

American Composites Manufacturers Association

Comments

Regarding the February 16, 2021, proposal by the Occupational Safety and Health Administration to revise the Hazard Communications Standard, in particular the proposed changes in the required content of the Safety Data Sheets provided to downstream employers by chemical manufacturers and importers

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1. Introduction

The American Composites Manufacturers Association represents companies using fiber reinforcement (typically glass or carbon) and polymer (typically a thermosetting resin system such as unsaturated polyester, vinyl ester, epoxy or polyurethane) to produce light weight, high strength and corrosion resistant products such as wind turbine blades, recreational boats, structural components for highway bridges, utility poles, automotive and aircraft components, and tanks, pipe and scrubbers for food, fuel and chemical storage and processing. ACMA also represents the suppliers of raw materials and intermediates to this industry.

Composites manufacturers are typically smaller companies, many family-owned, but are often one of the largest employers in the small communities in which they operate. In 2014, composites were identified by President Obama's Council of Advisors on Science and Technology as a "critical manufacturing technology".

ACMA appreciates the opportunity to comment on OSHA's February 16, 2021 Federal Register Notice.¹ We recognize OSHA's critical role in achieving healthy and safe workplaces and the contribution of the agency's *Hazard Communication Standard* (HCS) to this effort. However, we believe OSHA's proposed requirement to convey on Safety Data Sheets (SDS) information about hazards resulting from downstream reactions will be both impractical if not infeasible to implement and counterproductive to workplace health and safety. OSHA characterizes the proposal as a "clarification", but the requirements have never gone through a rulemaking or been subject to a regulatory impact analysis. The agency has not shared any data that would suggest it has quantified the costs of these proposed new requirements or established that they are economically feasible.

2. OSHA's proposal

OSHA proposes in its February 16 notice to modify *Section (d) Hazard classification* of the *1910.1200 Hazard Communication Standard* to read (proposed new text shown in underline),

(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. 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).

Further, OSHA proposes to modify *Section 2. Hazard(s) identification* of *Table D.1-Minimum Information for an SDS* to read, in part,

¹ 86 Fed. Reg. 9576.

(a) Classification of the chemical in accordance with paragraph (d) of § 1910.1200, including any hazards associated with a change in the chemical's physical form under normal conditions of use;

and,

(c) Hazards identified under normal conditions of use that result from a chemical reaction (changing the chemical structure of the original substance or mixture);

Regarding specifically the proposed change that is of concern to ACMA, OSHA states in the preamble to the proposed rule,

OSHA...proposes to add a new sentence to paragraph (d)(1) stating that *the hazard classification shall include any hazards associated with...or resulting from a reaction with other chemicals* under normal conditions of use. OSHA believes this language is necessary because there has been some confusion about whether chemical reactions that occur during normal conditions of use must be considered during classification. The agency's intent has always been to require information on SDSs that would identify all chemical hazards that workers could be exposed to under normal conditions of use and in foreseeable emergencies.... This issue has been raised, for instance, when multiple chemicals are sold together with the intention that they be mixed together before use. For example, epoxy syringes contain two individual chemicals in separate sides of the syringe that are mixed under normal conditions of use.

3. A substantial new requirement

For manufacturers and importers of chemicals and intermediate products, the agency's proposal would establish a new requirement to characterize hazards associated with not only storage and handling of the chemicals as shipped but also for all downstream reactions involving the chemicals, for products and byproducts of those reactions, and for any foreseeable emergencies associated with those reactions.

We do not agree that the phrase "normal conditions of use" is ambiguous and needs to be clarified. With respect to the issue of chemical reactions, we do not believe the current rule (HCS 2012) could be much clearer. It states,

Chemical manufacturers and importers shall evaluate chemicals *produced in their workplaces or imported by them*

There is simply no reasonable interpretation under which a chemical with a unique molecular structure and CAS number, produced by way of a chemical reaction in a downstream facility, can be described as one produced in the upstream facility of the supplier of one of the reactants, or imported by an upstream supplier of one of the reactants. With respect to changes in physical form, the question would be closer, even in the absence of the history of HCS 2012, because the downstream chemical does have the same CAS number and molecular structure as the upstream chemical, although it may be diluted or mixed with other materials. The history of HCS 2012, with the clear and extended discussion of warnings provided on SDS for solid items being converted to combustible dust, seems to support OSHA's position with respect to a change in physical form without a concurrent change in molecular structure or CAS

number. However, it provides no support for the idea that the current version of the HCS requires chemical manufacturers or importers to classify their products to reflect the hazards of downstream chemical reactions and their products.

There is another aspect to the language of the current rule, which weighs strongly against OSHA's position. Again, that language states:

Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them

The HCS defines "chemical manufacturer" to mean "an employer with a workplace where chemical(s) are produced for use or distribution", and "produced" to mean "to manufacture, process, formulate, blend, extract, generate, emit, or repackage". Clearly, the downstream employer that *produces* a chemical at its workplace is the manufacturer of that chemical and, therefore, is responsible for classifying that chemical and preparing the required SDS and label for that product. OSHA admits as much in its July 2015 HCS compliance directive in stating:²

If a downstream employer meeting the definition of a manufacturer alters a product (e.g., chemically react) ..., then the downstream user becomes the responsible party for the product and needs to consider all the known or intended uses of the product.

Expanding the scope of 1910.1200(d)(1) to include the hazards of downstream reactions and their products amounts to a dramatic change which can only be brought about by initiating a proper rulemaking that provides adequate notice and an opportunity for interested parties to carefully examine the consequences of such a change and whether they would be consistent with the goals and objectives of the Occupational Safety and Health Act.

4. Practical impossibility of compliance

Figure 1 provides a highly simplified description of the manufacture and downstream use of unsaturated polyester resin, a major chemical intermediate used in the production of composite products. We will use this type of resin as an example of a reactive material provided by an upstream chemical manufacturer to illustrate the application of OSHA's proposal, which would require that the Safety Data Sheets for this resin reflect the hazards of chemical reactions and their products associated with downstream use. Our comments apply equally to the other types of resin and other reactive inputs used by this industry.

Resin manufacturer SDSs provide information on the physical and chemical properties, hazard classifications, and guidance for the safe storage and handling of these materials, as shipped. OSHA's proposal would, in addition, now require the classification of all hazards resulting from downstream reactions with other suppliers' chemicals, the products and byproducts of those reactions, and foreseeable emergencies. This new requirement would make it necessary for the resin manufacturer to

² OSHA CPL 02-02-079, Inspection Procedures for the Hazard Communication Standard (HCS 2012), July 9, 2015, (Section X.C.17, p. 22). www.osha.gov/OshDoc/Directive_pdf/CPL_02-02-079.pdf.

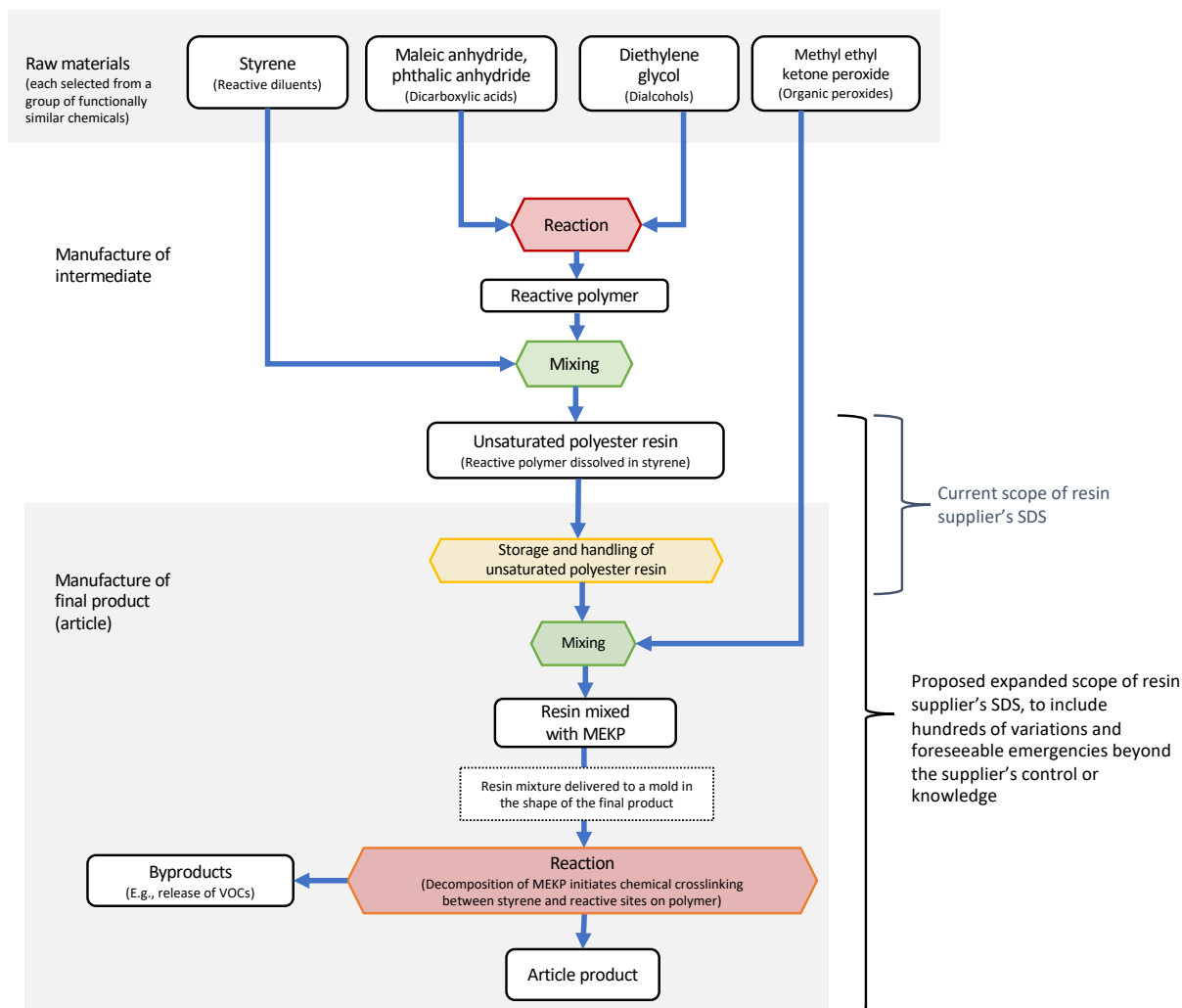


Figure 1. Simplified description of manufacture and use of a reactive intermediate.

make innumerable and interminable investigations into the uses of its product to produce another chemical (often in the form of an article) through a chemical reaction, what the product will be made of (in addition to the supplier's product), how it is manufactured, what will it do, conditions of storage, manufacture and use, byproducts, decomposition products, potential emergencies, etc. This is an impractical if not impossible requirement.

The reaction of resin with other chemicals to manufacture composite products may be associated with hazards such as thermal and chemical skin contact hazards, inhalation hazards, over-pressurization and rupture of process or storage vessels, and fire. The presence and severity of such hazards, however, are primarily a function of factors particular to each composites manufacturing operation. These factors include the reactivity of the specific formulation of resin used, the reactivity and quantity of the organic peroxide employed (and the use of other substances to promote decomposition of the organic peroxide in room-temperature cure systems), other reactive substances included in a composites manufacturer's

formula for a particular product, the delivery method of the resin and other ingredients to the article-forming process, the amount and configuration of the resin as it reacts to form the final product, and the ambient temperature during this process.³

Many composite industry process innovations (e.g., novel resin/additive mixtures, molding techniques, or equipment enhancements) are developed by resin customers as proprietary trade secrets. Resin suppliers cannot be expected to anticipate or be made aware of these innovations. Even if a resin supplier is brought into the customer's development process under a trade secret agreement, the latter will prohibit the supplier from disclosing anything learned about the process to other customers.

No SDS of practical length could ever account for even most of the process variations possible across the hundreds of composites manufacturing operations in the U.S. It would always be possible to find combinations of material inputs and processing conditions, which while properly managed by the employer resulting in minimal health or safety risk, are outside the bounds of what could have been anticipated by even a diligent resin supplier. Adding foreseeable emergencies (even if limited to the process utilizing the resin) substantially magnifies the already numerous combinations of variables that would have to be considered. And for reactive materials such as styrene, with many uses outside of the composites industry, the extent of downstream hazard assessment and length of resulting SDS would increase even further.

The ability of chemical manufacturers to assess downstream hazards, already tenuous for direct customers, is even more limited when a reactive substance is delivered to the end user via intermediaries. In our example, styrene is supplied to composites manufacturers as part of resin mixtures not produced by the styrene supplier, and most MEKP and other organic peroxides are sold to composites manufacturers via chemical distribution companies. The suppliers of styrene and organic peroxides are even less able than resin suppliers to know with sufficient precision how their materials are used and to provide useful information on downstream process hazards.

Further, OSHA's proposed changes to requirements for SDS will lead to confusion and duplicative reporting. Who reports the hazards of the downstream process? The styrene supplier, the resin supplier, the organic peroxide supplier? What is expected of the employer when the information about reaction hazards reported on SDS differs across the suppliers of these different materials?

OSHA may offer to forego enforcement of the proposed requirements if manufacturers make a "reasonable" effort to address "known" downstream hazards, but the definitions of "reasonable" and "known" will always be a matter of uncertainty and manufacturers will fear potential enforcement no matter how diligent they may be. Most resin suppliers have many widely distributed salespeople and technical service representatives with hundreds of interactions with customers every day; in these situations, what amounts to a "reasonable" effort, and when will something be "known" to the organization? The agency offers no comfort when, in the preamble of the proposed rule, it says that its "... intent has always been to require information on SDSs that would identify **all** chemical hazards that

³ Some of these process variations are described in Tables 3 and 4 of the composites production national air emission standard at 40 CFR 63 Subpart WWWW.

workers could be exposed to under normal conditions of use and in foreseeable emergencies...”. And any offer of enforcement forbearance would do nothing to lessen the significant tort and litigation risk facing manufacturers who have failed in the impossible task of assessing the risks associated with all the potential variations in use of their products and foreseeable emergencies.

5. OSHA’s proposal is contrary to an essential workplace health and safety principle

Congress took an important step in promoting workplace health and safety when, in Section 5 of the 1970 Occupational Safety and Health Act, it established the “[d]uty [of] each employer [to] furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees”.

This employer duty is also an important component of OSHA policy. According to the agency’s 2015 *Field Operations Manual*,⁴ an employer may be cited for failure to address “recognized hazards” described in standards or guidance issued by industry or voluntary associations, state or local regulations, NIOSH criteria documents, EPA publications or other sources. OSHA’s *Recommended Practices for Safety and Health Programs*⁵ encourages employers and workers to seek information about workplace hazards by reviewing not just SDSs but also other sources such as NIOSH publications, trade associations, labor unions, state and local occupational safety and health organizations, worker advocacy groups, and safety and health consultants.

Resins, organic peroxides, other composites industry inputs, and industrial chemicals generally, are not offered for sale to or recommended for use by uninformed parties. Suppliers expect their customers to identify, assess and protect against hazards that may be associated with what the customers do with the suppliers’ products. The examples offered by OSHA – epoxy syringes, cement, and gasoline – are regularly sold to consumers and are not analogous to industrial chemicals.

OSHA’s HCS 2012 unhelpfully muddies the principle that it is the employer’s duty to completely assess workplace hazards when it provides that,

...employers are not required to classify [hazards associated with] chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer.

This language appears to make it optional for employers to assess workplace hazards related to chemical processing. By requiring, as it proposes in its February 16 notice, that chemical suppliers describe on SDSs “**all** chemical hazards that workers could be exposed to under normal conditions of use and in foreseeable emergencies”, OSHA further encourages downstream employers to abbreviate or forego the identification and assessment of the workplace hazards associated with their chemical processing activities. Instead, OSHA would inappropriately shift that responsibility to the chemical manufacturer-supplier by allowing the downstream customer, itself a manufacturer of chemicals (often in the form of articles), to rely on the SDS provided by its chemical suppliers. Because suppliers will only

⁴ www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-159.pdf.

⁵ www.osha.gov/safety-management.

infrequently be able to fully assess and communicate downstream hazards related to use of their products, shifting this duty to them can only lessen workplace health and safety.

The composites industry demonstrates the importance of locating firmly with the employer the duty to identify and assess workplace hazards for the chemical reaction and process condition choices that are under their control. Each industry workplace is likely to have unique features that contribute to the presence, risk, and severity of hazards. Indeed, it is the ability of each manufacturer of composite products to select among hundreds of material inputs and process variables to make a product exactly suitable for its intended use that gives composites an advantage over other material systems.

6. OSHA has not assessed the costs of its proposed approach, which are likely to be very high, especially for smaller companies

The proposed new requirement for hazard classification on Safety Data Sheets based on downstream chemical reactions would place manufacturers in the impossible position of having to know and assess the hazards of everything that is done with their products, including all byproducts and foreseeable emergencies. Attempting to comply with the proposed requirement would be an endless, highly burdensome, and risky process for chemical suppliers, many of which are small companies. The agency suggests the requirements of its proposed rule will result in cost reductions for manufacturers, but in truth, OSHA appears to have made no effort to evaluate what is likely to be a significant cost imposed on companies small and large.

In practical terms, OSHA's proposal would require the upstream chemical supplier to perform a PSM-type process hazard analysis (PHA) covering every downstream reaction utilizing its chemical. OSHA estimated the annualized costs of implementing the process safety information requirements, per 1910.119(d), and the process hazard analysis requirements, per 1910.119(e), of OSHA's Process Safety Management Standard to be \$500.7 million for years 1 through 5 and \$58.5 million in years 6 through 10 (in 1992 dollars). The coverage of the PSM standard is limited to approximately 110 "highly hazardous chemicals" (HHCs) and flammable liquids and gases when present in excess of 10,000 pounds for purposes other than use as a fuel. The PHAs that would be required by OSHA's proposed change to 1910.1200(d)(1) would extend to every hazardous chemical in the US and would cover every use of a flammable liquid or gas as a fuel. According to EPA, the TSCA chemical inventory contains 86,557 chemicals of which 41,864 are active.⁶ Any reasonably chosen ratio of the number of active hazardous chemicals in the EPA inventory to the 110 HHCs covered by the PSM Standard suggests the costs of compliance with OSHA's proposed change to 1910.1200(d)(1) would be enormous. In the ANPRM that OSHA published on September 12, 2006, to initiate the HCS 2012 rulemaking, OSHA stated, "...the HCS now covers over 7 million workplaces, more than 100 million employees, and some 945,000 hazardous chemical products".⁷

⁶ <https://www.epa.gov/tscainventory/how-access-tscainventory>.
⁷ 71 Fed. Reg. 53617, col. 3 (September 12, 2006).

Furthermore, unlike the PSM standard where the responsibility for the analysis is properly placed on the employer operating the covered process, OSHA's proposal would shift that obligation upstream to each of the multiple chemical manufacturers or importers who supplied a reactant in the downstream chemical reaction. Absent the establishment of chemical consortia for each downstream chemical process (which would be a complicated endeavor introducing an entirely new set of legal issues), upstream suppliers would be performing numerous redundant PHAs for each downstream reaction.

In our view, this approach will have a significant counterproductive impact on workplace health and safety. Furthermore, the costs and burden suppliers of chemicals and intermediates will face when trying to comply with the proposed requirement make it technically and economically infeasible. Before proceeding to promulgate this requirement, OSHA must provide a detailed assessment of the costs and benefits of extending the HCS's definition of "normal conditions of use" to include chemical reactions at downstream employers, and its proposal would clearly be a major rule requiring a SBREFA panel.⁸

7. Summary

OSHA's proposal to expand the required content of the hazard classification and corresponding sections of Safety Data Sheets to include hazards associated with downstream reactions with other suppliers' chemicals, including products and byproducts, and foreseeable emergencies, would 1) be impossible to comply with given the multitude of process variations and potential hazards, 2) contradict and serve to dilute the well-established duty of employers to provide safe workplaces by shifting the burden to upstream suppliers, 3) create incredible complexity and confusion that would greatly outweigh the questionable benefits of this proposed approach, and 4) impose enormous additional compliance costs on the regulated community, and expose the regulated community to substantial and unjustified potential tort liability, all of which would result in a gross misallocation of resources.

We appreciate OSHA's attention to our concerns. For questions or comments, please contact John Schweitzer, at 734.604.9095 or jschweitzer@acmanet.org.

⁸ See *Impacts Of Federal Regulations, Paperwork, And Tax Requirements On Small Business*, Report Prepared for the U.S. Small Business Administration, Microeconomic Applications, Inc., Washington, D.C. 20016 (finding "The standard for process safety management of highly hazardous chemicals has disproportionately high costs for small businesses..."). P. 80 of PDF available at www.sba.gov/sites/default/files/files/rs186tot.pdf.