HAZARD COMMUNICATION STANDARD
OMB Control Number: 1218-0072

Attachment A - Excerpts from Hazard Communication Final Rule Describing Significant Substantive Comments and Significant Changes Related to the ICR (OMB Control No. 1218-0072)

In the final rule excerpts below, OSHA provides a summary of the discussion of public comments that pertain to the ICR.

§1910.1200(d) -- Hazard Classification

Paragraph(d)(1) - Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to classify the chemicals in accordance with this section. For each chemical, the chemical manufacturer or importer shall determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified under normal conditions of use and foreseeable emergencies. The hazard classification shall include any hazards associated with a change in the chemical's physical form or resulting from a reaction with other chemicals under normal conditions of use, when this information is known or is reasonably anticipated to be known. Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer for the chemical to satisfy this paragraph (d)(1).

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In the NPRM, OSHA proposed two changes to paragraph (d)(1). OSHA proposed to revise the second sentence of paragraph (d)(1) to read that for each chemical, the chemical manufacturer or importer shall determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified *under normal conditions of use and foreseeable emergencies* (emphasis added to indicate the proposed new language). The intent of the language that OSHA proposed was to simply reiterate the scope language currently in paragraph (b)(2) and OSHA's longstanding position that hazard classification must cover hazards associated with normal conditions of use and foreseeable emergencies. As OSHA explained in its compliance directive for the HCS (Document ID 0007), for example, known intermediates, by-products, and decomposition products that are produced during normal conditions of use or in foreseeable emergencies must be addressed in the hazard classification. OSHA also proposed to add a new sentence to paragraph (d)(1) stating that the hazard classification shall include any hazards associated with a change in the chemical's physical form or resulting from a reaction with other chemicals under normal conditions of use.

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OSHA received several comments agreeing on the need for clarification about the requirements related to classification of hazards resulting from downstream uses. NABTU agreed that OSHA's clarification on the hazards covered under (d)(1) would help workers find information more quickly and minimize mistakes, as well as aid in training, because it would improve consistency in the location of information (Document ID 0425, Tr. 37). Additionally, NABTU provided several examples where hazards created by chemical reactions as part of the intended use of the product were not being conveyed consistently and, in some cases, not at all

(see, e.g., Document ID 0450, Att. 2, p. 5). NABTU provided safety data sheets for spray foams, epoxies, and cement where a chemical reaction occurs in downstream workplaces following the manufacturer's instructions. The information on the SDSs for these chemicals does not differentiate the hazards of the original chemical versus the hazards the worker might be exposed to through prescribed use of the product (see, e.g., Document ID 0450, Att. 2, p. 5). Additionally, California's Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) provided the example of a hair smoothing product used in professional hair salons where the intended use of the product created different hazards due to chemical reactions (formation of formaldehyde during use which caused various adverse health effects) than the hazards associated with the original chemical. In this case, these hazards were not identified on either the label or the SDS (Document ID 0451, pp. 3-4). Without this information, downstream users are unaware of the potential exposures and therefore do not have the information necessary to adequately protect themselves. NIOSH also supported the change and said that it would be helpful for worker safety and health (Document ID 0281, Att.1, p. 6). However, OSHA also received numerous comments indicating that OSHA's proposed language could be misunderstood and cause confusion on what would be required under paragraph (d)(1). Many of these commenters opposed inclusion of the proposed language as written. Based on the comments received, as explained further below, OSHA is modifying the proposed language to more clearly articulate OSHA's intent for the scope of this requirement as well as to better distinguish between hazards associated with the chemical as shipped and hazards associated with downstream use. Specifically, OSHA is deleting the phrase "under normal conditions of use and foreseeable emergencies." The agency is adding at the end of (d)(1) the phrase "The hazard classification shall include any hazards associated with the chemical's intrinsic properties including:" and then adding two subparagraphs, (d)(1)(i) and (d)(1)(ii).[1] New paragraph (d)(1)(i) reads, "a change in the chemical's physical form and;" and new paragraph (d)(1)(ii) reads, "chemical reaction products associated with known or reasonably anticipated uses or applications." OSHA is also changing the language in paragraph (f)(1) to clarify that hazards identified and classified under new paragraph (d)(1)(ii) will not be required to appear on a product's label (see the Summary and Explanation for paragraph (f)(1)). Changes in Appendix D clarify that hazards identified and classified under both paragraphs (d)(1)(i) and (d)(1)(ii) must be included in Section 2 of the product's SDS.

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In the following discussion, OSHA addresses the comments received on paragraph (d)(1), separated by theme.

Arguments that the HCS has historically not required manufacturers to classify chemicals due to hazards related to downstream use

Several stakeholders commented that the HCS historically has not required manufacturers to classify hazards based on downstream reactions (Document ID 0318, pp. 3-4; 0325, pp. 7-15; 0326, p. 3; 0337, p. 2; 0314, pp. 4-5; 0348, p. 2; 0356, p. 7; 0369, p. 4). For example, ACC stated, "[n]ot only is OSHA's approach incompatible with the current language of the HCS, it is not supported in the text or regulatory history of the HCS" (Document ID 0347, p. 3). ACC quoted OSHA's preamble from the 2012 update, where OSHA stated that manufacturers and importers have greater knowledge and expertise with regards to the composition of the chemicals

[1] Throughout this section and in the regulatory text, OSHA refers to the "intrinsic" properties of chemicals. OSHA considers this to be synonymous with "inherent" properties, a term used by some commenters and in the original HCS.

they make or import than do downstream employers and are usually in the best position to assess the intrinsic hazards associated with them, whereas downstream employers are usually in the best position to determine the risk arising from the use of the chemical in their workplaces. (Document ID 0347, p. 3). ACC also quoted OSHA's compliance directive, where OSHA acknowledges that downstream users who alter the product become the manufacturer and become the responsible party, so would need to consider all the known or intended uses of the products when classifying for hazards. ACC commented that OSHA has not identified any guidance documents that would support the agency's interpretation of (d)(1) (Document ID 0347, pp. 2-3). Additionally, PLASTICS indicated that OSHA has not historically required manufacturers to classify the hazards of by-products produced during downstream use of a chemical. PLASTICS provided several examples dating back to 2004 indicating that OSHA did not intend to have the byproducts included in the hazard determination process or that the downstream employer was responsible for the hazard determination process for byproducts. PLASTICS also indicated that OSHA has been unclear and that various guidance documents have appeared to be inconsistent in their discussion of the scope of the hazard classification process (Document ID 0314, Att. 1, pp. 4-9).

NAIMA suggested that OSHA should address the hazard classification revision in a separate rulemaking, and request information from the regulated community. NAIMA viewed the proposed changes as OSHA's attempt to impose new burdens and regulatory changes in the guise of harmonizing the HCS with the GHS (Document ID 0338, p. 9).

OSHA disagrees that the HCS has not historically required manufacturers to identify hazards related to downstream uses of the chemical they produce or provided any guidance to this effect. While ACC is correct that OSHA, in the preamble to the 2012 HCS, distinguished between the relative knowledge of manufacturers and downstream employers, ACC neglected to include in their comment the paragraph immediately following the one it quoted. That paragraph states: "OSHA's approach in promulgating the HCS reflects this reality. It places the duty to ascertain and disclose chemical hazards on manufacturers and importers, so that downstream users can use this information to avoid harmful exposures to chemical hazards. But because manufacturers and importers will often have less information about the particular exposures of downstream users, their hazard assessment and communication obligations are imposed only for *all normal conditions of use of their chemicals and foreseeable emergencies* associated with those chemicals" (emphasis added) (77 FR 17601-02). Additionally, during the 2012 rulemaking, in paragraph (a)(1) OSHA changed the language to specify that the purpose of the HCS is to ensure classification of hazards, rather than merely assessment or evaluation of them, further indicating that the language in the scope section regarding normal conditions of use and foreseeable emergencies was intended to apply to the classification process, not just assessment of hazards more broadly (77 FR 17693). Thus, the 2012 HCS did, in fact, contemplate that manufacturers would classify their chemicals for hazards associated with these types of downstream uses.

This concept has been part of the HCS since the beginning. As indicated in the preamble to the 1983 HCS, stakeholders raised concerns then regarding responsibility for providing information on MSDSs (now referred to as SDSs) that only the downstream employer could know. In response, OSHA agreed that "[t]he chemical manufacturer or importer, in making hazard determinations, should evaluate and communicate information concerning all the potential hazards associated with a chemical, whereas the employer may supplement this information **by** instructing employees on the specific nature and degree of hazard they are likely to encounter in their particular exposure situations" (48 FR 53296). The preamble of the 1983 HCS went on to explicitly state

"[t]herefore, the chemical manufacturer must provide thorough hazard information, which would be applicable to a full range of reasonably foreseeable exposure situations, rather than limiting the information on the basis of presumed use. The downstream employer will then be assured of having the information reasonably necessary to make informed choices for control measures" (48 FR 53307). When OSHA updated the HCS in 2012, it replaced the hazard determination process with the hazard classification process and indicated that hazard classification was "very similar to the process of hazard determination that is currently in the HCS, with the exception of determining the degree of hazard where appropriate" (58 FR 17698).

§1910.1200(e) – Written Hazard Communication Program

Paragraph (e) of the HCS provides specific requirements for chemical manufacturers, importers, distributors, or employers to develop, implement, and maintain a written hazard communication program. Paragraph (e)(4) requires employers to make their written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director of NIOSH.

The final rule contains one change to correct a reference in paragraph (e)(4) that erroneously referred to 29 CFR § 1910.20 instead of 29 CFR § 1910.1020 when specifying when and how employers must make the written hazard communication program available. OSHA's Access to Employee Exposure and Medical Records standard was originally located at § 1910.20, but was renumbered to § 1910.1020 in 1996 (61 FR 31429), resulting in the incorrect reference OSHA is now correcting. In the NPRM, OSHA proposed this minor editorial correction after finding that an inadvertent misprint occurred in the print version of the CFR. Specifically, in the print version of the CFR, paragraph (e)(4) references § 1910.20 instead of § 1910.1020 (OSHA's Access to Employee Exposure and Medical Records standard). OSHA proposed to fix this error. At the time the NPRM was published, the error was reflected only in the print version of the CFR and the eCFR (*www.ecfr.gov*) was correct, but at the time of this final rule, the eCFR is also incorrect.

No stakeholders objected to the correction of the reference. However, OSHA received one comment suggesting that a different standard should be referenced to explain when and how employers must make written hazard communication programs available. The U.S. Department of Defense, Force Safety and Occupational Health (DOD) asserted that § 1910.1020 "is not a relevant reference for the hazard communication program" because it "likely will not contain specific employee exposure information" (Document ID 0299, p. 2). They suggested that OSHA cite to § 1910.120(l)(1)(i) (the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard) instead and included proposed language to implement their suggestion. They also suggested adding a provision stating that the employer may limit employee requests for copies of SDSs to chemicals that the requesting employee was personally potentially exposed to (Document ID 0299, p. 2).

OSHA disagrees with DOD's suggestion that § 1910.1020 is not relevant and that §1910.120 should be referenced instead. Rather, § 1910.1020 is the appropriate reference here. Paragraph (e) of the hazard communication standard has referenced OSHA's Access to Employee Exposure and Medical Records standard since 1983. Section 1910.1020(c)(5) states that an "employee exposure record" means a record containing any of several kinds of information including a

safety data sheet indicating a material may pose a hazard to human health (§ 1910.1020(c)(5)(iii)) and a chemical inventory or any other record that reveals the identity of a toxic substance or harmful physical agent and where and when it is used (§ 1910.1020(c)(5)(iv)). Paragraph (e)(1)(i) of the HCS (§ 1910.1200) requires that the written hazard communication program contain a list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet. Thus, the information a written hazard communication program is required to contain classifies the program as an employee exposure record within the meaning of § 1910.1020. Section 1910.1020 also contains specific access requirements, including the requirement to assure that employees are provided with records in a reasonable time, location, and manner and the requirement that employers assume the costs of records provision to employees and their representatives. Therefore, citing to § 1910.1020 for requirements pertaining to an employer's written hazard communication program is appropriate regardless of whether the program contains any specific employees' exposure information.

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OSHA also disagrees with DOD's suggestion that the agency amend paragraph (e)(4) to include a statement that an employer need only provide copies of a chemical's SDS to an employee if the employee was potentially exposed to that chemical. This suggestion is beyond the scope of this rulemaking because OSHA only proposed a typographical revision to this section and did not propose any changes to the substance of paragraph (e)(4). OSHA notes that the HCS does not require employers to provide copies of SDSs to employees, only immediate access. Where an SDS constitutes an exposure record under 29 CFR 1910.1020(c)(5), then 1910.1020's requirement to allow employee access (which includes the opportunity to examine and copy) would apply.

For the reasons discussed above, OSHA has determined that § 1910.1020(e) is appropriate to reference for access requirements pertaining to written exposure control plans under HCS, rather than § 1910.120(l)(1). In the final rule, the agency has corrected the technical error and retained the reference to § 1910.1020.

§1910.1200(f) – Labels and other forms of warning

Paragraph (f) of the HCS provides requirements for labeling. In the NPRM, OSHA proposed to modify paragraphs (f)(1), (f)(5), and (f)(11), and also proposed a new paragraph (f)(12).

Paragraph (f)(1) of the HCS, *Labels on shipped containers*, specifies what information is required on shipped containers of hazardous chemicals and also provides that hazards not otherwise classified (HNOCs) do not have to be addressed on these containers. OSHA proposed to revise paragraph (f)(1) to provide that, in addition to HNOCs, hazards resulting from a reaction with other chemicals under normal conditions of use do not have to be addressed on shipped containers. OSHA believed this information was not appropriate on containers because it might confuse users about the immediate hazards associated with the chemical in the container. However, because OSHA believed information on hazards resulting from a reaction with other chemicals under normal conditions of use *is* important for downstream users, the agency did not propose to change the existing requirements for these hazards to be indicated on SDSs (under Appendix D) and addressed in worker training where applicable (under paragraph (h)). OSHA

also proposed to add the word "distributor" to the third sentence of paragraph (f)(1) to make it consistent with the first sentence.

OSHA did not receive comments on inclusion of "distributor" in this paragraph, so the agency is finalizing that addition as proposed. OSHA received several comments on the proposal that "hazards resulting from a reaction with other chemicals under normal conditions of use" be exempt from inclusion on shipping labels. Michele Sullivan agreed with OSHA that including this information on the label could be confusing and potentially misleading, stating that including downstream hazards on the container could cause confusion with DOT requirements (Document ID 0366, p.3). However, Cal/OSHA and Worksafe expressed concern that exempting this type of information from the label would withhold important information on chemical reactivity and hazards from workers throughout the supply chain (Document ID 0322, pp. 2-3, 15-16; 0424, Tr. 166-168, Tr. 193-195; 0354, p. 5). Cal/OSHA also took issue with using the term "under normal conditions of use" as the trigger for the labeling exemption, contending that it is unrealistic to expect chemical producers to be able to accurately identify such situations. Cal/OSHA stated that chemical manufacturers would need to rely on assumptions about downstream uses and if a manufacturer relied on incorrect assumptions, this could result in essential chemical hazard information being withheld (Document ID 0322, pp. 13-14).

OSHA disagrees with the assertion that not requiring this information on the shipping label would allow manufacturers to withhold important hazard information from workers. As explained in the NPRM, information about downstream hazards is required to appear in Section 2 (Hazard(s) Identification) of the SDS, which must be readily available to workers using the product. Additionally, omitting hazard information created from later chemical reactions from the label properly places the label's emphasis on the hazards associated with the chemical in the container, while minimizing the potential for over-warning, which could mask the hazards to which workers are exposed. However, as discussed in the Summary and Explanation for paragraph (d), OSHA received many comments expressing uncertainty about what the agency meant by the term "under normal conditions of use." Accordingly, in this final rule, OSHA has revised paragraph (d)(1) to remove the "under normal conditions of use" language and replace it with language that more clearly describes obligations for classification. Correspondingly, in paragraph (f)(1), this final rule removes the reference to "under normal conditions of use" and replaces it with a direct reference to paragraph (d)(1)(ii). As finalized, this change to paragraph (f)(1) maintains the proposed exemption but ensures consistency and minimizes confusion about which hazards are required on both the label and the SDS and which hazards are required solely on the SDS.

Hach commented that OSHA should update (f)(1)(vi) to be consistent with the proposed changes in Appendix D to specify that the address and phone number of the responsible party should be the U.S. address and phone number (Document ID 0323, p. 11). OSHA is specifying that the address and telephone number of the chemical manufacturer, importer, or other responsible party required in Section 1 of the SDS, Identification, must be United States domestic, in order to minimize confusion on this point. As OSHA discussed in the NPRM, this change is not a new requirement, but clarifies the previously existing requirements of Appendix D, which requires that the name, address, and telephone number of the responsible party, such as the chemical manufacturer or importer, be listed on the SDS (86 FR 9722). OSHA explained in a 2016 LOI that when chemicals are imported into the United States, the importer (defined by the

HCS as being the first business with employees in the United States to receive hazardous chemicals produced in other countries for distribution in the United States) is the responsible party for purposes of compliance with the HCS and is required to use a U.S. address and U.S. phone number on the SDS (Document ID 0090). For the same reasons that OSHA is making this change in Appendix D (see the Summary and Explanation for Appendix D), OSHA agrees that the change should be made here as well. Therefore, this final rule revises (f)(1)(vi) to include "U.S." before "address" and "telephone number."

OSHA also proposed to add a new paragraph, (f)(1)(vii), that would introduce a requirement that the label include the date a chemical is released for shipment. The agency proposed this change in conjunction with changes in paragraph (f)(11) related to relabeling of containers that are released for shipment but have not yet been shipped. The agency believed that providing the date a chemical is released for shipment on the label would allow manufacturers and distributors to more easily determine their obligations under paragraph (f)(11) when new hazard information becomes available.

OSHA received numerous comments on this proposal. NAIMA supported the inclusion of a date for release for shipment on the basis that including such a date aligns with OSHA's other proposed changes related to chemicals that have been released for shipment (Document ID 0338, p. 7). Tom Murphy commented that including a date on the label could benefit workers but suggested that OSHA change the title "Release for Shipment" to "Packaged for Shipment" to better reflect the intent of (f)(1) (Document ID 0277, p. 2). Many commenters, however, objected to or had concerns about the requirement of adding the release for shipment date on the label. Some raised practical objections, such as inadequate space on the label and lack of clarity about what the proper date would be (Document ID 0361, pp. 1-2; 0362, pp. 3-4). Many others questioned the need for such a requirement since manufacturers already track the date of manufacturing through various means such as lot numbers or manufacturing dates (Document ID 0327, p. 4; 0359, p. 3; 0323, pp. 8-9; 0315, pp. 1-2; 0321, p. 1; 0333, p. 1; 0339, p. 2; 0340, pp. 4-5; 0348, p. 2; 0349 p. 1; 0423, Tr. 103, 195-196 and 210-216; 0424, Tr. 21). For example, Epson America, Inc. (Epson) commented that the proposed requirement was "not necessary and meaningless" and that the proposal did not make clear which date to use (Document ID 0288, p. 1). NPGA, Dow, and Hach also commented that a required date on the label would add unnecessary burdens and create confusion (Document ID 0364, pp. 1-2; 0359, pp. 3-4; 0323, pp. 8-9). IMA-NA suggested that such a date would not bear a connection to when the container was actually ready to ship (Document ID 0363, p. 8). Michele Sullivan commented that requiring the date on the label was contrary to international harmonization because the GHS does not have such a requirement (Document ID 0366, p. 4). Similarly, Hach observed that other international partners (e.g., Canada) do not require the date of release for shipment on the labels (Document ID 0323, pp. 8-9).

Some commenters indicated that OSHA underestimated the burden of this requirement since either manufacturers would need to modify their processes or the new requirement would preclude the use of pre-existing labels, which save manufacturers time and cost (Document ID 0290, p. 1; 0315, pp. 1-2; 0358; p. 2; 0324, pp. 2-3, 7; 0359, pp. 3-4; 0323, pp. 8-9; 0424, Tr 21; 0425, Tr. 73; 0368, p. 6). Others questioned whether the proposal would create issues with labeling requirements imposed by other agencies. For example, ILMA commented that some of their members are also regulated by FDA and the use of a ship date as opposed to a batch code may violate FDA regulations (Document ID 0444, p. 6). Several commenters commented that the addition of this date on the label could create confusion with very little benefit. AmeriGas

stated that a "released for shipment" date could lead to confusion with DOT requalification dates (Document ID 0423, Tr. 210-216), and SAAMI suggested that there could be confusion with expiration dates (Document ID 0421, p. 2).

In addition, HCPA, ACC, and others recommended that OSHA allow manufacturers and importers to use their own methods to track their inventory throughout distribution rather than require an additional date on the label (Document ID 0301, p. 1; 0315, pp. 1-2; 0327, p. 5; 0324, pp. 3, 7; 0423, Tr. 103). A comment jointly submitted by the Compressed Gas Association (CGA) and the Gasses & Welders Distributing Association (GAWDA) recommended that the date be optional to provide manufacturers flexibility, especially those that reuse containers and inspect labels regularly (Document ID 0310, pp. 1-2).

OSHA appreciates the various views and comments submitted by stakeholders. The agency finds compelling the arguments that the date a chemical was released for shipment is not needed on labels because this information is already available through other means and that the addition of the date could cause confusion for downstream users due to other (non-HCS) date requirements on the label. Since OSHA indicated in the NPRM that the primary reason to include the "release for shipment" date was to aid manufacturers and distributors in complying with (f)(11), the agency finds it relevant that manufacturers and distributors believe they already have adequate means to track their inventory (86 FR 9698). OSHA therefore concludes it is unnecessary to require dates be included on the label and is not including this proposed requirement in the final rule.

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Bulk shipment. OSHA proposed adding a definition of the term *bulk shipment* to the standard. The proposed definition stated that *bulk shipment* means any hazardous chemical transported where the mode of transportation (vehicle) comprises the immediate container (i.e., contained in tanker truck, rail car, or intermodal container). This definition clarifies paragraph (f)(5)(ii), which OSHA proposed in the NPRM to explain that labels for bulk shipments need not be placed on the immediate container but may instead be transmitted with the shipping papers or bills of lading or by other technological or electronic means, as long as the label is immediately available to workers in printed form at the receiving end of the shipment. The proposed definition also distinguishes OSHA's bulk shipment requirements from the DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) requirements for bulk packaging (49 CFR Parts 100-185).

OSHA received multiple comments on this proposed definition. The Fragrance Creators Association (FCA) requested clarification as to whether the proposed definition of *bulk shipment* would encompass intermediate bulk containers (IBCs). An IBC is "a rigid or flexible portable packaging, other than a cylinder or portable tank, which is designed for mechanical handling" (49 CFR 171.8), typically holding 110-350 gallons (Document ID 0345, p.5). According to FCA, these IBCs are commonly placed into inventory as-is, and therefore should be labeled to ensure employee health and safety (Document ID 0345, pp. 5-6). OSHA intends the definition of "bulk shipment" to apply only when the mode of transportation is the immediate container, such as a tanker truck, rail car, or intermodal container. Therefore, IBCs do not fall within OSHA's definition of a bulk shipment.

DGAC, Interested Parties for Hazardous Materials Transportation (IPHMT), NACD, and NPGA suggested that OSHA should adopt DOT's definition of "bulk packaging" (Document ID

0339, pp. 1-2; 0423, Tr. 62; 0336, pp. 3-4; 0329, pp. 2-3; 0423, Tr. 124; 0465, pp. 2-3; 0364, pp. 6-7; 0423, Tr. 229. DOT defines "bulk packaging" as:

> a packaging, other than a vessel or a barge, including a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment. A Large Packaging in which hazardous materials are loaded with an intermediate form of containment, such as one or more articles or inner packagings, is also a bulk packaging. Additionally, a bulk packaging has:
> (1) A maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid;
> (2) A maximum net mass greater than 400 kg (882 pounds) and a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid; or
> (3) A water capacity greater than 454 kg (1000 pounds) as a receptacle for a gas as defined in § 173.115 of this subchapter.

49 CFR 171.8. NACD expressed concern that OSHA's proposed definition of "bulk shipment" would conflict with DOT's definition of "bulk packaging" (Document ID 0329, pp. 2-3; 0465, pp. 2-3; 0423, Tr. 124). DGAC stated that the definition of *bulk shipment* "should be similar or identical to those contained in the DOT regulations in Section 171 of the Hazardous Materials Regulations… [because] many of the packaging described as bulk are used for international movement of hazardous materials, but they're also used as a containment system in manufacturing. So to have different definitions would create problems" (Document ID 0423, Tr. 62). NPGA and IPHMT suggested that OSHA incorporate by reference the DOT definition, on the basis that incorporation would provide clarity on requirements for bulk shipments where both HCS and DOT's Hazardous Materials Regulations (HMR) requirements apply; would offer uniformity in the training and education of workers on the types of containers and the required information to be displayed for bulk shipments; and would allow for updates to the definition of *bulk shipment* without requiring revision to the HCS (Document ID 0336, pp. 3-4; 0364, pp. 6-7). They also noted that the definition of *bulk shipment* needed to be "clear between the agencies" in order to codify the joint DOT and OSHA policy from a 2016 guidance document regarding labeling of bulk chemical shipments (Document ID 0244).

OSHA disagrees with these comments. The agency intends for its definition of *bulk shipment* to differ from DOT's definition of bulk packaging, as DOT's definition would not adequately support OSHA's requirements in HCS paragraph (f)(5)(ii). OSHA's use of the term *bulk shipment* solely refers to situations where the mode of transportation is also the immediate container, while DOT's definition for *bulk packaging* encompasses a broader range of forms of packaging, including those with an intermediate form of containment such as 55-gallon drums or super sacks (flexible intermediate bulk containers) which can hold over a ton of material. OSHA only intends to create an exception in (f)(5)(ii) for shipments that do not have intermediate forms of packaging. Thus, adopting the DOT definition would not align with OSHA's intent and would provide less information to workers. The guidance created with DOT in 2016 does not conflict with this interpretation and a single definition is not required in order to codify it, as suggested by NPGA and IPHMT. That guidance uses the terms *bulk shipment* and *bulk packaging* correctly to refer to each agency's separate definitions and does not use the terms interchangeably. Therefore, OSHA is declining to adopt the suggestion that the agency incorporate by reference or otherwise align with the DOT definition for *bulk packaging* and is finalizing the definition of *bulk shipment* as proposed.

Combustible dust. OSHA proposed adding a definition of the term *combustible dust* to the HCS. In the 2012 update to the HCS, OSHA included combustible dust under the definition of hazardous chemical, but did not provide a separate definition of the term. At that time, OSHA did not include a definition of *combustible dust* because the agency was considering a separate combustible dust rulemaking, OSHA had already begun work at the GHS on a definition for *combustible dust*, and the UNSCEGHS was also considering combustible dust classification and communication issues (see 77 FR at 17705). Additionally, OSHA explained that it had previously provided considerable guidance on the nature and definition of combustible dust in a variety of materials, including OSHA's Hazard Communication Guidance for Combustible Dusts (77 FR 17704). Since the 2012 rulemaking, however, OSHA has not promulgated a combustible dust standard and the UNSCEGHS has adopted a definition for *combustible dust*.

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In the PEA, OSHA invited interested parties to provide comments on the preliminary cost estimates for the proposed paragraph (f)(12) and the assumptions underlying them. Elsewhere in the NPRM, the agency requested comments on the feasibility of, and any cost savings associated with, the proposed provisions for the labeling of small and very small containers and whether the proposed labeling requirements would be adequate to provide for safe handling and storage of chemicals in small containers. Ameren noted the costs of needing to re-print and replace current labels but stated, "experience [within Ameren] indicates there is potential cost savings associated with the proposed provisions for the labeling of small containers (both 100 ml and 3 ml and less). . . . Ameren agrees that the proposed labeling requirements would be adequate to provide for safe handling and storage of chemicals in small containers" (Document ID 0309, p. 12). OSHA infers from Ameren's comment and the absence of any opposing comments that the proposed labeling requirement (paragraph (f)(12)) for small containers could, and in OSHA's estimation likely will, provide cost savings. Therefore, OSHA's final estimate of cost savings for paragraph (f)(12)(iii) is $1.7 million, as reported above and shown in Table VI-19.

Concentration Ranges

In addition to the five categories discussed above where significant costs or cost savings are expected, OSHA received comments on a set of provisions addressing concentration ranges in relation to confidential business information that, in OSHA's final assessment, will not create significant economic impacts.

IMA-NA expressed concern that compliance with paragraph (i) will impose labeling costs that were not recognized in OSHA's economic analysis because "it will take considerable time and money to realign product lines with the new ranged approach to CBI" (Document ID 0363, p. 6). The Vinyl Institute warned that "a significant anti-competitive impact on the market" could result from too-narrow prescribed concentration ranges (Document ID 0369, Att. 2, p. 9). ILMA also predicted that the concentration range requirement would create market disruptions, noting that the majority of its members who responded to ILMA's survey indicated that overly narrow concentration ranges would erode competitive advantage (Document ID 0460, Att. 2, p. 2). Ameren recommended that the final rule allow combinations of concentration ranges across all conceivable percentages because such flexibility would potentially yield cost savings (Document ID 0309, p. 13).

In response to stakeholder concerns about the loss of competitive advantage through the reverse engineering of confidential information on chemical concentration ranges, OSHA's final set of requirements in paragraph (i) prescribe reasonably narrow concentration ranges that may be used in combination to preserve trade secrets. OSHA believes that final paragraph (i) strikes a

responsible balance between averting significant economic impacts among affected employers and the disclosure of sufficient information on the chemical properties of commercial products to communicate workplace hazards. And because stakeholders provide no evidence demonstrating that loss of CBI and trade secrets were likely outcomes under any scenarios that incorporate OSHA's final set of requirements in paragraph (i), the agency foresees no additional significant costs. In response to comments that it will take time to update labels to align with this provision, OSHA expects that many companies have already created labels that align with Canada's system and therefore will have already aligned their labels with these ranges. IMA-NA also did not provide any suggestion of what the costs might be in order to do such updating for companies that have not already aligned with Canada, so OSHA does not have any basis for incorporating an estimate of time needed for compliance. Additionally, because it is optional for companies to claim trade secrets and therefore to use these ranges, companies that are concerned about costs can simply choose not to claim trade secrets and not incur costs related to this provision.

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In the PEA, OSHA invited interested parties to provide comments on the preliminary cost estimates for the proposed paragraph (f)(12) and the assumptions underlying them. Elsewhere in the NPRM, the agency requested comments on the feasibility of, and any cost savings associated with, the proposed provisions for the labeling of small and very small containers and whether the proposed labeling requirements would be adequate to provide for safe handling and storage of chemicals in small containers. Ameren noted the costs of needing to re-print and replace current labels but stated, "experience [within Ameren] indicates there is potential cost savings associated with the proposed provisions for the labeling of small containers (both 100 ml and 3 ml and less). . . . Ameren agrees that the proposed labeling requirements would be adequate to provide for safe handling and storage of chemicals in small containers" (Document ID 0309, p. 12). OSHA infers from Ameren's comment and the absence of any opposing comments that the proposed labeling requirement (paragraph (f)(12)) for small containers could, and in OSHA's estimation likely will, provide cost savings. Therefore, OSHA's final estimate of cost savings for paragraph (f)(12)(iii) is $1.7 million, as reported above and shown in Table VI-19.

Concentration Ranges

In addition to the five categories discussed above where significant costs or cost savings are expected, OSHA received comments on a set of provisions addressing concentration ranges in relation to confidential business information that, in OSHA's final assessment, will not create significant economic impacts.

IMA-NA expressed concern that compliance with paragraph (i) will impose labeling costs that were not recognized in OSHA's economic analysis because "it will take considerable time and money to realign product lines with the new ranged approach to CBI" (Document ID 0363, p. 6). The Vinyl Institute warned that "a significant anti-competitive impact on the market" could result from too-narrow prescribed concentration ranges (Document ID 0369, Att. 2, p. 9). ILMA also predicted that the concentration range requirement would create market disruptions, noting that the majority of its members who responded to ILMA's survey indicated that overly narrow concentration ranges would erode competitive advantage (Document ID 0460, Att. 2, p. 2). Ameren recommended that the final rule allow combinations of concentration ranges across all conceivable percentages because such flexibility would potentially yield cost savings (Document ID 0309, p. 13).

In response to stakeholder concerns about the loss of competitive advantage through the reverse engineering of confidential information on chemical concentration ranges, OSHA's final

set of requirements in paragraph (i) prescribe reasonably narrow concentration ranges that may be used in combination to preserve trade secrets. OSHA believes that final paragraph (i) strikes a responsible balance between averting significant economic impacts among affected employers and the disclosure of sufficient information on the chemical properties of commercial products to communicate workplace hazards. And because stakeholders provide no evidence demonstrating that loss of CBI and trade secrets were likely outcomes under any scenarios that incorporate OSHA's final set of requirements in paragraph (i), the agency foresees no additional significant costs. In response to comments that it will take time to update labels to align with this provision, OSHA expects that many companies have already created labels that align with Canada's system and therefore will have already aligned their labels with these ranges. IMA-NA also did not provide any suggestion of what the costs might be in order to do such updating for companies that have not already aligned with Canada, so OSHA does not have any basis for incorporating an estimate of time needed for compliance. Additionally, because it is optional for companies to claim trade secrets and therefore to use these ranges, companies that are concerned about costs can simply choose not to claim trade secrets and not incur costs related to this provision.

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Finally, OSHA proposed a new paragraph, (f)(12), to address small container labeling. The 2012 HCS required that all shipped containers be labeled with the information specified in paragraph (f)(1). Many stakeholders have told OSHA that they have difficulty including all of the required information from paragraph (f)(1) on the labels they use for small containers. In some cases, the information becomes too small for a person to read it, and while it is sometimes possible to use alternate types of labels (such as pull-out labels or tags), it is not always feasible to do so (86 FR 9699). In response to these concerns, through LOIs and the HCS compliance directive, OSHA provided a practical accommodation to address situations where it is infeasible to provide all HCS-required label information directly on small containers through the use of pull-out labels, fold-back labels, or tags (see 86 FR 9699). This practical accommodation allows limited information to be included on the small container label, but requires complete label information to be provided on the outside packaging. In the NPRM, OSHA proposed to incorporate this practical accommodation into the standard in new paragraph (f)(12).

OSHA proposed that all of the new small container labeling provisions apply only where the chemical manufacturer, importer, or distributor can demonstrate that it is not feasible to use pull-out labels, fold-back labels, or tags containing the full label information required by paragraph (f)(1). Proposed paragraphs (f)(12)(ii)(A)-(E) would provide that labels on small containers that are less than or equal to 100 milliliter (ml) capacity must include, at minimum: product identifier; pictogram(s); signal word; chemical manufacturer's name and phone number; and a statement that the full label information for the hazardous chemical is provided on the immediate outer package. Proposed paragraph (f)(12)(iii) would provide that no labels are required for small containers of 3 ml capacity or less where the chemical manufacturer, importer, or distributor can demonstrate that any label would interfere with the normal use of the container; however, that same proposed provision states that if a container meets the conditions of (f)(12)(iii) and no label is required, the container must bear, at minimum, the product identifier. For example, the product identifier (e.g., chemical name, code number or batch number) could be etched on a 3 ml glass vial (container) to ensure that the identifier remains fixed to the vial. This type of identification would ensure that the chemical in the small container can be identified and matched with the chemical's full label information.

Proposed paragraph (f)(12)(iv) would provide that for any small container covered by paragraph (f)(12)(ii) or (iii), the immediate outer package must include the full label information required by paragraph (f)(1) for each hazardous chemical in the immediate outer package, along with a statement that the small container(s) inside must be stored in the immediate outer package bearing the complete label when not in use. This proposed provision would also state that labels affixed to the immediate outer package must not be removed or defaced, as required by existing paragraph (f)(9).

OSHA intended these proposed changes to provide chemical manufacturers, importers and distributors with flexibility in labeling small containers. The proposal was consistent with the small packaging examples provided in the GHS Annex 7: *Examples of Arrangements of the GHS Label Elements* (UN GHS, 2016, Document ID 0197, pp 431-436), and would result in better alignment with Health Canada's HPR small capacity container requirements (Health Canada, 2015, Document ID 0051). Specifically, the HPR, under 5.4(1), provides exemptions from certain labeling requirements (such as precautionary statements) for small capacity containers of 100 ml or less. In addition, under 5.4(2), the HPR provides labeling exemptions for containers of 3 ml or less if the label interferes with the normal use of the hazardous product. OSHA requested comments on the feasibility of the proposed small container labeling provisions as well as whether the proposed changes would improve safe handling and storage for chemicals in small containers.

OSHA received numerous comments on proposed paragraph (f)(12). Most commenters supported adoption of (f)(12) (Document ID 0281, Att. 1, p. 4; 0309, p. 16; 0316, p. 6; 0323, pp. 6-8; 0329, pp. 5-6; 0338, pp. 7; 0339, pp. 3-4; 0345, p. 3; 0346, pp. 1-2; 0347, Att. 1, pp. 12-13; 0349, p. 1; 0359, p. 4; 0361, pp. 2-3; 0366, p. 4; 0367, p. 3). FCA described proposed (f)(12) as a "substantial improvement" and "strongly urge[d]" adoption of the provision (Document ID 0345, p. 3). Flavor and Extract Manufacturers Association agreed that trying to include all the information required on a full-sized label on small packages is infeasible and voiced support for the flexibility that (f)(12) would provide (Document ID 0346, pp. 1-2). NAIMA called proposed (f)(12) a "common sense" solution (Document ID 0338, p. 7). While API noted that the addition of proposed paragraph (f)(12) to the HCS would likely impact laboratory samples, they indicated no concerns about adding it (Document ID 0316, p. 6).

Other commenters, while supporting this accommodation, had additional recommendations. ACC voiced general support for adding paragraph (f)(12) but recommended that the agency expand full relief to any container below 100 ml, eliminating the need for separate provisions for 3 ml and 100 ml (Document ID 0347, Att. 1, pp. 12-13; 0406, Att. 1, pp. 12-13). OSHA disagrees with this recommendation. The information on the immediate container is essential for worker safety and most containers, except for the very smallest, have enough room on the immediate container (either attached directly or with the use of tags or pull-out labels) to provide at least minimal information.

NACD and Loren Lowy recommended that the small package label also reference the SDS (Document ID 0329, pp. 5-6; 0333, p. 1; 0465, pp. 4-5). OSHA does not believe this is necessary. Workers should already be trained on the hazards they are exposed to and have ready access to the SDSs. Space on small containers is at a premium and including unnecessary references to the SDS might detract from the hazard information. However, NACD or others can add this statement if they deem it appropriate.

NIOSH recommended that outer packages be "water resistant" (Document ID 0281, Att. 1, p. 4). While OSHA believes "water resistant" packaging might be beneficial, this suggestion is

beyond the scope of this rulemaking because OSHA did not propose any new requirements related to the durability of labels.

Hach supported the small package labeling provision but suggested that OSHA eliminate the requirement to include a U.S. phone number, stating that this takes up valuable label space and reduces harmonization with trading partners such as Canada and Mexico (Document ID 0323, pp. 6-8). OSHA disagrees with this suggestion. The phone number should be maintained on the label since this provides the worker with immediate access to where they can seek additional information if the SDS is not in the immediate vicinity.

Givaudan, PLASTICS, the Vinyl Institute, and ACA suggested that OSHA eliminate the need to show infeasibility while ICT requested that OSHA explain what the agency means by "demonstrating that it is not feasible" (Document ID 0293, p. 1; 0314, pp. 17-18; 0369, p. 9; 0324, p. 4; 0368, pp. 7-9). Michele Sullivan also noted that neither Canada nor the GHS requires proof of infeasibility (Document ID 0366, p. 4). OSHA maintains that requiring a showing of infeasibility is appropriate. It is imperative that, wherever possible, workers have the full label information on the immediate container to ensure safe use at all times. If this is demonstrated to be not feasible (for example, due to space considerations or extraordinary economic considerations), then OSHA has provided a way to minimize these impacts while still providing valuable information to workers. The label provides a concise, immediate, and conspicuous visual reminder of chemical hazards at the site where the chemical is used; reducing this information where it is feasible to provide the entire label would reduce protections for the downstream user of the chemicals. Relatedly, Ameren commented that prior approval should not be required for using the abbreviated labels (Document ID 0309, p. 12). To clarify, new paragraph (f)(12) would not require prior approval, only that the company must demonstrate that the full label was infeasible.

HCPA's comment supported the agency's efforts, but requested that OSHA follow the approach of Canada, which does not require entire label elements on the outer package (Document ID 0327, pp. 5-6). OSHA believes that not having this information on the immediate outer package would be a reduction in protections that the HCS currently affords and removing this information would not provide any benefits other than aligning with Canada. While OSHA strives to align with Canada where possible, OSHA's primary mission is to protect workers. OSHA believes providing the full label on the immediate outer package is appropriate and provides the workers downstream with the information they need.

While not endorsing or disagreeing with the proposal, Epson asked if OSHA would offer the same exemptions as the EU CLP regulation which provides exemption for containers not exceeding 125 ml (Document ID 0288, p. 1). OSHA has chosen to provide labeling flexibility for containers of 100 ml or less because OSHA believes that the information on the immediate container is essential and the chemicals even in very small containers can be extremely hazardous. OSHA's determination to place the cut-off at 100 ml also aligns with Canada's small container labeling requirements and therefore serves the important purpose of consistency with our largest trading partner. Hach asked for the 3 ml limit for very small containers to be raised to 5 ml and provided photos in comments and testimony to demonstrate their concerns (Document ID 0323, pp. 6-8; 0425, Tr. 83-84). OSHA believes, however, that 3 ml is the appropriate cut-off for a total exemption of hazard information. This cut-off is consistent with Canada's requirements for small container labeling, and while Hach provided pictures of small containers of less than 5 ml, there is no indication that a label would interfere with the use of the product.

PLASTICS expressed concern about a "mixed kit" scenario, where an outer package would contain smaller containers of varying sizes or where some containers in a kit do not contain hazardous materials and would not be covered by the HCS, and proposed alternate regulatory language that would accommodate this type of situation (Document ID 0314, pp. 18-19). PLASTICS also requested that OSHA permit downstream users to relabel containers in such a scenario. While OSHA acknowledges that a "mixed kit" scenario might pose challenges in applying this accommodation, OSHA does not believe that the appropriate response is to move the responsibility of labeling the immediate container to the downstream users. This would require each downstream user to open each kit and figure out which container would need to be relabeled, creating the potential for mislabeling. OSHA already provides multiple flexibilities, including the use of attached tags which can be applied to the immediate outer container for the full information. The GHS Rev. 8 shows several different options on how to label "kits" in Annex 7 (example 10 - scenario A and B) (Document ID 0065, pp. 451-457).

Toby Threet suggested regulatory text changes for proposed paragraph (f)(12). Threet stated that any container less than or equal to 3 ml capacity is automatically also less than or equal to 100 ml capacity and label preparers cannot comply with both paragraphs (f)(12)(ii) and (f)(12)(iii); therefore, OSHA should modify paragraph (f)(12)(ii) to add a lower limit of "greater than 3 ml" (Document ID 0279 pp. 25-26). OSHA does not believe that this change is appropriate because paragraphs (f)(12)(ii) and (f)(12)(iii) have separate conditions that trigger their applicability; thus, there is no conflict between the two provisions. Threet also requested that OSHA exclude situations where the immediate outer container might itself present a hazard, such as if it became contaminated with radiation (Document ID 0279, p. 26). In such a situation, the downstream user would have an obligation to ensure appropriate labeling under paragraph (f)(9); the agency does not believe it would be beneficial to complicate the regulatory text here.

OSHA received one additional comment that was beyond the scope of proposed changes related to paragraph (f). PLASTICS submitted a comment relating specifically to (f)(6)(iii) that recommends using color-coded charts to replace labels at workstations where solvents present an issue with label integrity (Document ID 0357, pp. 3-4). This comment is out of scope because it does not relate to any changes proposed in the NPRM. OSHA notes that this issue has already been addressed in the 2015 HCS compliance directive (Document ID 0007).

For the reasons discussed above, OSHA is finalizing paragraph (f)(12) of the rule as proposed.

PLASTICS and Vinyl Institute also asked OSHA to address the difficulties associated with creating labels to meet the requirements of multiple jurisdictions with inconsistent requirements even though the manufacturer "does not know where the product will be shipped at the time it is packaged and labeled" (Document ID 0314, Att. 1, p. 20; 0369, Att. 2, p. 10). PLASTICS and Vinyl Institute did not provide any specific suggestions regarding how OSHA should address this issue. The HCS has always differed in some respects from other jurisdictions that adopt the GHS, and the GHS anticipates that countries will adopt the GHS with slight variation, so OSHA does not believe this is a new issue presented by the updates in this rulemaking. OSHA does not have control over the requirements of other jurisdictions, but notes that many of the changes in this final rule are designed to better align with other jurisdictions to avoid issues with inconsistent requirements.

OSHA received two additional comments that are pertinent to paragraph (f), but that are out of scope for this rulemaking. PLASTICS requested that the agency codify the guidance in an LOI from November 23, 2015, that provides an exception for containers that are shipped to

destinations outside of the U.S. and sent directly overseas with no anticipated exposures to downstream U.S. workers (Document ID 0314, Att. 1, p. 20). Vinyl Institute also identified this as a change that was missing from the proposals in the NPRM (Document ID 0369, Att. 2, p. 10). OSHA did not propose to codify this LOI in the NPRM, therefore this comment is outside the scope of this rulemaking and the agency declines to take the requested action.

§1910.1200(g) -- Safety Data Sheets

OSHA is making two changes in paragraph (g) to ensure consistency and accessibility of the SDSs. OSHA made changes in paragraphs (g)(2) and (g)(10) which outline the SDS's overall structure and storing requirements.

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The first sentence of paragraph (g)(2) previously stated that the chemical manufacturer or importer preparing the SDS shall ensure that it is in English. However, as permitted by paragraph (g)(1), some chemical manufacturers and importers may obtain, rather than prepare, SDSs. To minimize any potential confusion between paragraphs (g)(1) and (2), OSHA proposed to revise paragraph (g)(2) by removing the reference to preparing the SDS. The sentence as proposed reads "The chemical manufacturer or importer shall ensure that the safety data sheet is in English….". This is a technical clarification intended to ensure consistency with paragraph (g)(1). OSHA received no comments on this proposed revision to (g)(2); therefore, OSHA is finalizing it as proposed.

OSHA also proposed a change to paragraph (g)(10) to allow SDSs to be stored, rather than designed, in a way that covers groups of hazardous chemicals in a work area. When the HCS was first promulgated in 1983, paragraph (g)(10) permitted employers to design SDSs to cover groups of hazardous chemicals in a work area where it may have been more appropriate to address the hazards of a process rather than addressing the hazards of each chemical individually (48 FR 53337).

In 2012, OSHA changed the SDS provisions of the HCS to require a standardized 16-section format, which improved hazard communication by ensuring users could quickly find relevant information (see 77 FR 17596-98). The standardized format requires each SDS to address a single hazardous chemical rather than groups of hazardous chemicals. Therefore, OSHA has proposed a change to paragraph (g)(10) that would allow SDSs to be stored, rather than designed, in a way to cover groups of hazardous chemicals in a work area. As OSHA explained in the NPRM, the proposed change would allow employers flexibility in how they keep SDSs in the workplace while also ensuring that the required SDS format is maintained (86 FR 9700). The agency requested comments regarding whether the proposed revision would require stakeholders to make any significant changes to their current practices (86 FR 9688).

Several commenters expressed support for this proposed revision. NAIMA supported the proposed revision, as SDSs must currently follow a standard format (Document ID 0338, p. 8). NACD similarly observed that the proposed revision "makes sense as the HCS requires SDSs to use a standard format" and further noted that it would not require any major changes to chemical distribution operations (Document ID 0329, p. 6). Ameren also noted that the proposed revision would not require significant changes to its current practices (Document ID 0309, p. 12). In addition, NIOSH stated that it is unaware of any changes to current practices that will be required by the proposed revision (Document ID 0281, p. 4; Document ID 0423, Tr. 19). OSHA received no comments or testimony objecting to the proposed revision to (g)(10).

Several commenters requested clarification regarding the proposed change to paragraph (g)(10). API asked for "further clarification about the storing language" (Document ID 0316, p. 9). ACC asked if the revision would allow electronic storage of SDSs, or merely allow employers to group the SDSs together (Document ID 0347, p. 12). Dow also asked for clarification on electronic storage, stating that they "do not foresee an impact as long as OSHA can confirm that this change will still allow for on-site back-up storage of SDS's while also allowing employers to provide electronic access to employees" (Document ID 0359, p. 4).

In response to API's request for clarification, OSHA notes that the general intent of the change to (g)(10), as discussed in the NPRM and reiterated above, is to allow the individual 16-section SDSs required by the 2012 HCS to be stored in a way that covers groups of hazardous chemicals in a work area. (86 FR 9700). Because the HCS now requires an individual SDS for each chemical, however, employers can no longer "design" SDSs that cover groups of hazardous chemicals. Following publication of the final rule, OSHA will issue guidance materials and respond to inquiries on any aspects of the HCS for which stakeholders request information or clarification.

In response to questions regarding electronic storage, OSHA notes that paragraph (g)(8) of the HCS, which requires the employer to maintain copies of the required SDSs for each hazardous chemical and make sure that they are readily accessible to employees when they are in their work areas, specifically permits electronic access to SDSs provided that such access poses no barriers to immediate employee access. OSHA elaborated on this in the preamble to the 2012 HCS (77 FR 17729). OSHA's revision to (g)(10) does not change the requirements of (g)(8); the HCS still allows employers to provide SDSs via electronic access as long as employees have immediate access to the SDSs and employers are able to immediately provide copies of SDSs to medical personnel. –

For the reasons discussed above, OSHA is finalizing paragraph (g)(10) as proposed.

Additionally, OSHA is also correcting references to material safety data sheets in (g)(7)(i), (iii), and (iv) which it identified after the NPRM. In this final rule, OSHA is updating those references to reflect the change to the terminology safety data sheets in the 2012 HCS.

Finally, OSHA received one out-of-scope comment regarding paragraph (g)(4). TFI and ARA jointly commented that (g)(4) permits agricultural retailers to create a single SDS for all custom fertilizer blends of the same hazard classification, and asked OSHA to include a statement in the preamble adopting this interpretation (Document ID 0340, pp. 4-6).

Paragraph (g)(4) allows chemical importers, manufacturers and retailers to prepare a single SDS where complex mixtures have similar hazards and contents (i.e., the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture). Where a single SDS is used for similar mixtures or in cases of batch-to-batch variability, concentration ranges of ingredients may be used. If the composition differences are small, and the hazard(s) remain the same, concentration ranges may be used for multiple, similar products; however, separate SDSs are required for blends containing distinct ingredients. TFI and ARA's comment is beyond the scope of this rulemaking because OSHA did not propose any revisions to paragraph (g)(4). In addition, as TFI and ARA noted in their comment, OSHA has previously addressed this question in a letter of interpretation requested by TFI. As stated in that letter, OSHA cannot provide a blanket approval because the agency does not approve or endorse SDSs (available at https://www.osha.gov/laws-regs/standardinterpretations/2016-02-25.

HAZARD COMMUNICATION STANDARD
OMB Control Number: 1218-0072

§1910.1200(i) -- Trade Secrets

Paragraph (i) of the HCS describes certain conditions under which a chemical manufacturer, importer, or employer may withhold the specific chemical identity (e.g., chemical name), other specific identification of a hazardous chemical, or the exact percentage (concentration) of the substance in a mixture, from the SDS.

In the NPRM, OSHA proposed several changes to paragraph (i). First, OSHA proposed to allow manufacturers, importers, and employers to withhold a chemical's concentration range as a trade secret, which had not previously been permitted, and to add language specifying that it is Section 3 of the SDS from which trade secret information may be withheld. Second, OSHA proposed to require the use of prescriptive concentration ranges in lieu of the actual concentration or concentration range whenever the actual concentration or concentration range is claimed as a trade secret. These changes were proposed to align with Canada's WHMIS, allowing manufacturers, importers, and employers the ability to use the same SDS for both U.S. and Canadian workplaces. The proposed ranges are the same as those required by Canada (Document ID 0172). Third, OSHA proposed to replace the phrase "physician and nurse" in paragraph (i) with the term *Physician or other licensed health care professional (PLHCP)*, defined as an individual whose legally permitted scope of practice (*i.e.,* license, registration, or certification) allows the individual to independently provide or be delegated the responsibility to provide some or all of the health care services referenced in paragraph (i) of the standard.

OSHA requested comments on the proposed changes to paragraph (i), including information on stakeholders' experiences with developing SDSs using the prescribed concentration ranges for compliance with Canada's WHMIS and any concerns they might have about using concentration ranges on the SDS. OSHA also requested comments on whether the proposed ranges would provide sufficient information for downstream manufacturers to conduct hazard classifications and whether the proposed ranges would be too wide to provide sufficient information to protect workers.

Additionally, OSHA requested comments specific to proposed new paragraph (i)(1)(v), which would require use of the narrowest applicable concentration range, but in cases where the concentration range to be withheld falls between 0.1 percent and 30 percent and does not fit entirely into one of the prescribed concentration ranges, would permit use of a single range created by the combination of two applicable consecutive ranges instead, provided that the combined concentration range does not include any range that falls entirely outside the actual concentration range in which the ingredient is present. OSHA requested comments on this proposal and on two alternatives to the proposed provision: a more lenient version, allowing combinations among all ranges up to 100 percent concentration, and a more restrictive version, such as allowing combinations only for the ranges up to 10 percent concentration.

Several commenters expressed general support for OSHA's proposal to allow actual concentration ranges to be withheld as a trade secret and to require the use of prescribed concentration ranges (Document ID 0316, p. 28; 0323, pp. 9; 0329, p. 6; 0359, p. 4; 0361, pp. 2-3; 0363, pp. 6-7; 0368, p. 12; 0425, Tr. 75-78). IMA-NA supported the trade secret protections in the NPRM, stating that the proposed revisions would provide necessary flexibility in the use of concentration ranges for mixtures omitted from SDS disclosures and protect sensitive

information (Document ID 0363, pp. 6-7). NACD commented that the prescription of ranges would improve accuracy of companies' hazard assessments and reporting by introducing a standardized set of ranges and reducing "guesswork" in the selection of an appropriate range and would ease compliance with OSHA's PSM standard and the EPA's Risk Management Program, (Document ID 0329, p. 6; 0423, Tr. 178 – 179). Dow also supported the use of prescribed ranges to protect trade secrets, stating that OSHA's proposal "strikes a fair balance between disclosure of information and worker protection" (Document ID 0359, p. 4). NABTU strongly supported the proposed requirement of mandatory concentration ranges (Document ID 0334, p. 4; 0425, Tr. 24-25).

Several commenters, including industrial entities or associations such as Hach, NACD, Dow, and ACA, additionally supported the specific ranges OSHA proposed, which align with those already in use by Health Canada (Document ID 0323, p. 9; 0329, p. 8; 0359, p. 4; 0368, p. 12). ACA noted that some ACA members already use the ranges prescribed by Canada and have found that the ranges provide adequate information to downstream users (Document ID 0368, p. 12).

OSHA also received comments critical of its proposal. Some stakeholders argued that the proposed requirement would weaken protections for CBI relative to the provisions of the 2012 HCS. Among these, most suggested that OSHA should make the use of prescribed concentration ranges optional for entities claiming the actual concentration range as a trade secret (Document ID 0319, p. 2; 0321, pp. 2-3; 0327, p. 6; 0343, p. 3; 0356, p. 4; 0343, p. 3; 0347, pp. 13-14; 0366, p. 6; 0367, p. 3; 0369, p. 9; 0374, p. 2; 0424, Tr. 13; 0447, pp. 4 – 5; 0447, p. 5), while FCA favored maintaining the existing trade secret provisions (Document ID 0345, p. 4). Several stated that the specific ranges OSHA proposed would be too narrow to adequately protect CBI (Document ID 0324, p. 4; 0345, p. 4; 0366, p. 6; 0367, p. 3; 0369, p. 9; 0468, pp. 3–4), or could be confusing because some of the ranges overlap one another (Document ID 0345, p. 4) or cross some hazard classification thresholds (Document ID 0347, p. 14; 0349, pp. 1–2; 0366, p. 6). Michele Sullivan commented that ranges which cross hazard classification thresholds "could also cause a conflict with the EU CLP requirements" (Document ID 0366, p. 6).

A few commenters stated that requiring the use of prescribed ranges would be expensive and time-consuming for companies who would need to program changes to their SDSs for use in the U.S. if claiming actual concentration range as a trade secret (Document ID 0343, p. 3; 0347, pp. 13-14); NAIMA, on the other hand, commented that it "is not aware of any economic implications associated with including the prescribed concentration ranges so long as they are not so narrow as to effectively annul the Trade Secret" (Document ID 0338, p. 8). Others argued that workers are adequately protected under the standard's existing provision that medical professionals are able to obtain chemical composition from the chemical manufacturer, importer, or employer in an emergency, in addition to provisions for OSHA and certain others to obtain it in some non-emergency situations (Document ID 0366, p. 6; 0356, p. 4; 0337, p. 2; 0349, pp. 1-2). APA commented that the previously existing HCS provisions for trade secrets and medical personnel access to information are appropriate because errors in judgment may occur if emergency responders opt to rely on information from a prescribed range instead of contacting the manufacturer to get an exact percentage (Document ID 0337, p. 2).

While most commenters who expressed concern about protection of CBI or the potential costs of compliance did not give further information, examples, or analysis to support their position, a few provided additional explanation. ILMA noted that, because their products are often customized, a requirement to provide concentration range information could compromise CBI for their customers as well as themselves, and that legal protections of CBI may be lost once a trade secret is revealed through non-illicit means (Document ID 0356 p. 4; 0424, Tr. 120–121). ACC stated that the concentration of a substance within a mixture could possibly be determined "for example, if the classification limit is close to one of the concentration cutoffs" (Document ID 0347, p. 14). In their post-hearing comments, ACC provided a hypothetical example: "If there are 2 – 3 components in a solution one at 95% and two at 2 and 3 %, the 1 to 5% range could just be a few competitor tests away from getting it right… [A] wide range protects more." (Document ID 0468, pp. 7-8). NAIMA's post-hearing comment stated that "For mixtures, any [range] less than 10 percent would be too narrow." NAIMA also stated that the following ranges "have been identified as . . . sufficient to protect trade secrets: a) 7 to 13%; b) 10 to 30%; c) 15 to 40%; d) 30 to 60%; e) 45 to 70%; f) 60 to 80%; g) 65 to 85%; h) 80 to 100%; and 0-10%" (Document ID 0461, p. 1).

Some commenters suggested that companies should be allowed to design ranges appropriate to their CBI or other business needs (Document ID 0319, p. 2; 0324, p. 4; 0345, p. 4; 0363, p. 6; 0366, p. 6; 0425, Tr. 24–25). For example, ICT commented that OSHA should permit mixture manufacturers/importers to prepare SDSs with concentration ranges that sufficiently protect their trade secrets (Document ID 0324, p. 4) and FCA requested that manufacturers be allowed to utilize ranges customary within their industry (Document ID 0345, p. 4). In addition, several commenters suggested that OSHA should allow companies to select ranges narrower than those OSHA proposed (Document ID 0299, p. 2 – 3; 0309, p. 13 – 16; 0321, p. 2; 0334, p. 3 – 4; 0349, p. 1; 0359, p. 4; 0368, p. 12; 0425, Tr. 24 – 25, 35-36, 117–118; 0464, p. 6). Dow noted that Health Canada's latest proposed revision to their HPR codifies a similar allowance for smaller ranges that fit within the prescribed ranges, so that adoption of a similar provision by OSHA would maintain alignment with Canada (Document ID 0359, p. 4).[2] Industrial Health and Safety Consultants (IHSC) suggested that the issue of over-classification (i.e., cases in which use of a prescribed range could result in classifying a substance in an additional and/or higher hazard category) could be alleviated by allowing the use of concentration ranges narrower than those proposed (Document ID 0349, pp. 1-2). PLASTICS asked whether a classifier would be required to classify a product to reflect the most severe category into which the highest point of a range selected to represent batch variability would fall (Document ID 0314, p. 21).

NABTU supported permitting manufacturers and importers to use their own concentration ranges if they are narrower than the prescribed ranges (Document ID 0425, Tr. 24 – 25; see also Document ID 0334, p. 4; 0424, Tr. 35 – 36, 0464, p. 6).

NIOSH testified at the public hearing that "non-mandatory use of the prescribed concentration ranges… could weaken protection of workers by downplaying the contribution of the chemical in question to the hazards of the product" (Document ID 0423, Tr. 20) and that the prescribed concentration ranges "will allow handlers of the materials better protections and better hazard communication, as well as emergency responders potentially dealing with a substance

[2] Health Canada published the update to their HPR in December 2022. Their final rule includes the allowance for narrower ranges. Canada Gazette, Part II, Volume 157, Number 1.

and having to access that information readily." (Document ID 0423, Tr. 31 - 32). NIOSH also commented that allowing manufacturers to use their own concentration ranges could result in ranges so broad as to be nearly useless, providing the example of an SDS that listed a concentration range from one-half of one percent to 50 percent (Document ID 0281, p. 6; 0423 Tr. 30–31, 47-48). NABTU echoed this concern, stating in post-hearing comments, "[t]he wide concentration ranges manufacturers are currently listing on their SDSs make it more difficult to determine if the use of a given product is likely to result in exposures above or below levels considered to be safe" (Document ID 0464, p. 6).

After considering all comments received on the agency's proposed requirement to use prescribed ranges which align with those in use by Health Canada, OSHA has decided to finalize the requirement to utilize prescribed concentration ranges when claiming exact concentration as proposed, with the exception that OSHA is adding a new paragraph (i)(1)(vi). This new provision allows the use of narrower ranges than those prescribed in (i)(1)(iv) and (i)(1)(v), meaning that the range must be fully within the bounds of a prescribed range listed in (i)(1)(iv) or fully within the bounds of a combination of ranges allowed by (i)(1)(v). OSHA's responses to the concerns received regarding proposed paragraph (i) are given below.

First, OSHA is not persuaded that requiring the use of prescribed ranges, or the specific ranges the agency proposed, would significantly compromise CBI. The trade secret provisions of the HCS do not rely only on withholding of concentration information in order to protect CBI, but also allow the manufacturer or supplier to claim the chemical identity as CBI (paragraph (i)(1)). In addition, OSHA does not require listing the chemical's generic chemical identity or alternative name (e.g., "Alcohol" for propanol vs. "Component 1"), which provides additional CBI protection. And, while several commenters opined that required use of the ranges OSHA proposed could compromise CBI, none provided persuasive information, argument, or analysis to support their concerns or preferred alternative. While NAIMA provided alternate ranges for OSHA's consideration in post-hearing comments, which they said, "have been identified as . . . sufficient to protect trade secrets," this statement is not supported by the source NAIMA cites. That source is a document summarizing the thirteen prescribed concentration ranges included in Canada's 2015 update to the HPR for use in protecting trade secrets. These ranges include the ranges (a) 0.1 to 1 percent; (b) 0.5 to 1.5 percent; and (c) 1 to 5 percent, which are not included in the set of ranges NAIMA gave when citing the summary document. They do not include the range 0-10 percent, which was included in NAIMA's post-hearing comment citing the document. NAIMA's statement that the ranges it listed "have been identified" as protective of CBI therefore does not accurately reflect the content of the source it cited; rather, that source refers to the prescribed ranges that Canada adopted and that OSHA proposed in the NPRM (Document ID 0461, p. 2).

Furthermore, OSHA's proposed ranges have been in use by entities trading in Canada since 1988 (previously under WHMIS 1988 and then reinstated under the HPR in 2018), yet no commenter provided a real-world example of CBI compromised due to the use of Canada's prescribed ranges. Notably, the ACA stated that some of its members already use the ranges prescribed by Canada and have found they provide adequate information to downstream users (Document ID 0368, p. 12); ACA did not report that using the prescribed ranges compromised any of their members' trade secrets. NACD commented that individuals involved in the commercial and sales aspects of chemical distribution "reported no concerns that the prescribed

ranges would inadvertently disclose trade secret information" (Document ID 0329, p. 6; 0423, Tr. 178–179). API stated it had no concerns with the proposed change (Document ID 0316, p. 10, p. 28). And, as previously noted, OSHA received comments from several industrial entities or associations including Hach, NACD, Dow, and ACA specifically supporting the requirement to use the ranges used by Health Canada (Document ID 0323, p. 9; 0329, p. 8; 0359, p. 4; 0368, p. 12).

After consideration of the comments received on possible compromise of CBI, OSHA finds that these commenters have not adequately supported their position that the proposed requirement to use prescribed concentration ranges would significantly compromise CBI. OSHA is also not persuaded that paragraph (i) should include broader ranges than those proposed or allow companies flexibility to design ranges broader than those proposed. Creating broader ranges would be less informative to workers and other downstream users, and would negate the benefit of consistency with Canada's system. However, OSHA notes in response to PLASTICS that classifiers would be required to classify a substance according to the most severe hazard associated with the range they select, and agrees with comments that allowing the use of narrower concentration ranges than those prescribed would alleviate some of the classification concerns raised by stakeholders without compromising the information provided to workers and other users. Therefore, OSHA is adding a new paragraph (i)(1)(vi) which states that the SDS preparer may provide a range narrower than those prescribed in (i)(1)(iv) or (i)(1)(v). This means that the range selected must be fully contained within the range or combination of ranges required under (i)(1)(iv) and (i)(1)(v), inclusive of the boundaries of such ranges. For example, when the ingredient's concentration range in the mixture is 0.9 to 2 percent and that range is claimed as CBI, paragraph (i) as proposed would have required the manufacturer or supplier to give the range 0.5 to 5 percent (a combination of the prescribed ranges 0.5 to 1.5 percent and 1 to 5 percent). The revision to the proposed text allows the manufacturer or supplier to disclose a narrower range such as 0.5 to 2 percent, or 0.9 to 5 percent, or 0.5 to 2.5 percent. If a manufacturer or supplier finds that the concentration range they intend to claim as a trade secret is below a certain hazard classification/category threshold but using a prescribed range (or allowable combination of prescribed ranges) would trigger other requirements (e.g., shipping, storage) which would not have been triggered by the actual concentration range, they may use a narrower range or combination of ranges to avoid this issue. The allowance for the use of narrower concentration ranges that fall within the prescribed ranges aligns with Canada's WHMIS (Canada, 2019, Document ID 0172).

OSHA also disagrees with commenters who stated that requiring the use of prescribed concentration ranges would provide no benefit to workers beyond the existing provisions pertaining to medical emergency situations, which allow medical professionals to obtain chemical composition from the chemical manufacturer, importer, or employer in the event of a medical emergency. OSHA has determined that providing ready access to information about the concentration range of hazardous substances to workers and other users is also essential to the purposes of the HCS when such ranges are claimed as trade secrets. Workers have a right to know, and to be able to readily access, information about the nature and extent of their occupational exposures to hazardous substances for their own information, records, and use; for example, in the event that health concerns arise that may be work-related. In addition, OSHA believes that emergency responders will benefit from ready access to the prescribed concentration range of a hazardous substance, particularly in cases where it may not be possible

to achieve immediate contact with the producer. Furthermore, the use of prescribed ranges will help employers and other users to appropriately assess risk in the workplace, even before an emergency arises. This requirement provides information to help manage risk proactively.

Some commenters objected that OSHA's proposed changes to paragraph (i) would not sufficiently inform workers regarding hazardous materials in the workplace (Document ID 0268; 0299, pp. 2-3; 0341, pp. 38-39; 0354, p. 1, 0354, p. 6, 0356, p. 6). National COSH and Worksafe jointly commented that the proposal would increase uncertainty for workers as well as for regulators, employers, worker representatives and other decision-makers (Document ID 0354). In contrast, NABTU found the proposed approach to be an acceptable alternative to the current standard as the prescribed concentration ranges "would at least provide some information [about] concentration in every instance of the trade secret claim" (Document ID 0425, Tr. 24 - 25). NIOSH stated that the proposed change would not increase risk to workers provided that the trade secret exemption is applied only in limited and specific situations, and that complete information on hazardous properties, special handling requirements, and necessary PPE is provided on the SDS (Document ID 0281, p. 4; Document ID 0423, Tr. 19-20).

OSHA disagrees with comments that the proposed revisions to paragraph (i) would lessen protections and/or information for workers. Under paragraph (i), there are three types of information that manufacturers can claim as a trade secret: the name of a chemical, the exact percentage of a chemical's concentration in a mixture, and/or a concentration range. In the 2012 HCS, OSHA allowed manufacturers to completely withhold the name and/or the exact percentage; manufacturers who withheld a chemical's exact percentage were not required to list a concentration range in its place. Under this final rule, manufacturers may no longer completely withhold the exact percentage; they must now provide a concentration range in its place. This change will result in additional information available to workers.

The Work Health and Survival Project (WHSP) and an anonymous commenter suggested that OSHA should adopt the trade secret policies of Australia's Work Health and Safety (WHS) regulation, in which the identities of chemicals presenting moderate hazards may be withheld as trade secrets on the SDS and disclosed using a generic name (Document ID 0341, pp. 38-39; 0268). A different anonymous commenter, who claimed to have experience with companies that make insufficiently supported trade secret claims as a pretext for withholding the identity or percentage of hazardous ingredients, opined that OSHA's proposal to allow the concentration range to be withheld as a trade secret would make it more difficult for downstream users to conduct hazard classifications, and that "the inappropriate claiming of trade secret status should be addressed before companies are allowed to also claim the range as a trade secret" (Document ID 0308, p. 1). They suggested that the HCS should not allow "chemical ingredients of public knowledge or of general knowledge in an industry" to be claimed as a trade secret.

OSHA did not propose to require the use of a generic name when the identity of chemicals presenting moderate hazards are withheld as trade secrets or to disallow trade secret protection for generally known chemical components. These suggestions are therefore out of scope for this rulemaking. For OSHA to consider these changes they would need to be addressed in a future rulemaking. Furthermore, OSHA does not agree that the proposal to allow concentration ranges to be withheld as a trade secret must not be finalized until the possibility that some manufacturers may be using the trade secret provisions inappropriately is eliminated.

OSHA believes that potential misuse of trade secret protections is best addressed through enforcement.

Several commenters gave input on the proposed rules for combining ranges, including responses to the question OSHA posed in the NPRM as to whether it should allow more expansive combination of the prescribed ranges. NAIMA and Ameren supported combination of all ranges listed (Document ID 0309, p. 13; 0338, p. 8; 0423, Tr. 162–163). Ameren cited "potential cost savings by OSHA allowing combinations among all ranges" (Document ID 0309, p. 13).

DOD opposed allowance for combinations of all prescribed ranges, arguing that the benefits to be gained by requiring use of prescribed ranges would be negated by allowing combination of an unlimited number of concentration ranges. DOD recommended instead that OSHA should "allow no more than 2 prescribed concentration ranges, below 20%, to be combined as this would still provide actionable information for managers and safety professionals to protect worker health" and that the use of any concentration range greater than 20% (or combined concentration ranges greater than 20%) should require some form of special exemption (Document ID 0299, pp. 2-3).

OSHA agrees with DOD that allowing employers to combine prescribed ranges from (i)(1)(iv)(A) through (M) would prevent important information from reaching employees and health and safety professionals. However, OSHA does not agree that limiting concentration ranges to no greater than 20% will materially improve the effectiveness of the standard over the concentration ranges OSHA proposed. Most of the concentration ranges OSHA proposed to adopt in paragraph (i)(1)(iv) are 25% or less, with the exception of paragraph (i)(1)(iv)(I) (concentrations between 30% and 60%). The largest range that could be created through combining ranges is 23% (for concentrations of 7% to 30%). As explained above, the ranges chosen have been in use by entities trading in Canada since 1988 and OSHA finds no evidence in the record, or in DOD's comment, demonstrating that these ranges are insufficient to effectively inform workers and downstream users of chemical hazards. In addition, altering the concentration ranges would negate the benefit of consistency with Canada's system. Therefore, OSHA is not adopting DOD's suggestion.

PLASTICS asked OSHA to clarify what is required if the actual concentration range straddles two prescribed ranges, in two situations. First, PLASTICS stated that the proposal "does not clearly convey the options available if the exact range falls between 0.1% and 30% and does not fit entirely into one of the prescribed ranges." Second, PLASTICS asked for clarification on what should be done if the actual concentration range straddles two prescribed ranges and it exceeds 30%. PLASTICS proposed the following revision to address these situations: "[w]hen the concentration or concentration range for an ingredient is withheld as a trade secret, the SDS must list the narrowest prescribed concentration range(s) in §1910.1200(i)(1)(iv) which include(s) the actual concentration or concentration range for that ingredient" (Document ID 0314, p. 21; see also 0423, Tr. 142-143).

OSHA disagrees with PLASTICS' suggestion. First, OSHA believes proposed paragraph (i)(1)(v) does clearly specify what a manufacturer must do when the exact range falls between 0.1 and 30 percent but does not fit entirely into one of the prescribed ranges (A) through (G). In

that case, the manufacturer must combine two consecutive ranges between (A) and (G) and may supply the resulting range in place of selecting a single prescribed range to represent the concentration range on the SDS.

Regarding PLASTICS' question as to what should be done when a concentration range above 30 percent cannot be captured by the use of a single prescribed range, OSHA believes in such a circumstance it would be inappropriate for a manufacturer to withhold the concentration range from the SDS. In the hypothetical case that representing a manufacturer's batch would require a combination of ranges above 30 percent, the resulting range would generally be too wide to provide meaningful information to workers, and permitting such combinations would bring the HCS out of alignment with Canada. Therefore, OSHA is not adopting PLASTICS' proposed revision. OSHA notes that manufacturers would still, in such cases, have the option of withholding the chemical identity in order to protect trade secret information.

ADM similarly suggested that OSHA revise paragraph (i) "to clarify that any of the prescriptive concentration ranges be allowed, if accurate" (Document ID 0361, p. 3). OSHA notes that ADM's requested change would contradict, rather than clarify, the agency's intent. Manufacturers must use the narrowest range possible that includes the true concentration range, so that workers will have access to the most precise information possible under a system of prescribed ranges which align with Health Canada's requirements.

For the reasons discussed above, OSHA is finalizing the rules for combination of prescribed ranges as proposed, with the exception that OSHA has added paragraph (i)(1)(vi) to allow use of narrower ranges, and narrower combinations of ranges, than those described in (i)(1)(iv) and (i)(1)(v) respectively.

PLASTICS also suggested revising (i)(1) to state that the chemical manufacturer, importer, or employer may withhold the chemical identity and/or concentration or concentration range of a hazardous chemical "*substance*… from Section 3 *(as well as every other section)* of the safety data sheet…" (emphasis added to indicate PLASTICS' suggested additions to (i)(1)) (Document ID 0314, p. 20). PLASTICS opined that the reference to Section 3 in paragraph (i)(1) "could imply that it must still be included elsewhere" on the SDS.

OSHA does not believe that PLASTICS' suggested text is necessary or appropriate. OSHA intended the instructions contained in paragraph (i)(1) to pertain to how to treat chemical trade secrets for Section 3 of the SDS. This is evident in OSHA's HCS Compliance Directive, which specifies that if a trade secret is claimed, the SDS must indicate that the identity and/or concentration of the chemical is claimed as a trade secret in Section 3 (Document ID 0007, pp. 76 - 77). OSHA proposed to add "in Section 3" to paragraph (i)(1) to ensure that its intent for the directions contained in paragraph (i)(1) to apply specifically to the SDS Section 3 is clear. However, OSHA did not intend for this clarification to imply that a manufacturer who withholds the identity of a hazardous chemical from Section 3 in accordance with paragraph (i) must provide the name of that chemical in other sections, such as in conjunction with its OSHA Permissible Exposure Limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (if applicable) in Section 8. Rather, the identifier provided for that chemical in Section 3 should be used consistently throughout the SDS. This is also conveyed by the directive, which indicates that the identifier used in Section 3

and Section 8 must be the same if there is a PEL or TLV associated with the constituent. In addition to the requirement to use a single identifier for a hazardous chemical throughout the SDS, OSHA notes that in other sections where a manufacturer may make specific claims about a chemical constituent's health effects and provides supporting evidence for those claims (e.g. Section 11, Toxicological information) the manufacturer must provide sufficient information regarding the chemical identity for others to assess these claims.