create a single enclosed battery intended for end-use products, the unit is often called a battery pack. Batteries and battery packs typically contain short-circuit protections.

As a practical matter, OSHA generally agrees that most workers are not exposed to the hazards of a user- (or non-user-) accessible Li-ion battery as part of the normal condition of use in many end-use products or devices (*e.g.,* laptop, power tool). However, exposure to potential hazard(s) remains to some workers with exposure to batteries during storage, handling, maintenance, failure/exposure detection, and during emergencies. The HCS rule's primary, and explicit, purpose is to communicate information concerning the hazards posed by products or hazardous chemical(s) to workers.

In addition, manufacturers and importers are the most familiar with its hazardous product development, and they have the requisite hazard information available such as HCS-compliant labels (if the product or hazardous chemical is not exempt from labeling requirements) and safety data sheets (SDSs), to transmit downstream. Manufacturers and importers are responsible for providing complete, accurate, and up-to-date information.

This PRBA inquiry includes a number of scenarios and questions raised by its members related to the article determination, hazard classification, consumer product exemptions, and labeling requirements. The PRBA scenarios and questions have been paraphrased, followed by our responses. In addition, Attachment 1 to this letter provides several scenarios to give a clearer understanding of the application of the HCS to Li-ion batteries.

Note 1: The responses in this interpretation to "Li-ion" batteries includes Li-ion cells, batteries, and battery packs.

Note 2: The responses in this letter do not cover Li-ion batteries or end-use products that contains an integrated Li-ion battery when they are used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended. *See* 29 CFR § 1910.1200(b)(6)(ix).

PRBA Scenarios A.1- A.3: Article Determination and Hazard Classification

A.1: Manufacturer Determination of Article Status: Subjects for this scenario include responsibility for determining the applicability of the HCS "articles" exemption; proper classification procedures; and use of voluntary/testing standards.

Question 1: Can OSHA confirm that the HCS places the ultimate responsibility on the manufacturer or importer to determine whether a particular product poses hazards which would make the product ineligible for the "articles" exemption per 29 CFR § 1910.1200(b)(6)(v)?

Response: Under the HCS, manufacturers and importers must classify the hazards of chemicals which they produce or import. *See* 29 CFR §§ 1910.1200(b)(1), (d)(1).

Paragraph (b)(6)(v) exempts "articles" from coverage.[1] 29 CFR § 1910.1200(b)(6)(v). In determining whether a product meets the "articles" exemption, manufacturers and importers must take into consideration the inherent hazards of the product in its shipped form as well as under the product's normal conditions of use (*e.g.,* processing, handling, hazardous by-products, downstream exposures) and foreseeable emergencies. *See* 29 CFR §§ 1910.1200(d)(1), (d)(2). Manufacturers and importers bear the burden of demonstrating that a claimed exemption, such as the exemption for articles, is applicable. *See* 2019 Camp Letter.

The manufacturer is in the best position to develop and disseminate information regarding the product's hazard classification and its safety hazard(s) and/or health risk(s). The manufacturer ordinarily has a greater scientific knowledge with respect to the chemicals it produces or uses in its product, but also the manufacturer is often the only entity that knows the identity of the chemicals and the hazards posed by the product or chemical. *See* 48 Fed. Reg. 53280, 53322 (Nov. 25, 1983). Similarly, importers are in the best position to either develop the hazard information or obtain it from the foreign manufacturer or supplier.

When classifying chemicals, chemical manufacturers and importers shall consider the full range of available scientific literature and other evidence concerning the potential hazards. 29 CFR § 1910.1200(d)(2). Appendix A to § 1910.1200 shall be consulted for classification of health hazards and Appendix B to § 1910.1200 shall be consulted for classification of physical hazards. When conducting the hazard classification, the manufacturer or importer must bear in mind that the HCS classification is based on the intrinsic *hazards* posed by a product/chemical, not the *risk*. Risk refers to the probability that an adverse effect will occur with specific exposure conditions.

Although OSHA has not conducted a hazard classification on any specific Li-ion batteries (including differing battery chemistries and form factors (*i.e.,* shapes and sizes)), the agency has reviewed publicly-available information from the U.S. Consumer Product Safety Commission (CPSC)[2], USDOT/Pipeline and Hazardous Material Safety

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[1] "Article" means "a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees." 29 CFR § 1910.1200(c). The HCS definition of an "article" has been in effect for nearly forty years (*see* 48 Fed. Reg. 53820).

[2] CPSC has issued a number of reports and safety warnings related to Li-ion batteries. *See* Updated Status Report on High Energy Density Batteries Project, March 31, 2020 (available at https://www.cpsc.gov/s3fs-public/High%20Energy%20Density%20Batteries_Status%20Memo_FY20_1-6bCleared-04012020.pdf?Qj4t_otWKfBZYLpvu4l6sUvx9ZJfFc4f); Consumer Safety Warning: Serious Injury or Death Can Occur if Lithium-Ion Battery Cells Are Separated from Battery Packs and Used to Power Devices (available at https://www.cpsc.gov/Newsroom/News-Releases/2021/CPSC-Issues-Consumer-Safety-Warning-Serious-Injury-or-Death-Can-Occur-if-Lithium-Ion-Battery-Cells-Are-Separated-from-Battery-Packs-and-Used-to-Power-

Administration (USDOT/PHMSA)[3], and the National Fire Protection Association (NFPA)[4]. In 2019, OSHA issued a Safety and Health Information Bulletin related to potential fire and explosion hazards related to Li-ion batteries.[5] The publicly-available information indicates that certain workplace operations, such as repair or recycling operations where workers routinely handle or are exposed to damaged or defective/rejected Li-ion batteries (*e.g.*, laptop), have resulted in worker exposures to fire (physical) and/or chemical (health) hazards.

Question 2: Can OSHA confirm that the appropriate hazard classification procedures to be followed to address OSHA's concern with "physical" (*e.g.*, burns, fires) hazards are those outlined in Appendix B.8.?

Response: As explained in the response to Question 1, manufacturers and importers shall consult Appendices A and B when conducting hazard classifications.

Question 3: Can OSHA confirm that a manufacturer may appropriately rely on voluntary industry standards, UN testing regimes, or other generally accepted tests to inform its hazard classification of individual products?

Response: Yes. The HCS does not include any specific testing that must be used to determine a Li-ion battery's hazard classification. Additionally, a manufacturer or importer in determining the hazard classification of its product(s) or hazardous substance(s) may use available information from voluntary industry standards, UN testing regimes, or other generally accepted tests, provided that the information relied upon be "scientifically validated." *See* HCS, Appendix A, A.0.2.2. In addition, for any foreseeable emergency, (e.g., from a li-ion battery that leaks), any exposure needs to be considered in the hazard classification.

A.2: Non User-Accessible Cells, Batteries, and Battery Packs: Subjects for this scenario include end-use products which contain an integrated, non-user-accessible Li-ion battery (*i.e.,* the battery under normal conditions of use or foreseeable emergencies is inaccessible to the end user); battery within end-use products are only handled by employees during device assembly or disassembly of the integrated batteries for maintenance, repair, or recycling.

Question 4: Can OSHA confirm that end-use products which contain an integrated, non-user-accessible Li-ion battery or battery pack (such as a point-of-sale computer terminal or handheld device) are properly classified as articles when used by workers

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Devices#:~:text=WASHINGTON%2C%20D.C.%20%E2%80%93%20The%20U.S.%20Consumer,for%20individual%20sale%20to%20consumers.).

[3] Li-ion batteries, cells, and battery packs are regulated under the USDOT Hazardous Materials Regulations, 49 CFR Parts 171-180.

[4] *See* https://www.nfpa.org/News-and-Research/Data-research-and-tools/Hazardous-Materials/Lithium-ion-batteries-hazard-and-use-assessment.

[5] *See* Preventing Fire and/or Explosion Injury from Small and Wearable Lithium Battery Powered Devices (available at https://www.osha.gov/sites/default/files/publications/shib011819.pdf).

who do not open them to perform manufacturing, maintenance, or recycling tasks, thus posing no chemical exposure to the employee using the product as intended?

Response: End-use products that contain an integrated, non-user-accessible Li-ion battery or battery pack that meet the definition of an "article" would be exempt from the HCS as an article under 29 § CFR 1910.1200(b)(6)(v). If, however, an employee accesses the integrated, non-user-accessible Li-ion battery or battery pack to perform such a task as manufacturing, maintenance, or recycling, the HCS would be applicable and require the employer to have available an SDS and provide appropriate training to exposed workers. See also response to Question 1.

Question 5: Can OSHA confirm that end-use products which contain an integrated, non-user-accessible Li-ion battery/battery pack only require HCS labeling on the battery/battery pack within the end-use product in such a manner that the labeling would be visible to a worker who opens the product to perform manufacturing, maintenance, or recycling tasks.

Response: Generally, an integrated, non-user-accessible Li-ion battery/battery pack contained in an end-use product (*e.g.*, point-of-sale computer terminal, handheld device) would likely be a consumer product[6] and subject to CPSC labeling requirements rather than HCS requirements. For questions you may have regarding CPSC requirements, please contact the CPSC at 4330 East-West Highway, Bethesda, MD 20814, 301-504-7923. If, however, the integrated, non-user-accessible Li-ion battery/battery pack in an end-use product is not covered by the CPSC, the immediate product container – the Li-ion battery/battery pack – must then be HCS-compliant labeled.

Question 6: Can OSHA confirm that a user-accessible end-use battery or battery pack intended for use with workplace products which contains a non-user-accessible lithium ion cell or subsidiary battery within the battery or battery pack, and which is designed to prevent physical damage to the interior cell or battery, is properly classified as an article when used by workers who do not open the battery pack to perform manufacturing, maintenance, or recycling tasks (for example, when the battery or battery pack is being replaced).

Response: OSHA expects that batteries and battery packs that that are accessible by worker in workplace products (*e.g.*, laptop, power tool) but that contain non-user-accessible lithium-ion cells or subsidiary batteries would typically be considered a consumer product. If the batteries and battery packs are not consumer products, they would be considered articles if, under normal conditions of use they do not release more than very small quantities of a hazardous chemical and do not pose a physical hazard or

[6] "Consumer product" means any article, or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption, or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation, or otherwise .... (15 U.S.C. 2052).

health risk to employees. 29 CFR § 1910.1200(c). When workers are not exposed to the individual component Li-ion cell or subsidiary battery (*e.g.*, they do not open the battery pack to perform manufacturing, maintenance, or recycling tasks on the components) and there is no physical hazard or health risk to employees, the battery or battery pack would be considered an article.

A.3: Non-Battery Components of End-Use Products: The subject for this scenario is whether Battery Manufacturer A in making an "article" determination must evaluate situations where product manufactured by Product Manufacturer Z contains a design defect.

Question 7: PRBA understands that when Battery Manufacturer A evaluates the normal conditions of use and foreseeable emergencies as part of the hazard determination for its battery, in making an "article" determination, Battery Manufacturer A is not required to evaluate situations where a product manufactured by Product Manufacturer Z, in which the battery is used, contains a design defect (such as a defective AC power adapter), which in turn may cause an overheating event or another failure.

Response: As noted in the response to Question 1, a Li-ion battery's known uses must also include whether the product or hazardous chemical may pose a physical hazard or health risk to workers downstream. However, it is not expected that the classification made by a manufacturer or importer about their product or hazardous chemical would need to include an evaluation of another manufacturer's design criteria.

PRBA scenarios B.1-B.2: Consumer product exemptions, labeling requirements and shipping

B.1: Consumer Batteries Sold with Workplace Products: The subjects of these scenarios involve battery/battery packs that are used interchangeably in consumer and workplace settings (*e.g.*, batteries in power tools, point of sale terminals) but that are not used in greater duration or frequency in workplace applications than in consumer settings.

Question 8: Can OSHA confirm that where a workplace product, such as a point-of-sale terminal or power tool, contains the same battery/battery pack as is also used in a consumer product, the battery/battery pack is exempt from the HCS pursuant to 29 CFR § 1910.1200(b)(6)(ix) so long as the battery is being used for the purpose intended by the manufacturer or importer and the use does not present a greater duration or frequency of exposure than the range of exposures that could reasonably be experienced by consumers.

Response: Yes, a workplace product device (*e.g.*, point-of-sale terminal, power tool) that contains a Li-ion battery that is being used for the purpose intended by the manufacturer or importer under normal conditions of use and does not present a greater duration or frequency of exposure than the range of exposures that could reasonably be

experienced by consumers, is exempt from the HCS pursuant to 29 CFR § 1910.1200(b)(6)(ix). See also the responses to Questions 1 and 4.

Question 9: The use of a product in a workplace may present a greater duration and frequency of exposure. In such situations, and where a workplace product contains the same Li-ion battery as is used in a consumer product, would a label in accordance with CPSC regulations be compliant with the HCS labeling requirements per 29 CFR § 1910.1200(b)(5)(v)?

Response: Yes. If the Li-ion battery meets the labeling exemption under 29 CFR § 1910.1200(b)(5)(v), then the Li-ion battery does not require an HCS label. It would, however, still be required to have an SDS.

B.2.: Labeling of Button cells and Very Small Batteries: The subject for this scenario is where it is infeasible to print a label on the product (*e.g.*, button battery) or a label would be too small to read.

Question 10: For products for which an HCS label would either (i) be infeasible to print, (ii) be too small to read if printed, or (iii) would interfere with the function of the product, would OSHA allow the required HCS label elements be provided on the packaging in which the product is delivered for use?

Response: OSHA expects that many of these very small batteries are consumer products and therefore exempt from labeling under 29 CFR § 1910.1200(b)(5)(v). If they are not exempt, they must be labeled in accordance with 29 CFR § 1910.1200(f)(1). Where a manufacturer or importer has determined that labeling their product in accordance with paragraph (f)(1) is not achievable, nor feasible to use pull-out labels, fold-back labels, or tags, OSHA would allow a practical accommodation to address these types of limited situations. This practical accommodation requires the manufacturer or importer to include, at a minimum, the following information on the label of the immediate container:

- Product identifier
- Appropriate pictograms
- Manufacturer's name and phone number
- Signal word
- A statement indicating the full label information for the chemical is provided on the outside package.

Additionally, the outside packaging, at a minimum, must comply with the following:

- All the applicable label elements, as defined in 29 CFR § 1910.1200(f)(1).
- The outside package must be clearly marked to ensure the complete label elements are visible and it must clearly inform users that the small container must be stored in the outer container bearing the complete label. The complete label must be maintained on the outer package (e.g., not torn, defaced).

- The manufacturer must ensure that any alternative labeling used does not conflict with any other standards. As such, the outside packaging must not present a hazard while the material is being stored.

Note the outside packaging is the container (*e.g.,* bag, box) that the immediate product container is placed into, which may or may not be the exterior shipping container.

PRBA scenario B.3: Shipping of Li-ion batteries, battery packs, and cells

B.3.: Manufacturing Use Component Shipments: The subject for this scenario requests that Li-ion batteries which are securely palletized or in a USDOT compliant container for shipment be considered the container subject to HCS labeling requirements.

Question 11: When Li-ion cells are shipped from a cell manufacturer to a battery/battery pack integrator or product manufacturer for further processing and are securely palletized or contained in a USDOT compliant package, can OSHA confirm that the pallet and/or package may be considered the container subject to applicable HCS labeling requirements?

Response: Each container must be labeled in accordance with 29 CFR § 1910.1200(f). The HCS defines "container," in pertinent part, as "any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical," and defines "label" as "an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging." 29 CFR § 1910.1200(c). As explained in OSHA's *Procedures for the Hazard Communication Standard (HCS 2012)*, because paragraph (f)(1) requires the label on each container, labeling on the outside package only is not compliant. This is consistent with OSHA's long-standing position that the immediate container must be labeled. *See* OSHA's 1990 letter to Mr. John W. Boyan, stating that HCS labels are not required for outside shipping containers. Only if the palletized or USDOT-compliant package is the immediate container is it considered the container subject to HCS labeling requirements.

Thank you for your interest in occupational safety and health. I hope you find this information helpful. OSHA's requirements are set by statute, standards, and regulations. Letters of interpretation do not create new or additional requirements but rather explain these requirements and how they apply to particular circumstances. This letter constitutes OSHA's interpretation of the requirements discussed. From time to time, letters are affected when the Agency updates a standard, a legal decision impacts a standard, or changes in technology affect the interpretation. To ensure that you are using the correct information and guidance, please consult OSHA's website at https://www.osha.gov.

If you have further questions, please feel free to contact the Office of Health Enforcement at (202) 693-2190.

Sincerely,

Kimberly Stille

Kimberly A. Stille, Director
Directorate of Enforcement Programs

Attachment 1

Application of the HCS to Li-ion Battery Scenarios

1) When a manufacturer or importer ships defective/rejected Li-ion batteries for disposal or recycling, they are required to provide an HCS-compliant SDS to downstream employers. An HCS-compliant label would not be required for a product that is regulated under the CPSC.[7] For example, consumer products that are generally regulated by the CPSC include button cells (*e.g.,* watch batteries), small batteries (*e.g.,* flashlight battery), and batteries for laptop computers and power tools. For questions you may have in regard to CPSC requirements, please contact the CPSC at 4330 East-West Highway, Bethesda, MD 20814, 301-504-7923.

2) For Li-ion batteries that are not regulated by the CPSC (*e.g.,* hybrid vehicle batteries), the HCS requires the manufacturer or importer to ensure that each container (*e.g.,* individual battery, cells in a package, carton or box) is HCS labeled, tagged or marked in accordance with 29 CFR § 1910.1200(f)(1)(i)-(vi) prior to leaving the workplace. If the product is stored in the workplace or a warehouse, the container may be labeled in accordance with the workplace label requirements of 29 CFR § 1910.1200(f)(6). In addition, an HCS-compliant SDS must also be provided to employers downstream.

3) In situations where an establishment (*e.g.,* hardware, electronics, general goods store) has available a consumer Li-ion battery disposal or recycling drop off container, the establishment may not have the available hazard information (*i.e.,* SDS) for the disposed batteries. In this situation, there is no requirement for the establishment to generate or obtain any hazard information to send downstream to a disposal or recycling facility. But, if hazard information (*e.g.,* label, SDS) is available to them, the establishment should provide that information downstream (*e.g.,* to a recycler). In addition, a USDOT-compliant label/marking would be required on the shipping container.

4) In work operations where employees only handle sealed containers of Li-ion batteries that are not opened under normal conditions of use (such as warehousing, retail sales), the following would apply:

a) Employer shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

b) Maintain copies of any safety data sheets (SDSs) that are received with incoming shipments of hazardous chemicals and have the SDSs readily available upon employee request and during each work shift to employees when they are in their work area(s); and,

[7] Any product or hazardous substance as those terms are defined in the (U.S.) Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.), respectively, are exempt from the HCS label requirements. See 29 CFR §1910.1200(b)(5)(v).

c) Employers shall ensure that employees are provided with information and training to the extent to protect them in the event of a spill or leak of a hazardous chemical from a sealed container. *See* 29 CFR §1910.1200(b)(4)(i)-(iii).

5) When Li-ion batteries are *in transport* from the manufacturer or importer, the shipment must be labeled in accordance with USDOT label/marking requirements, as indicated in 29 CFR § 1910.1200(f)(5). Furthermore, the HCS requirement to provide an SDS with the shipped container or prior to the shipment remains applicable. 29 CFR § 1910.1200(g)(6)(ii). For questions you may have regarding USDOT label or marking requirements of Li-ion batteries when in transport, please contact the USDOT. The USDOT may be contacted at 1200 New Jersey Avenue, SE, Washington, DC 20590, 855-368-4200.