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**Re: Globally Harmonized System (GHS) update
to Section 5194, Hazard Communication**

Please accept these comments about changes that Cal/OSHA is considering to the state's *Hazard Communication Standard* and other Title 8 standards, as a result of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

In the spirit of continuous improvement of the current system, we have reviewed the context, outlined some general principles, and commented about specific items. Some expand on points made in our letter about the same topic, dated April 8, 2013, while others respond to Cal/OSHA's "blue sheet" and discussions at the April 9, 2013 Advisory Committee meeting. Please consider both sets of comments in your deliberations, as well as verbal comments at the April 9th meeting.

We also point the Division to the helpful comments and background about this important issue from the AFI-CIO (letter dated April 8) and Michael Wright of the USW union (letter dated April 8).

1. *The right-to-know about hazards is the result of many struggles, a human right*

Worksafe and its predecessors have long been involved with getting, and sustaining, the right-to-know (RTK) in California. With other advocates of public health and workers' rights, we have fought long and hard for the right-to-know about hazards at work and in other aspects of our lives and environments. In California, that struggle has a long and honorable history that inspired others in the US and other countries. This reflects a consensus that the RTK is a basic human right -- for workers and other members of the public.

California is a consistent leader around occupational and environmental health issues (e.g., its own PELs, Prop 65, the “green chemistry” regulations). In fact, California’s 1980 Hazard Communication Standard (HCS) and 1981 regulations -- both referred to as the RTK -- preceded the federal regulations, which came out in 1983.

The reason is known around the US and beyond. It was the discovery by workers making dibromochloropropane (DBCP) at the Occidental Chemical Plant in Lathrop that the pesticide was causing their sterility and inability to have children. (For details about that occupational health nightmare, see the [article](#) in *Late lessons from early warnings: science, precaution, innovation*, written by the former head of federal OSHA, Eula Bingham, and Professor Celeste Monforton, and the clip from *Song of the Canary* that we submitted at the April 9th advisory committee meeting.)

Reflecting those lessons, the *Hazardous Substances and Training Act* says that the Legislature “declares” that:

Employers and employees have a right and a need to know the properties and potential hazards of substances to which they may be exposed, and such knowledge is essential to reducing the incidence and cost of occupational disease.

California has always had unique language in its HCS, all approved by federal OSHA and followed by the state’s enforcement agency, Cal/OSHA, and (presumably) employers. To be specific, the federal *Occupational Safety and Health Act* says that state-run plans should be “at least as effective as” the federal law and regulations, and can go beyond those “rules” in the context of compelling local conditions that do not unduly burden inter-state commerce. A 1997 court decision about the integration of Prop 65 and the state’s HazComm Standard, and federal OSHA’s approval of the result, provide guidance about this.

Our comments are made with this history in mind.

2. The GHS in perspective

The GHS is one result of the international RTK movement for the human right to public, transparent, and accurate information about chemicals. Yet, we have learned that “GHS” in the USA means something quite different, and much less, than what it does in Europe and Australia, and was going to mean in Canada (before OSHA’s decision to adopt an incomplete version of the international agreement). So far, only a majority of the workplace-related items have been adopted in the States, with none of the integration that is one of the fundamental principles of the international agreement. See our

previous letters to the Division and the Standards Board for more details about the differences.

The full international document has significant improvements to the legal RTK for American workers and their employers, and for many others around the world. That is because the GHS goal in classifying and labeling chemicals is to **improve** -- not reduce -- the level of protection for workers. Other goals include covering all chemicals wherever they are found (e.g., pharmaceuticals, pesticides, consumer products), and integrating information for transportation, workplaces, consumers and the environment, especially on safety data sheets (SDSs). The latter goals are not covered by any current regulation in the United States.

The GHS is one of many chemical policy discussions, reports, agreements, activities, and regulatory efforts in the last 10 years. Consistent themes in these state, federal, and international efforts include using current knowledge to prevent adverse health effects from toxic chemicals (including the promotion of green chemistry to avoid their use) and transparent and integrated information systems.

Examples of these activities include:

- the US [National Conversation on Public Health and Chemical Exposures](#) with its action agenda;
- the [Annual Report of the President's Cancer Panel, Reducing environmental cancer risk. What we can do now](#),
- the 2013 report [Driving Innovation: How stronger laws help bring safer chemicals to market](#) from the Center for International Environmental Law (CIEL), a non-profit environmental law organization based in Washington, DC, and Switzerland;
- [REACH](#), the 2006 European Community chemical regulation (short for the Registration, Evaluation, Authorisation and Restriction of Chemical Substances) and related regulations, agencies and databases, including a [report](#) about its effectiveness that shows "(c)ompanies are facing their responsibilities and as a result, we have better data about the chemicals they produce and place on the market.";
- the REACH-related International Chemical Secretariat ([ChemSec](#)) and its Substitute It Now ([SIN](#)) list;
- chemical policy [plans](#) in China and India that refer explicitly to the European Union's REACH regulation;
- the Strategic Approach to International Chemicals Management ([SAICM](#)), [endorsed by](#) governments, public health organizations, workers' organizations and the International Labor Organisation (a tri-partite governed United Nations group with representation from governments, employers, and unions);

- documents from the United Nations Environment Programme, including:
 - the 2012 [Global Chemicals Outlook](#), the first report of its kind, that frames “current understanding of trends in chemicals production, use and disposal, economic implications of these trends, and policy options”,
 - from 2013, the [Report on Cost of Inaction on the Sound Management of Chemicals](#) designed to “provide decision makers at all levels of governance with the information necessary to fully consider increasing investments in SMC (sound management of chemicals), consistent with international agreements and decisions and to address national priorities to protect human health, the environment and the sustainability of development”;
 - the 2013 report, co-written with the World Health Organisation, *State of the Science of Endocrine Disrupting Chemicals 2012*, including a [summary for decision-makers](#), and related regulatory activity in the European Union; and
- the two reports about the need for prevention from the European Environment Agency, and particularly the 2013 one -- [Late lessons from early warnings: science, precaution, innovation](#) -- that includes the DBCP story from California.

[Comments](#) from UN Under-Secretary General and UNEP Executive Director, Achim Steiner about the *Global Chemicals Outlook* report are typical of the points made in many of these documents:

.. the gains that chemicals can provide must not come at the expense of human health and the environment. Pollution and disease related to the unsustainable use, production and disposal of chemicals can, in fact, hinder progress towards key development targets by affecting water supplies, food security, well-being or worker productivity. Reducing hazards and improving chemicals management - at all stages of the supply chain - is, thus, an essential component of the transition to a low carbon, resource efficient and inclusive Green Economy.

California is trying to do its bit for this green economy. Amongst other things, the Department of Toxic Substances Control (DTSC) is about to issue the long-awaited [Safer Consumer Products Regulations](#) that are one part of the state’s Green Chemistry Initiative. Other [states](#) are making similar efforts to reduce the use of toxic substances and develop transparent chemical information systems.

Recommendation 1:

Present GHS-related changes to the HCS, and retention of current protective language, in the context of other state, federal and international regulatory and policy activities aimed at prevention, transparency and integrated information systems.

Businesses and employers also are trying to reduce the use of toxic substances and develop transparent chemical information systems. Below is a selected list of organizations that include and work with businesses around chemicals management issues, with examples of relevant specific documents or databases. It makes clear that there are voices within the business community who take a different stand than most of those we have heard during discussions about the HCS.

- American Sustainable Business Council ([ASBC](#)): This national partnership of 62-plus business associations represents more than 165,000 businesses and 300,000 entrepreneurs, managers, investors, and others. In supporting sustainable development, socially responsible business practices, and strong local Main Street economies, it takes on chemical policy reform by making a [business case](#) for change that includes:
 - *Reducing the costs and risks, especially product liability (for example, asbestos), associated with managing toxic chemicals in products across supply chains;*
 - *Lowering expenses from chemically induced employee illness and enhancing productivity from improved employee health;*
 - *Identifying the presence of chemicals of high concern in products; and*
 - *Improving transparency and communication throughout the supply chain, leading to increased confidence for downstream users and reduced risks from supply chain interruptions.*
- [BizNGO](#) or the Business NGO Working Group for Safer Chemicals and Sustainable Materials: [The guide to safer chemicals](#) puts into practice the [principles](#) for safer chemicals [endorsed](#) by companies such as Staples, Perkins+Will, Hewlett-Packard, and Kaiser-Permanente.
- Clean Production Action: The *Chemicals of High Concern – List of Lists* (“[Red List of Lists](#)”) is shared with the Healthy Building Network. CPA’s [healthy business activities](#) include a relevant [report](#). Its [Green Screen](#) is a tool a variety of companies use to assess the hazards of chemicals and possible alternatives.
- [Health Care Without Harm](#) has its own [Guide to choosing safer products](#). The international coalition includes hospitals and health care systems and focuses on reducing the use of toxic chemicals within health care systems and transparency about the current use of these chemicals.
- Healthy Building Network: The [Pharos database](#) gives credit for transparency and good SDSs when it gives toxicity and other information about a wide range of building products. The Network recently produced the [Health Product Declaration Form](#), which *systematizes reporting language to enable transparent disclosure of information regarding building product content and associated health information, by defining the critical information that is needed by building designers, specifiers, owners and users.*

- [Outdoor Industries Association](#)'s Sustainability Working Group: The volunteer collaboration among more than 450 outdoor industry companies is working to identify sustainable business practices in their shared global supply chains. It has produced [guidelines](#) about good chemical management practices throughout the life cycle of outdoor industry products, and recently set up a Chemicals Management Working Group ([CMWG](#)).
- There are lists of restricted substances (RSLs) from companies such as [Nike](#), and the auto industry's [Global Automotive Declarable Substance List](#).
- [The Green Chemistry and Commerce Council \(GC3\)](#): A Massachusetts-based business-to-business forum, its publications about chemicals policies include the 2011 [Meeting Customers' Needs for Chemical Data: A Guidance Document for Suppliers](#).
- Big and small companies attending the Safer Consumer Products Summit in early April, 2013 in San Francisco emphasized the importance of transparency throughout supply chains. *At this summit, and a similar event – the Safer Chemicals Small Business Forum held in Orlando last month – companies are affirming that transparency helps develop consumer support for their products as well as more robust business practices,* [says](#) Healthy Building Network researcher, Sara Lott.

These companies and business associations are not alone. In fact, the ASBC's [September 2012 polling](#) of small businesses in the country shows that:

- *Small business owners (SBOs) generally believe toxic chemicals pose a threat to people's health, and support stricter regulation and greater disclosure of toxic chemicals. Three-quarters support stricter regulation of chemicals used in everyday products.*
- *The values driving the views of small business owners in this area are responsibility, safety, and accessible information. Nearly all SBOs believe there should be a publicly accessible database identifying toxic chemicals, and nearly all believe manufacturers should be held responsible for chemical safety.*
- Specifically, there was strong support for the statements that *Businesses should be required to share chemical ingredient information all along the supply chain—from chemical manufacturer to final product manufacturer, and Companies using chemicals of concern to human health should disclose their presence to customers and the public.*

In fact, the executive director of the Investor Environmental Health Network (IEHN) in Falls Church, Virginia has this [advice](#): "I think companies owe it to themselves and their investors to know the chemical risks in their products and supply chains and work to eliminate them." IEHN members collectively manage \$30 billion to \$35 billion in assets. The network encourages

companies to adopt policies that eliminate and reduce toxic chemicals from products and activities.

Recommendation 2:

Use the examples of businesses that are promoting and practicing transparency about product ingredients and the use of “safer” chemicals in framing the Division’s position about the need to retain protective language and expanded source lists (see below). Engage these networks and businesses to promote best practices around the RTK and chemicals management policies.

3. *What else should Cal/OSHA do?*

3.1 Cal/OSHA should follow the principles from GHS and its own mandate

Simply put, Cal/OSHA -- and the Occupational Safety and Health Standards Board -- should uphold the spirit and initial principles of the GHS: provide more information to protect workers, the public and the environment. Providing less is not in compliance with the GHS agreement, nor the purpose of the federal or state health and safety laws. Going down this path will ensure that California continues to lead the nation on RTK and other health and safety initiatives. To accomplish that, Cal/OSHA and the Standards Board must improve on what we have now, not take a step backwards.

The GHS is the result of more than 10 years of negotiations facilitated by the United Nations. Those at the table at various times included representatives of governments, unions, consumer groups and employers/manufacturers from around the world. For example, labor representatives were in the group working on hazard communication, while the “weight of evidence” (WOE) criteria were put together by the committees that worked on classification, without labor input.

This result was a negotiated document in which some stakeholders clearly had more power and voice than others (e.g., governments and industry had more than labor). Like any negotiated document, it includes compromises, which are not always the best solutions. Further improvements will continue to come, as sub-committees examine particular issues and lessons are taken from using it.

Therefore, Worksafe reiterates our support for the principles in the international agreement, as set out in its fourth edition (the “purple book”, 2011, page 4). The principles were one of the first items in the long process, to which all the parties agreed, and included:

- (a) *the level of protection offered to workers, consumers, the general public and the environment should not be reduced as a result of harmonizing the classification and labeling systems;*
- (b) *the hazard classification process refers principally to the hazards arising from the intrinsic properties of substances and mixtures, whether natural or synthetic;*
- (c) *harmonization means establishing a common and coherent basis for chemical hazard classification and communication, from which the **appropriate elements relevant to means of transport, consumer, worker and environment protection can be selected;***
- (d) *the scope of harmonization includes both hazard classification criteria and hazard communication tools, e.g., labeling and safety data sheets, taking into account especially the four existing systems identified in the ILO report (in Canada, the European Union, the USA and the UN's transportation of dangerous goods recommendations); ...*
- (g) ***the comprehension of chemical hazard information, by the target audience, e.g. workers, consumers and the general public should be addressed;** .. (emphasis added).*

Recommendation 3:

Be guided by the principles of the GHS in making changes to the HCS, including retention of current language, especially the first principle to not reduce the level of protection.

The above statements all are relevant to the changes Cal/OSHA proposes to make in the state's HazComm standard.

Other principles are important for any changes to the right-to-know. They include:

- ✓ The right-to-know is a key part of the spectrum of occupational health and safety activities whose goal is the prevention of job-related illnesses and diseases (see the [definition](#), or what some call the objectives, of occupational health statement from the World Health Organisation/WHO and International Labour Organisation/ILO from the early 1950s).
- ✓ Californians -- as workers, employers and other members of the public -- have a right to know about the chemicals in the products they make and use, and the hazards of those substances and products. We need a HazComm regulation that provides information for public good, not one that allows it to be hidden for private profit.
- ✓ We want to harmonize up, not down to the lowest common denominator. In doing so, we want to have the world's best rights,

information, and protection from hazards, not diluted ones that make the state a “poor cousin” to other jurisdictions.

- ✓ Cal/OSHA and the Occupational Safety and Health Standards Board have the responsibility, right, and authority to maintain and improve the protection for workers and other members of the public in its current Hazard Communication Standard and related Title 8 standards. Doing so is consistent with the spirit and letter of the GHS principles quoted above, and allowed under the federal *Occupational Safety and Health Act*.
- ✓ Retaining requirements that differ from the federal OSHA version of the GHS is not a burden to inter-state commerce and reflects on-going, compelling local conditions, just as inclusion of Prop 65 did in the 1990s.
- ✓ Where the international GHS agreement offers more, Cal/OSHA and the Standards Board can, and should, increase the current protection in the HCS. They also should use this opportunity to incorporate additional changes that increase protection for workers, their employers, and the public in general.
- ✓ A real RTK requires effective and on-going training and education, so that workers and employers can meet the GHS goal that people **comprehend** hazard information. Workers and employers must learn how to read and use the new data sheets, labels, and pictograms. They also need to know their rights and responsibilities related to RTK and the rules that prohibit retaliation for asking questions about, or reporting, hazards, illnesses or injuries.

3.2 Specific recommendations

3.2.1 Source lists

We count on those who prepare material safety data sheets and labels to tell us the truth about the hazards of the chemicals in products. Workers need the information to make informed decisions and use their rights. Employers need the information to decide if they want to buy the product and how to use it, while protecting the health and safety of employees and others. Dr. Michael Wilson provided details about these supply chain issues in his presentation to the Standards Board on March 21 and in his comments to the Advisory Committee meeting on April 9.

As a USW representative at the meeting said, the sheets and labels don't have to be novels, but “I don't want them to leave out anything that could be significant to my health.” Workers and their employers don't have the technical training or easy access to scientific reports to figure out if something causes cancer, affects their ability to have healthy children, or have other adverse health effects. They should not have to do their own

research to learn about the hazards of the chemicals used at work and elsewhere. That responsibility rests with the manufacturers and importers who make and/or provide chemical products.

Source lists help to get the best information possible on those sheets and labels. They are consistent with the principles of the GHS, offering guidance to those classifying chemicals and determining hazards. They help to ensure honesty, consistency, accuracy and quality in data sheets and labels (serious problems, as noted elsewhere). These features are essential for effective training and providing employers in the supply chain with the basis on which to make purchasing decisions that prevent employees and customers from dealing with hazards.

Authoritative scientific bodies, agencies responsible for chemicals policies, and other reputable organizations have developed and published a number of lists of toxic chemicals. Some focus on specific hazards such as carcinogenicity or reproductive toxicity. Others have a broader scope. As Dr. Julia Quint has said in her submissions to Cal/OSHA, they share a lot of criteria and are the result of a “weight of evidence” (WOE) approach that is behind the GHS method to classify hazards.

The Europeans have used the WOE approach for a long time in their occupational health and safety activities and legislation. There, it has a much more precautionary meaning than the one the chemical industry advocates in North America. It also is used in a different context in the European Union (EU). Once a chemical there is classified as toxic, there are repercussions for the chemical’s production and use (e.g., carcinogens could be banned except under very specific conditions or, as OSHA noted in the [Federal Register](#) of March 26, 2012, banning the use of the chemical for consumer products). In North America, there are not similar ramifications. Manufacturers and importers only have to get the toxicity information to employers and workers via material safety data sheets and labels.

For labor representatives at the GHS negotiations, this history meant that it was a given that the EU would insist on including the WOE approach in the GHS. The GHS committee dealing with classification (which brought in the WOE) was led by the Organisation for Economic Co-operation and Development (OECD). GHS and federal OSHA documents indicate the “consensus” on this topic was essentially among governments. Labor representatives were not consulted about the use of a WOE approach and the process did not give them an effective method to get changes made.

A WOE approach cannot stand alone, especially when it is used for documents as important as data sheets and other assessments of toxicity. Otherwise, we will have individuals over-ruling or ignoring the decisions of authoritative bodies about the hazards of specific chemicals. When that happens, it will diminish the right-to-know, not increase it.

In our January 23, 2012 letter to Deputy Chief Gold about the HEAC process, we said:

Tickner describes WOE as taking “into account the cumulative weight of information from numerous sources that address the question of injury or the likelihood of injury to living organisms. Types of information that might be considered include observational studies, worker case histories, toxicological studies, exposure assessments, epidemiologic studies, and monitoring results.” His article, “A map toward implementing the precautionary principle”, in Protecting Human Health and the Environment: Implementing the Precautionary Principle, provides a useful list of what to include and consider in a WOE approach with a precautionary framework. That is the kind of framework we would like DOSH to use.

Recommendation 4:

Review and adapt the list in Tickner’s article about criteria for the application of a WOE approach to classify and determine hazards that will be listed on data sheets and labels under the HCS. (We can supply a copy of the article.)

There is another easy way to make sure we get consistent, accurate, and more useful data sheets and labels: name lists of chemicals of concern that those doing the classifying and hazard determination lists must use. The National Academy of Sciences committee examining the Department of Labor's Site Exposure Matrix Database made the case for authoritative lists in its 2013 [report](#).

The advantage of including evaluative databases and documents is that they typically use a weight-of-evidence approach to draw conclusions about the strength of an association between exposure to a toxic substance and a disease.

The committee named a variety of US agencies and authoritative bodies that use this WOE approach, including California’s OEHHA and Cal/EPA. Their lists of chemicals of concern are exactly the kinds of sources that should be used to prepare data sheets and labels.

Given the long-time problems with data sheets and labels, and the lack of guidance about using the WOE approach in the GHS documents and the federal standard, it is crucial to continue and expand the use of independent source lists in California’s HCS. It is the easiest and best way to enact the GHS principles to improve protection and focus on hazards (not exposures), while harmonizing hazard information so it is accurate and useful.

Recommendation 5:

The changes to sections 5194(d)(3) and (d)(4) submitted to the Standards Board are sufficient to align California’s HCS with the GHS principles and to be approved by federal OSHA. The additional language in the discussion draft

saying that chemicals on the lists “have met the total weight of evidence criteria ..” is needed only if federal OSHA insists on it.

Recommendation 6:

Update the Director’s List (the *Hazardous Substances List*, T8 CCR, Section 339).

Recommendation 7:

Add lists that cover the full range of hazard categories in the GHS (i.e., beyond carcinogenicity and reproductive effects). As a starting point, include:

- section 69502.2 of the proposed California [Safer Consumer Product Regulations](#) (aka the “green chemistry” regs), which uses a list of lists of toxic substances from authoritative bodies around the world;
- [Proposition 65](#);
- substances that are the topic of [hazard alerts](#) from the Department of Public Health’s Hazard Evaluation System and Information Service (HESIS);
- the [SIN 2.1](#) list of “Substances of Very High Concern”, from the International Chemical Secretariat (ChemSec), based on criteria established under the European Union’s chemical regulation, REACH;
- NIOSH’s list of [potential occupational carcinogens](#);
- the TEDX list of [potential endocrine disruptors](#); and
- the lists of asthmagens, respiratory sensitizers, and skin irritants and sensitizers in Appendix 1 to this letter (where there also is an explanation of why the outcomes are important in occupational settings).

3.2.2 The use of one positive study to determine a health hazard

Just like knowing all the hazards of a chemical or product, workers and employers want to know if someone’s found a workplace canary -- an individual or several people affected by something they work with. That’s why “one positive study conducted in accordance with established scientific principles” is important to workers, employers, and anyone working in the field of public health.

We want employers to know that study is out there, so they can decide if they will use, or continue to use, that product and how. If they do use it, workers need to know about the one study so that they can use their right to refuse unsafe or unhealthy work, push for less toxic products, and/or insist that they’re properly protected.

Too many people get sick because of their work, yet companies, compensation authorities/agencies, and governments argue about what's "statistically significant" proof of a connection between the hazard(s) and someone's illness or disease. As the USW representative at the April 9th meeting said, if it happens to an individual or someone we care about, it's pretty significant to those affected. If it's not happening to everyone, it may not be significant to everyone. Cancer and other diseases are significant to those who have them. One study can help us push for changes, knowing we're not alone if we have symptoms or concerns.

There are other reasons to retain the one study language.

First, dropping it reduces the level of protection and information for California workers. Second, as others have pointed out, the results of single valid studies have been used to put chemicals on the lists of reputable agencies whose determinations are used nationally and internationally. This includes the US EPA, California's HESIS, and the International Agency for Research on Cancer (IARC).

Third, many people do not appreciate, or fail to acknowledge, the real difficulty in getting information about chemical hazards: testing is not required before something gets to the market. That's why most of the 80,000-plus chemicals currently on the market have not been tested for very much at all. Manufacturers can use the public -- and workers in particular -- as guinea pigs, just like Dow and Shell did with the DBCP workers in Lathrop, asbestos mining companies have done for far too many years, etc. Without a "no data, no market" law, one positive study (done appropriately) is often the first and only warning about a hazard.

On top of this, it is difficult to get a study published in reputable peer-reviewed journals, and there continue to be debates about the cut-off for statistical significance (epidemiologists are asking why they have to be 95 percent sure of something, rather than 90 percent, especially given the lower levels of "proof" accepted in legal and other settings). With all the constraints involved, a so-called negative study usually is the result of difficulties in studying an effect rather than the result of no effect.

Cal/OSHA needs to keep the one study language in the current standard so that the information from these important kinds of sources gets to everyone in California workplaces, and to doctors when workers need treatment. It needs to be used to classify something as hazardous, so it ends up on the part of the data sheet where we expect to see information about health hazards.

Recommendation 8:

Keep the proposed change to section 5194(d)(2) that went to the Standards Board. Include the information in the health and physical hazards sections of data sheets, not in other sections where it can be missed or mis-understood.

Appendix A should not allow any health hazard information to be excluded from or “noted” on a data sheet.

3.2.3 Related changes to Appendix A

There should be better guidance in Appendix A about classifying carcinogens, and neural, developmental, and reproductive toxins. For consistency and harmonization with EU GHS practices, there also should be more guidance about sensitizers, lactation hazards and target organ toxins. (See our recommendations for lists to include in section 3.2.1 of these comments.)

Recommendation 9:

In Appendix A, include the guidance from the federal OSHA regulation, *Identification, Classification and Regulation of Carcinogens (29 CFR 1990)* about classifying carcinogens (sections 143 -145). It should be used to classify carcinogens that are not on the source lists we have recommended be used. It is particularly useful about when to include non-positive studies and how to weigh evidence from them.

Recommendation 10:

Include the federal EPA guidance about classifying the other hazard categories listed above in Appendix A. It makes clear how to determine if a hazard exists, using human or animal evidence, and the minimum required to do so.

Recommendation 11:

Consult stakeholders, other agencies and international authorities about additional guidance to cover sensitizers, lactation hazards and target organ toxins.

The definition of health hazard also needs to be revised and related changes made for consistency with using source lists and the one positive study requirement.

Recommendation 12:

Define “health hazard” to read (with our addition underlined):

A chemical that is classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration hazard. The criteria, authoritative sources, and guidance for determining whether a chemical is classified as a health hazard are detailed in Appendix A ...

Recommendation 13:

After making the changes in the definition, re-word the following sections in Appendix A and cross-check other sections for consistency, and revise if needed.

- **A.0.3.5:** *Both positive and negative results are considered together in the weight of evidence determination. However, a single positive study performed according to good scientific principles and with statistically and biologically significant positive results ~~may~~ justify classification.*
- **A.6.4 Classification of carcinogenicity. A.6.4.1 Chemical manufacturers, importers and employers evaluating chemicals ~~may~~ shall treat the following sources as establishing that a substance is a carcinogen or potential carcinogen for hazard communication purposes in lieu of applying the criteria described herein: ...** The rest of this section should be revised to include the source lists that we are recommending remain in the standard (see Appendix A).
- **A.7.2.3.1 Weight of Evidence Reproductive Toxicants** *However, a single, positive study performed according to good scientific principles and with statistically or biologically significant positive results ~~may~~ justify should be used for classification (Also see A.7.2.2.3).* This section also needs to be revised to include Prop 65 as an authoritative source to classify reproductive and developmental toxicants.

3.2.4 Testing

It's difficult to understand how someone preparing data sheets and labels can classify chemicals for hazards without knowing what those hazards are. If tests need to be done to get that information, companies that want to sell their product should be responsible for getting the tests done (the "no data, no market" approach). Otherwise, the data sheets and labels are not much use to workers or their employers.

Recommendation 14:

Require testing for physical and health hazards and to ensure that all ingredients are listed as percentages of the product, including contaminants in primary ingredients.

Recommendation 15:

Require manufacturers and importers to list on their data sheets which acute and chronic tests have not been done for each health hazard category listed in the international GHS agreement.

That's the only way that data sheet user, physicians, Cal/OSHA and others will know what information is missing or not available. This is consistent with the requirement of section 5194(3)(6), which is important for

consistency and transparency in SDSs, and can be accomplished with simple check boxes.

3.2.5 Mixture percentages

We need as much information as possible about the ingredients in mixtures - especially the contents. It's crucial for honest, transparent and effective right-to-know systems.

The current cut-offs of 0.1 and 1 percent for MSDS disclosure of ingredients go back to the original regulation in California (1981) and the federal standard (1983). The rationale for these cut-offs in the California regulation are difficult to find in the mists of time. For the federal regulation, the *Federal Register* (Vol. 48, No. 228, November 25, 1983) says that:

(t)he one percent exclusion was included to absolve the employer from having to evaluate the list chemicals present in mixtures in small quantities, which are not likely to result in substantial exposures. ... OSHA stated in the preamble to the proposed standard that the one percent cut-off was justified on the basis that it appeared to be protective and was considered to be reasonable by a number of affected parties.

As recorded in that edition of the *Federal Register*, companies responded to OSHA's proposal, some saying it was reasonable, while others said it was too high for some chronic hazards (e.g., West Point Pepperell, the Department of Defense, Caterpillar Tractor Company). OSHA concluded the one percent cut-off was "necessary to ensure adequate protection in all cases". Carcinogens were to be listed if they were present in quantities of more than 0.1 percent.

In fact, those involved with the original federal standard agree that the cut-offs were not the result of an evidence-based quantitative source or sources. It was the best guess, and agreement, about what would protect workers, as the *Federal Register* indicates.

Since then, testing methods and limits of detection have advanced considerably. We also know that much more about substances having adverse health effects at levels less than 10,000 ppm (1 percent) or 1,000 ppm (.1 percent) on their own or in a product. The cut-offs for declaring substances on data sheets and labels should keep up with science and the times. The preamble discussion in the [Federal Register](#) of March 26, 2012 covers some of the information available about these changes.

The best solution is to declare all ingredients. If this is not possible yet, individual ingredients and contaminants should be disclosed if they are present in a mixture at the level of detection; the minimum cut-off should be at least 0.01% unless the manufacturer or importer can demonstrate that it is

not feasible at the moment to detect the chemical at that level, and the manufacturer is responsible for lowering the disclosure level when it is feasible.

Recommendation 16:

Require that those preparing data sheets declare all ingredients and contaminants, regardless of their concentration. As an interim measure, have them declare individual ingredients and contaminants if their presence can be detected in accepted testing procedures. Make the minimum cut-offs at least 0.01 percent, unless the manufacturer/importer can show this is not currently technically feasible.

We especially want to be sure that chemicals that cause cancer, reproductive effects, allergies, and mutagenic changes are listed at their lowest detection level, as the National Institute for Occupational Safety and Health (NIOSH) has done for years for carcinogens.

We also worry about endocrine disruptors. These toxins have effects on many body systems (not just the reproductive organs) at minute concentrations. They cannot be treated like other chemicals when it comes to cut-off points for hazard warnings on MSDSs and labels. The cut-offs for these kinds of chemicals also should be their lowest detection level, not an arbitrary and out-of-date 0.1 percent. Anything more will not protect workers or their families.

Recommendation 17:

Set the data sheet and label cut-off concentrations for carcinogens, reproductive toxins, sensitizers, mutagens and endocrine disruptors at the lowest detection level for individual chemicals.

3.2.5 Time to revise labels and data sheets

It is unethical -- and illegal in some countries -- to delay providing new chemical hazard information to customers, workers, and the public. Far too often, we have "late lessons from early warnings" about toxic substances. The cost is tremendous for all affected, especially workers and their families.

Recommendation 18:

Require that labels and data sheets be revised "promptly", as the GHS agreement says. Set the maximum time allowed at three months, and allow that only if there is documentation about why the updating cannot be done earlier.

3.2.6 Training

The GHS system talks about people comprehending chemical hazard information. An effective right-to-know system means that employers and workers understand what's on data sheets and labels, and know how to use products and chemicals without causing harm to themselves or others.

We need detailed rules and guidance about the ingredients of effective training about these new sheets and labels (e.g., regular refreshers, face-to-face conversations on work time), and how to evaluate the learning. This needs to be integrated with a company's Illness and Injury Prevention Program, and there needs to be documentation about all aspects of the training, including its regular evaluation.

We also need training in the language that individual workers understand best. This means that MSDSs and labels also need to be in languages other than English, particularly Spanish. (They manage this in Europe and Canada.) The training also needs to be done in clear or plain language, not a bunch of gobbledy-gook that workers (and often employers) don't understand.

Recommendation 19:

Review the HCS and IIPP training requirements to better integrate them. Add details in the revised HCS about effective training, the use of clear language, refreshers, and evaluation methods and time frames (every year).

Recommendation 20:

Require data sheets and labels be available in Spanish. Require that training be done in Spanish where this is a common language on the job or in the workplace.

4. Other issues

At the April 9th Advisory Committee meeting, a chemical industry representative referred to a recent [report](#) from the National Academy of Sciences about fraudulent scientific studies. He linked the findings to potential problems in relying on one study for hazard classification or information. Fortunately, that is unlikely to be an issue.

The NAS researchers looked at more than 25 million articles in the PubMed database of biomedical literature going back to 1975. They found 2,047 studies had been retracted as of May 3, 2012, about 75 percent of them for known or suspected misconduct, including fraud or suspected fraud (43.4 percent). As the authors acknowledge, this is a "very small percentage of the scientific literature"; those retracted for suspected or known fraud were about 0.0035 percent of all published studies, or about 890 papers.

Fraudulent scientific publications should be condemned. However, we want to point Cal/OSHA to documents that are more relevant to occupational and other public health chemicals policy activities. All relate to the chemical industry's systematic influence on scientific research and on regulatory efforts to use that information.

1. The 2012 report from the Union of Concerned Scientists, [*Heads they win, Tails we lose. How corporations corrupt science at the public's expense*](#) (a copy of which is attached to our submission). They found five types of abuse: corrupting the science, shaping public perception, restricting agency effectiveness, influencing congress, and exploiting judicial pathways.
2. A 2011 report from the National Resources Defence Council (NRDC), [*The chemical industry delay game: How the chemical industry ducks regulation of the most toxic substances*](#) 2011 described the pattern found in its analysis. Chemical industry roadblocks put in the EPA's way typically:
 - attack early drafts of health assessments,
 - force new reviews,
 - hold workshops populated with industry-funded panelists,
 - introduce new industry-funded studies when assessments are close to being completed,
 - force more reviews,
 - enlist elected officials to assist with political interference, and
 - attack new assessment drafts.
3. The Healthy Building Network alerted the public to the American Chemistry Council's efforts to oppose an updated LEED building standard that includes a new voluntary credit, "Building product disclosure and optimization — material ingredients", that rewards transparency and reduce our dependency on toxic substances in building materials. The ACC apparently succeeded in making a case to have such a complex process for this credit that it's unlikely designers will go for it. (See Bill Walsh's column about this [here](#). Earlier columns have other details.)
4. UCSF researchers are investigating investigators' bias and corporate influence in an NIEHS-funded [study](#). Their rationale:

Considerable evidence shows a strong association between industry funding, investigator conflicts of interest, and biased outcomes in human clinical research, but there is little evidence regarding the integrity of nonclinical research, including laboratory and animal studies.. Poorly designed or incompletely reported animal studies not only produce bias in the research record, but could also lead to the inappropriate initiation of clinical trials or the failure to protect humans from toxic compounds.

Cal/OSHA should consult with the professors about their progress that might inform the wording related to the use of one study.

5. The Chicago Tribunes influential “Playing with fire” [series](#) of stories about flame retardants and deceptive campaigns by the chemical industry and its lobbyists to promote these harmful chemicals, that won the Goldsmith Prize for Investigative Reporting and persuaded Governor Jerry Brown to move on the issue in California.
6. On May 3, 2013, the federal Environmental Protection Agency announced new conflict of interest [rules](#) for science review panels.

Finally, for those with long memories, it is important to remember the revelations about industry influence on the ACGIH’s Threshold Limit Values (TLVs) that came out in the early 1990s. Barry Castleman and Grace Ziem ([Corporate influence on Threshold Limit Values](#)), followed by the study by the esteemed hygienist, Stan Roach, and California’s Stephen Rappaport, ([But they are not thresholds: A critical analysis of the Documentation of Threshold Limit Values](#)).

5. Next steps

We will continue to watch this process as it winds its way through Cal/OSHA, to the Standards Board and federal OSHA. We will continue to garner support for California workers and employers who want and need an effective, protective, and prevention-oriented RTK regulation.

Thanks for this opportunity to have our say about this important topic. The right-to-know is a human right that should not be undermined or dismissed for private profit; the public costs are far too high. It matters to a lot of us. It’s our health and safety that’s at stake.

Sincerely



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Appendix 1

Why we need lists of asthmagens, respiratory sensitizers, and skin irritants and sensitizers on the source lists for California's *Hazard Communication Standard*

More than 85,000 chemicals are currently available in the United States. However, the “list of lists” in the proposed *Safer Consumer Product Regulations* captures only a small portion of these mostly-untested substances, as do the source lists for the *Hazard Communication Standard*.

Worksafe and others have argued that DTSC should augment its list with asthmagens, respiratory sensitizers, skin irritants, and skin sensitizers, all of which already are considered hazard traits in Chapter 54, the [Green Chemistry Hazard Traits for California's Toxics Information Clearinghouse](#). We make the same appeal to Cal/OSHA.

These substances pose serious adverse effects for workers and consumers alike. For example, a recent report for the National Institutes of Health, [Healthy environments. A compilation of substances linked to asthma](#), found 374 substances linked to asthma are used or present in buildings. A substantial number are found in products; 75 alone are in paints and adhesives, both of which are consumer products used in homes and other buildings.

Asthmagens take an expensive toll on individuals and society, including children. Asthma is the fourth leading cause of work absenteeism, costing almost “12 million missed or less productive workdays each year.” People with work-exacerbated asthma (WEA) report more days with symptoms, go for more medical care, and have a lower quality of life compared to adults with asthma unrelated to their job(s) ([American Thoracic Society](#), 2011). In Massachusetts, WEA cases are most commonly linked with cleaning products (13.2%); most of the hazard sources are either consumer products or common ingredients in them ([Asthma](#), Massachusetts Toxics Use Reduction Institute TUR and disease prevention fact sheet, 2012).

The 2010 report, [Asthma: A Business Case for Employers and Health Care Purchasers](#) advocates for replacing of “harsh cleaning chemicals” and other hazards. So too do California scientists, public health researchers and state public health officials (e.g., “[Primary prevention of occupational asthma: Identifying and controlling exposures to asthma-causing agents](#)” by Dr. Julia Quint and others, the state public health department's [Strategic Plan for Asthma in California 2008 – 2012](#), and the [CDPH/OHB](#)). The American Thoracic Society agrees with them in its [official statement](#) about WEA.

Other respiratory sensitizers, skin sensitizers, and skin irritants also cause adverse public/occupational health effects that make people's lives miserable and are expensive for employers, workers, their families and their communities. These hazards are common in workplaces and other consumer settings.

The National Institute for Occupational Safety and Health (NIOSH) estimates that more than 13 million U.S. workers can be exposed to chemicals absorbed through the skin. These [hazards](#) lead to skin diseases and allergies, and systemic effects ranging from acute effects and neurotoxicity to cancers and reproductive health effects. Again, the results are very expensive; estimated total annual costs are up to \$1 billion in 2002. The non-occupational burden of skin diseases increases the costs to society (not the manufacturer), even when the sources are limited to consumer products.

"Skin disorders" are so common in California workplaces, that they are one of five categories used to describe reported [non-fatal injuries](#) (see Table 8). The issue is a long-standing problem in the state. For example, there is 1982 report from the Department of Industrial Relations, *Occupational skin disease in California (with special reference to 1977)*, and numerous studies in the literature (e.g., "[Latino farmworker perceptions of the risk factors for occupational skin disease](#)", published in 2006, and many from the 1980s).

For these reasons alone, chemicals classified as skin irritants and sensitizers also should be on the list. We argued for this addition in our comments about the first formal draft and refer DTSC to them again. In short, these hazard traits are already listed in Chapter 54. All kinds of chemicals have dermal effects, as noted in reports such as [The impact of REACH on occupational health with a focus on skin and respiratory diseases](#) and the [Proposed National Strategy for the Prevention of Dermatological Conditions](#). The effects can be devastating and many can be prevented.

Finally, OSHA provided more details about the importance of these "hazard traits" (as DTSC calls them) in the background to its promulgation of the revised HazComm Standard incorporating parts of the GHS system. See pages 17711 - in the [Federal Register](#).

For asthmagens, skin irritants, and other sensitizers, see:

- <http://www.cdc.gov/niosh/topics/skin> (NIOSH information about skin irritants and sensitizers);
- <http://www.aoecdata.org/ExpCodeLookup.aspx> (Association of Occupational and Environmental Clinics -- AOEC);
- European Union EC 1272/2008 Annex VI: (1) Category 1 respiratory sensitizers; (2) Category 1 skin sensitizers:
<http://esis.jrc.ec.europa.eu/index.php?PGM=cla> (*European Chemical Substance Information System*. Table 3.1, searching for H317 Skin

sensitizer Cat 1 -- may cause an allergic skin reaction -- and H334 Respiratory sensitizer Cat 1 -- may cause allergy or asthma symptoms or breathing difficulties if inhaled.); and

- http://www.cleanproduction.org/library/greenScreenv1-2/Green_Screen_v1-2_Supporting_Lists.pdf and search within for
 - 67 EU H-statement, H317 "May cause an allergic skin reaction",
 - 75 EU H-statement H334 "May cause allergy or asthma symptoms or breathing difficulties if inhaled",
 - 120 EU R-phrases R42 "May cause sensitization by inhalation",
 - 121 EU R-phrases R43 "May cause sensitization by skin contact",
 - 169 MAK Sensitizing Substances Sa (Respiratory),
 - 170 MAK Sensitizing Substances Sh (Skin),
 - 236 GHS-[COUNTRY] Category 1A (High Frequency of Occurrence), and
 - 237 GHS-[COUNTRY] Category 1B (Low to Moderate Frequency of Occurrence);
- National Institute for Occupational Safety and Health's 2009 *A strategy for assigning new NIOSH skin notations (Current Intelligence Bulletin 61)*, and the chemicals which they have evaluated using this strategy (http://www.cdc.gov/niosh/topics/skin/skin-notation_profiles.html); and
- EU *Dangerous Substances Directive* (67/548/EEC), being replaced June 1, 2015 by GHS-related *Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures* (with current phrases): R21: Harmful in contact with skin; R24: Toxic in contact with skin; R27: Very toxic in contact with skin; R38: Irritating to skin; R43: May cause sensitization by skin contact; R66: Repeated exposure may cause skin dryness or cracking; S24: Avoid contact with skin; S28: After contact with skin, wash immediately with plenty of ...(to be specified by manufacturer) (see <http://osha.europa.eu/en/legislation/directives/exposure-to-chemical-agents-and-chemical-safety/osh-related-aspects/regulation-ec-no-1272-2008-classification-labelling-and-packaging-of-substances-and-mixtures>).