NEW JERSEY INSTITUTE OF TECHNOLOGY (NJIT)

OSHA's Revision of the Hazard Communication Standard (HCS) to conform with the United Nations' (UN) Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

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OSHA has revised the Hazard Communication Standard (HCS) in 2012 in order to conform to the Globally Harmonized System (GHS). This report details the three key areas which were subjected to change: hazard classification, chemical container labeling, and safety data sheets (SDS's).

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Introduction

What is Hazard Communication?

In 1970, the Occupational Safety and Health Act was passed by United States Congress and signed by President Richard Nixon. It was created to help provide American workers the right to a hazardous free workplace. As a result of the passage of the Occupational Safety and Health Act of 1970, the Occupational Safety and Health Administration (OSHA) federal agency was created and given power to set and enforce Occupational Safety and Health standards (or regulations) for the workplace.

There are various OSHA standards that specify the methods that employers need to use to protect their employees from workplace hazards. There are OSHA standards for general, construction, maritime, and agriculture industries. These standards help employers protect their workers as well as reduce the number or workplace deaths, injuries, and illnesses.

More specifically, the OSHA's Hazard Communication Standard (HCS) is aimed to make sure that information about physical and health hazards of chemicals in the workplace along with their accompanying safety (protective) measures is provided to all affected employees. This means that OSHA's Hazard Communication Standard (HCS) protects all employees exposed to hazardous chemicals in all industries. The Hazard Communication Standard (HCS) furthermore means that employees have a need and a right to know the hazards (physical and heath) as well as the chemical product identification of all chemicals they are exposed to in the workplace. Employees also need to know what protective measures such as engineering, administrative, and personal protective equipment controls are required or recommended in order to prevent any injuries, illnesses, or even death with the use of hazardous chemicals.

The HCS has requirements to assure that the hazards of all chemicals manufactured, used, or imported into workplaces in the U.S. are evaluated and that the hazard information is communicated to the affected employers and exposed employees. For chemical manufacturers and importers, labels on containers and material safety data sheets (MSDS's) have to be provided to employers to communicate the hazard information they collect from their evaluations.

Additionally, all applicable employers (manufacturing and importing included) must have a hazard communication program that includes a written plan to communicate hazard information to their employees. The written plan states the policies, procedures, and important components of the hazard communication program such as labeling of containers, MSDS's, and training guidelines. The hazard communication program ensures that all employers obtain the hazard information they need to communicate and train their employees appropriately as well as develop and implement employee protection programs.

What is the Globally Harmonized System?

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) is a worldwide progression to hazard communication that provides agreed international consensus for the criteria for classification of chemical hazards as well as a standardized method to container labeling components and safety data sheets (SDS’s). Many hazard communication experts from numerous countries and international organizations negotiated and contributed in the development of the GHS [1]. It is based on major current systems around the world.

The United Nations (UN) adopted the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) in 2003 [1]. The goal of GHS is to improve human health and the environment protection, simplify international trade of chemicals, reduce requirements for chemical retesting/reevaluation, and to support all countries in the safe management of chemicals

[2]. The GHS consists of criteria for classification of health, physical and environmental hazards. It also contains standardized label components for hazardous chemicals that are assigned to these hazard classes and categories, and provide the appropriate signal words, pictograms, and hazard and precautionary statements to communicate the hazards to users. A standardized format safety data sheets (SDS's) is also provided. The U.S. was an involved contributor in the development of the GHS and is a recognized member of the UN to maintain and manage the implementation of the system. United Nations' GHS is not a mandatory implementation for its member countries but instead is considered recommendations. These recommendations which can be adopted and implemented by regulatory authorities (such as OSHA) to establish mandatory regulations for hazard communication which meet national requirements and at the same time assuring that the specific provisions are aligned with the GHS [3].

Why Revise the Hazard Communication Standard?

The Hazard Communication Standard (HCS) was revised (updated) in 2012 in order to conform it to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Revision of the Hazard Communication Standard (HCS) will provide a standardized and understandable approach to the classification and communication of chemical hazards. It will also provide harmonized definitions for hazards, specific criteria for chemical container labels, and a standardized format for safety data sheets (SDS's). OSHA has revised the HCS to conform it to the GHS to increase the quality and consistency of information communicated to the employees, employers, and chemical users. HCS 2012 will also help reduce the confusion and increase understandability of hazards, improve risk management (for employers, employees, and users), facilitate training, and help address different educational and literacy problems. Another benefit pertains to commerce and business since it will improve international trade of chemicals

as a result of more countries adopting/conforming to the GHS in which will make it easier to those countries to trade chemicals since their chemical products will be labeled and provided SDS's that are uniform. U.S. Department of Labor Secretary Hilda L. Solis anticipates that the HCS 2012 will prevent more than 500 injuries, over 40 deaths, and lead to $400+ million in improved employee productivity each year once the HCS 2012 is fully implemented [4].

Countries that adopt/implement the GHS will recognize its major influence on the chemical manufacturers, importers, and distributors, end users of chemicals, as well as laboratory employees such as chemists and various scientific professionals [5].Currently, there are 67 countries that have adopted/implemented the GHS or are in the process of adopting/implementing the GHS [1]. Some of these countries include the United States of America, Argentina, Australia, Canada, France, Germany, Italy, Japan, Malaysia, Mexico, Russia, Spain, and the United Kingdom. With all the international support for the GHS, OSHA has realized that the unified chemical classification and labeling system of the GHS will ultimately be beneficial to end users of hazardous chemicals. It will be beneficial to end users because it will promote increase comprehensibility of the hazards posed by hazardous chemicals.

A study conducted out of Malaysia using Comprehensibility Testing (CT) modules [6] was executed among 150 industrial workers from 25 employers. The Comprehensibility Testing (CT) modules were in person questionnaires/surveys in which 150 industrial workers were subjected to in order to evaluate their comprehensibility of the GHS. The objectives of the CT modules included a general interview (determine gender, level of education, and current position at work) and test the workers' understanding of GHS labels, SDS, and pictograms. The in person questionnaires/surveys (CT modules) consisted of providing each worker a specified chemical label along with three SDS's and asking each of them to identify the appropriate SDS related to

the given chemical label followed by recalling/identifying components from the label and SDS. The study found that most of the workers were able to recall chemical hazard information by way of the given chemical label and the appropriate selected SDS. It also found that the pictograms, hazard statements, precautionary statements, health hazards, physical hazards, handling and storage, and protective equipment (clothing) were the most understood chemical label and SDS components.

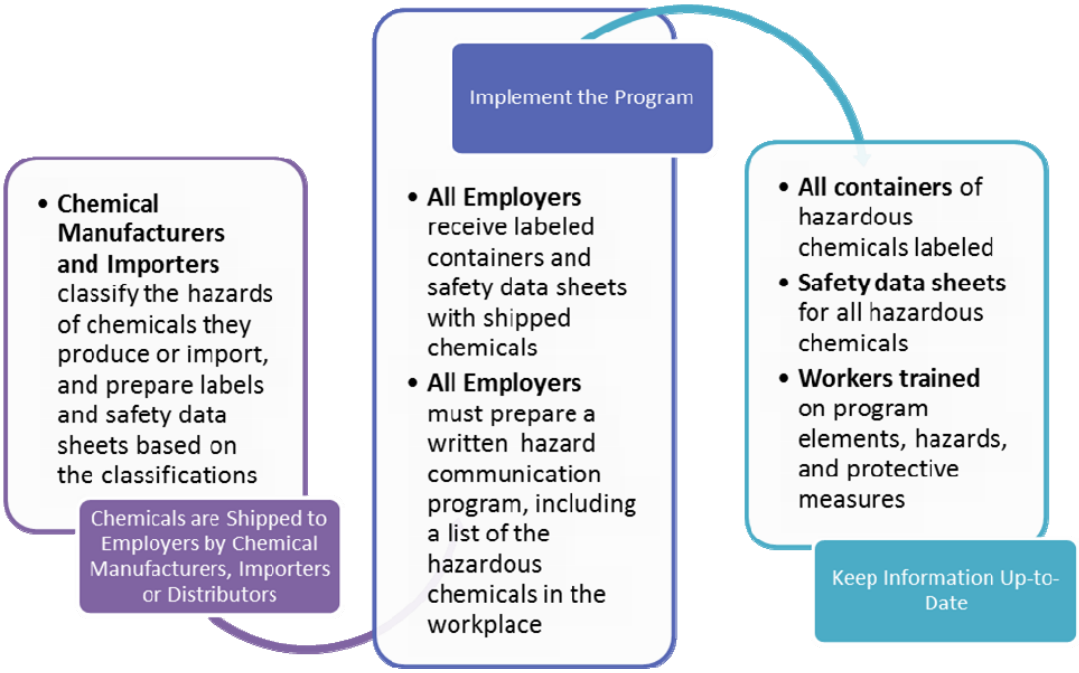

Figure 1: HCS 2012 Requirements for Chemical Manufacturers, Importers, and Employees [7]

Major Changes to the Hazard Communication Standard

The revised Hazard Communication Standard (HCS) will continue to require chemical manufacturers and importers to evaluate the chemicals they manufacture or import and supply hazard information to employers and employees by creating safety data sheets and placing labels on chemical containers. The big difference was that the old HCS permitted all chemical manufacturers and importers to communicate hazard information on chemical container labels and material safety data sheets (MSDS's) in any format they want. The revised HCS presents a

specified set of harmonized criteria for hazard classification of chemicals according to their health and physical hazards rather than hazard determination as in the old HCS. It also defines standardized label components for chemical container labeling in addition to a standardized format safety data sheets (SDS's). In general, there will be three key features of change in the revised HCS 2012: hazard classification, chemical labeling, and SDS's. The effective dates for HCS 2012 provisions can be seen in Table 1. It illustrates the phase-in dates of the requirements pertaining to HCS 2012. OSHA has decided to implement HCS 2012 in the U.S. as a phase-in period in order to make the transition successful and convenient for all applicable groups. Therefore, the phase-in period should give the applicable parties enough time to prepare themselves with the changes HCS 2012 will present. The first effective date (Dec. 1, 2013) applies to employers in which they will have to train employees on the current change of the new label components and safety data sheets. Next effective date (Jun. 1, 2015) applies to chemical manufacturers, importers, distributors, and employers in all applicable groups will have to comply with all HCS 2012 provisions with one exception. This exception pertains to the next effective date (Dec. 1, 2015) that applies to distributors in which they will have to comply with HCS 2012 chemical container labeling. The final effective date (Jun. 1, 2016) applies to employers in which they have update workplace labeling, hazard communication program, and provide additional employee training if at all needed. As for the time up to the effective dates, applicable groups may comply with HCS 1994, HCS 2012, or both.

Table 1. Phase-in dates required under the revised HCS 2012.

Effective Date	Requirement(s)	Applicable Group
December 1, 2013	Employees must be trained on the new label components and safety data sheet (SDS) format.	Employers
June 1, 2015	Compliance with all revised provisions of HCS 2012, with the exception of Distributors pertaining to HCS 2012 chemical container	Chemical Manufacturers, Importers, Distributors and Employers

	labels (Can use HCS 1994 or HCS 2012 labels).	
December 1, 2015	The Distributor shall not ship chemical containers labeled by the chemical manufacturer or importer unless it is a HCS 2012 label	Distributors
June 1, 2016	Update/Revise workplace labeling and hazard communication program as necessary, and give additional training for employees for newly identified physical or health hazards.	Employers
Phase-in Period to the Effective Dates Noted Above	May comply with either HCS 2012, or HCS 1994, or both.	Chemical Manufacturers, Importers, Distributors and Employers

Hazard Classification.

Hazard classification will now specify definite criteria to address health and physical hazards along with the classification of chemical mixtures. The definitions of hazard have been modified to be able to establish improved definite criteria for classification of health and physical hazards, and classification of mixtures. The definite criteria will be beneficial such that it will ensure that evaluations of health and physical hazards are consistent across chemical manufacturers and importers. As a result, chemical container labels and SDS will entail more accurate information on the chemical products.

Under HCS 2012, hazard classification will be specific and detailed. HCS 2012 includes a method of a classifying as opposed to just determining whether a chemical is hazardous or not (as in HCS 1994). Each health or physical hazard will be considered a hazard class which could be classified further in the criteria into numerous hazard categories based on the severity of the hazard. By enlisting a chemical into a hazard class along with its hazard category if needed will be the new method of classification in HCS 2012 which includes determining the hazards and the severity of the effects from chemicals.

According to the HCS 2012, OSHA has decided to adopt all of GHS's 26 hazard classes. This includes 16 physical hazard classes and 10 health hazard classes which can be seen in

Figure 2. Physical hazards include explosives, flammable gases, flammable aerosols, oxidizing gases, gases under pressure, flammable liquids, flammable solids, self-reactive substances, pyrophoric liquids, pyrophoric solids, self-heating substances, substances that emit flammable gases when in contact with water, oxidizing liquids, oxidizing solids, organic peroxides, and corrosive to metals. Health hazards include acute toxicity, skin corrosion/irritation, serious eye damage/eye irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicology, target organ systemic with single exposure, target organ systemic with repeated exposure, and aspiration toxicity.

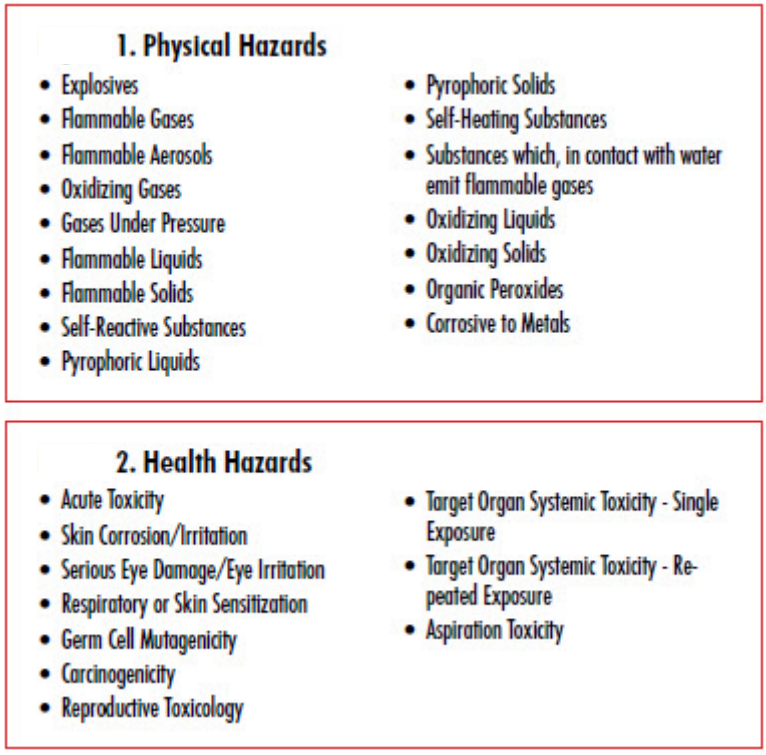

Figure 2: HCS 2012 List of Hazard Classes for Physical and Health Hazards [8]

HCS 2012 has also established mixture rules which are specific to each hazard class. Every hazard covered is considered a hazard class, such as acute toxicity or carcinogenicity. See Figure 3 and 4 to view the hazard classification (hazard class and hazard category) for acute toxicity health hazards and explosive physical hazards. Both figures show that many of these

hazard classes are also classified further into a hazard category to identify the level of severity of the effect. The classification method is similar to the hazard determination method and the full range of information available. It remains a self-classification approach in which chemical manufactures will continue to be responsible for determining the hazards of the chemicals they manufacture or import. It will continue to be based on all available information and that there will not be a requirement of any testing. Hazard classification also includes details and parameters to help keep consistency. OSHA includes the details for performing hazard classification in HCS 2012 Appendix A and Appendix B for health hazards and physical hazards respectively [9].

Note: 1 denotes most hazardous and 4 denotes less hazardous.

Hazard Class	Hazard Category			
Acute Toxicity	1	2	3	4
Skin Corrosion/ Irritation	1A	1B	1C	2
Serious Eye Damage/ Eye Irritation	1	2A	2B	
Respiratory or Skin Sensitization	1			
Germ Cell Mutagenicity	1A	1B	2	
Carcinogenicity	1A	1B	2	
Reproductive Toxicity	1A	1B	2	Lactation
STOT – Single Exposure	1	2	3	
STOT – Repeated Exposure	1	2		
Aspiration	1			
Simple Asphyxiants	Single Category			

Figure 3: HCS 2012 Classification of Health Hazards of Acute Toxicity [7]

Note: 1, Type A, denotes most hazardous and 4, Type G denotes less hazardous.

Hazard Class	Hazard Category						
Explosives	Unstable Explosives	Div 1.1	Div 1.2	Div 1.3	Div 1.4	Div 1.5	Div 1.6
Flammable Gases	1	2					
Flammable Aerosols	1	2					
Oxidizing Gases	1						
Gases under Pressure Compressed Gases Liquefied Gases Refrigerated Liquefied Gases Dissolved Gases	1						
Flammable Liquids	1	2	3	4			
Flammable Solids	1	2					
Self-Reactive Chemicals	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Pyrophoric Liquids	1						
Pyrophoric Solid	1						
Pyrophoric Gases	Single category						
Self-heating Chemicals	1	2					
Chemicals, which in contact with water, emit flammable gases	1	2	3				
Oxidizing Liquids	1	2	3				
Oxidizing Solids	1	2	3				
Organic Peroxides	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Corrosive to Metals	1						
Combustible Dusts	Single category						

Figure 4: HCS 2012 Classification of Physical Hazards of Explosives [7]

In the old HCS (1994) there was a standardized mixture cutoff. For instance, if a mixture had 0.1% or greater of a carcinogen or 1% for all other effects, it was considered a hazardous chemical. With the new HCS 2012, OSHA has adopted GHS' tiered method pertaining to mixtures that is specific for each health hazard class which will have a specific method. The first step is the use of available test data on the mixture as a whole to classify the mixture based on the substance criteria. The next step if you don't have this data is to use bridging principles to extrapolate from other data such as dilution principles or batching. Bridging principles that may be used are specific to each hazard class and are indicated in each criteria chapter for a hazard class. Lastly, you can fairly estimate hazards based on known information regarding the component of the mixtures, such as cutoffs.

General underlining principles for mixture classification are unchanged. For example, the lower percentage of the concentration of a hazardous component you have in a mixture, the less probable the mixture will impose that hazardous effect. Now for the exception that makes the

rule. Several of the chronic health hazards, such as carcinogenicity or reproductive health effects, the tiered method is not used and the primary mixture rule is based on the cutoff value. HCS 2012 indicates that chemical manufacturers and importers could still depend on the information provided on the components in the SDS except they have a known reason to know that it is not accurate.

Chemical Container Labeling.

Chemical container labels and other types of warning techniques have been for the most part rewritten and revised. The HCS 1994 was a performance-oriented provision which allowed chemical manufacturers or importers to communicate information on chemical labels and MSDS's in whatever format they wanted. HCS 1994 presented minimal requirements that ship chemical containers which had to be labeled with the identity, appropriate hazard warnings, and the responsible party. Now moving forward, the HCS 2012 entails that chemical container labels will be a specification-oriented provision. The HCS 2012 has developed specific label components that will be required to be on the chemical container label. Table 2 includes these requirements as well as those from HCS 1994. HCS 2012 requirements include the product identifier, contact information of the responsible party, hazard statement, the signal word, precautionary statement(s), and pictograms. Through the classification process, OSHA specifies the information by hazard class and hazard category.

Table 2. Comparison of label components required under the HCS 1994 and HCS 2012.

HCS 1994 (Old Standard)	HCS 2012 (Revised Standard)
• Identity of the hazardous chemical(s)	• Product identifier
• Name and address of the chemical manufacturer, importer, or other responsible party	• Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party
• Appropriate hazard warning(s)	• Prescribed hazard statement(s) (e.g., "Harmful if inhaled") • Prescribed signal word ("Danger" or "Warning") • Prescribed precautionary statement(s)

	regarding: o Prevention (e.g., “Use only outdoors or in a well-ventilated area”) o Response (e.g., “Get medical advice/attention if you feel unwell”) o Storage (e.g., “Store locked up”) o Disposal (e.g., “Dispose of contents/container in accordance with o local regulations”) • Prescribed pictogram(s) (e.g., Skull and Crossbones)

The product identifier is the name or number used for a hazardous chemical must be both on a chemical label and in the SDS. A hazard statement is a statement assigned to a hazard class and hazard category that explains the type of the hazard of the chemical along with if suitable, the degree of hazard. For instance for a flammable gas hazard class with a hazard category 1, the suitable hazard statement would be “Extremely Flammable Gas”. In contrast, a flammable gas hazard class with a hazard category 2, the hazard statement would be “Flammable Gas”. The signal word is a word used to show the appropriate severity level of the hazard. “Danger” and “Warning” are signal words used to show the more severe hazard and the less severe hazard respectively. The hazard category rating will propose a challenge to laboratory employees who frequently have been accustomed of using the NFPA Diamond rating system because it is conflicting with the HCS 2012 hazard category rating system [4]. NFPA Diamond rating system ranks hazards from 0 (no hazard) to 4 (most hazardous) as the HCS 2012 hazard category rating system ranks hazards numerically from 1 (most hazardous) to higher numbers (less hazardous) or alphabetically from A (most hazardous) to higher letters (less hazardous) [4]. The HCS 2012 hazard category rating system will become the new readily available hazard rating system to employers and employees since there was none other than the NFPA Diamond rating system which was principally designed for fire fighters.

Next, the precautionary statement denotes a phrase that describes suggested safety measures that should be implemented in order to reduce or prevent adverse effects as a result of an exposure to a chemical hazard, inappropriate chemical storage, or inappropriate chemical handling. At last is the pictogram which represents an image that could consist of a symbol in addition to other graphic components such as a border, background pattern, or color that is projected to communicate specific information about the hazards of a chemical. OSHA has picked up eight pictograms which are designated under the standards (see Figure 5).

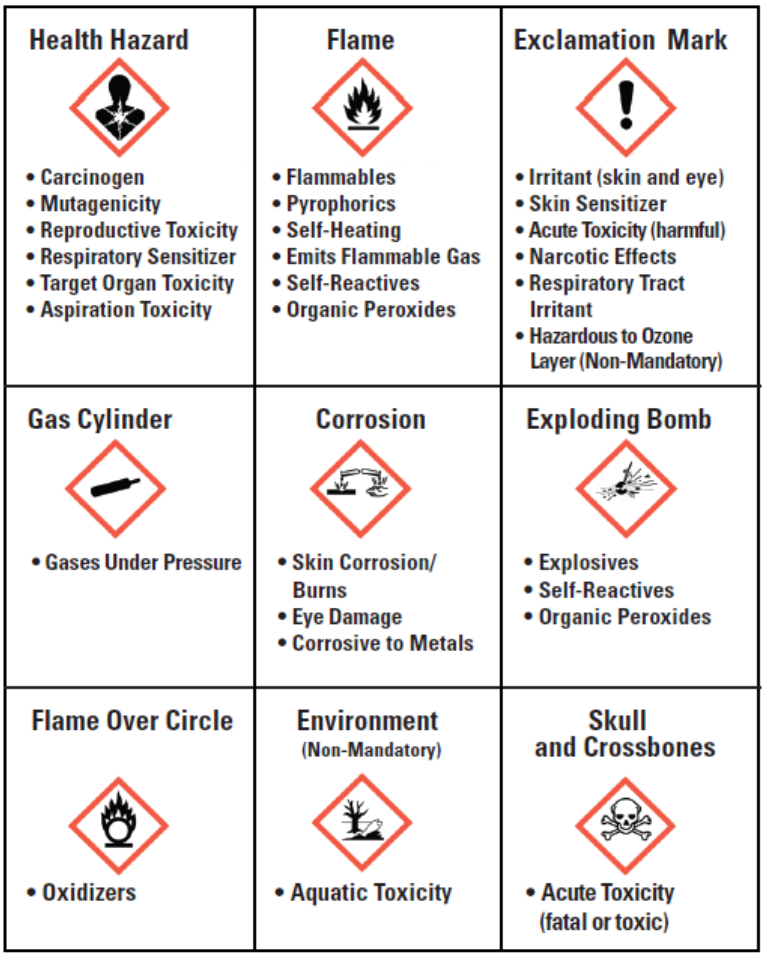

Figure 5: HCS 2012 Pictograms and Hazards [10]

The process for getting the information for the labels is the same as under the GHS. Once the hazards of a chemical has been classified using the HCS 2012 criteria, Appendix C (in HCS

2012) specifies the hazard class and hazard category the label components that must be on the label [9]. Appendix C is in essence an outlined method to chemical container labeling. Once the classifications of the hazards are completed, Appendix C should be used to look the hazards up and determine how to communicate the required information. Once all the information required is obtained, then the label can be created. See Figure 6 for an example of a sample label for a chemical container which will now be the used with HCS 2012.

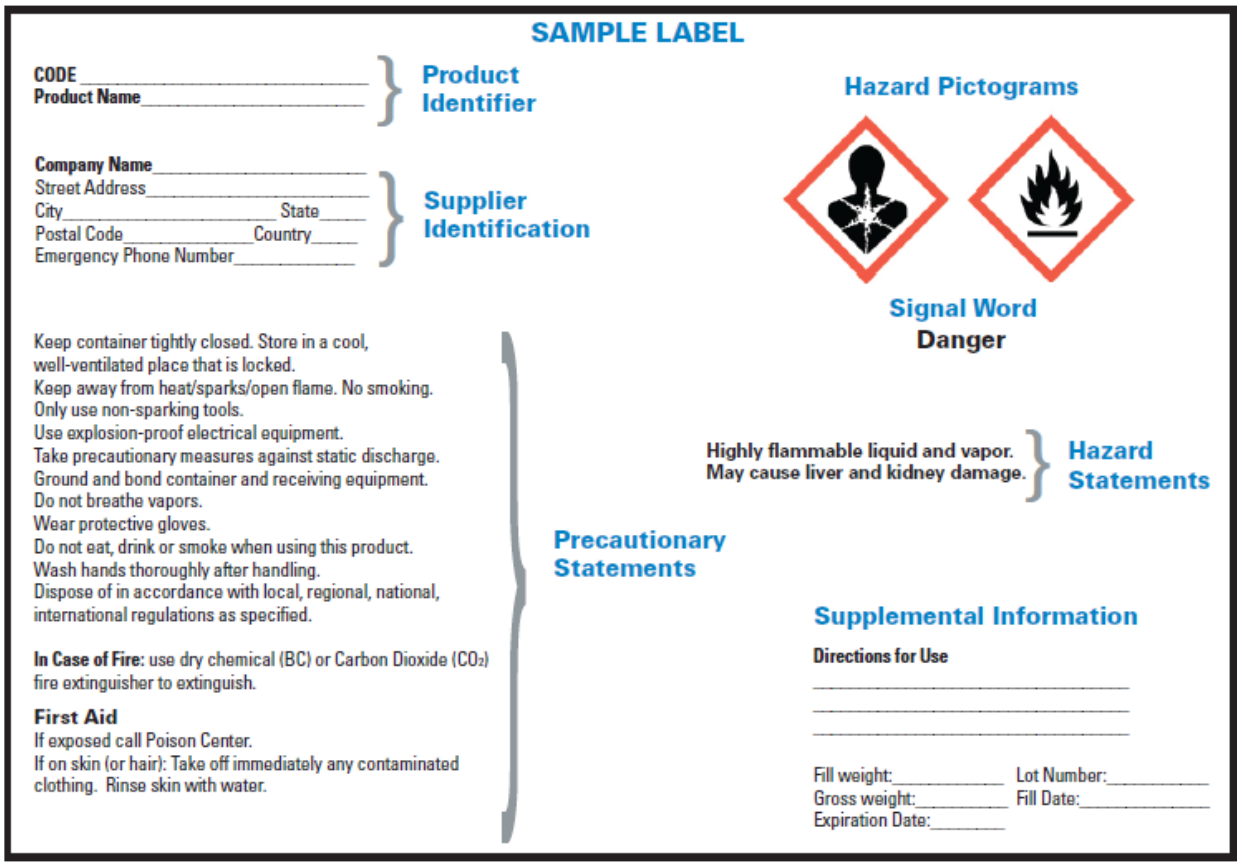

Figure 6: HCS 2012 Sample Label for Chemical Container [10]

Safety Data Sheets (SDS).

The old HCS1994 specified what information was required to be included on the Material Safety Data Sheet (MSDS) but it did not indicate a format for the order of information. This meant that chemical manufacturers and importers were permitted to use any kind of format they wanted given that the required information was provided. Now the required information essentially remains unchanged with the HCS 2012. The differences will be that the Material Safety Data Sheet (MSDS) will now be recognized as Safety Data Sheet (SDS) and that the SDS will need to consist of a standardized 16 section format that contains specified section headings along with what information is to be provided under each heading. The standardized 16 section format will also require a specified order for the section headings. Below, Table 3 illustrates the ordered section headings along with their descriptions.

Table 3. Required 16 section format for Safety Data Sheets under HCS 2012.

Section 1: Identification	Contains product identifier: manufacturer or distributor name, address, phone number, emergency phone number, recommended use, and restrictions on use.
Section 2: Hazard(S) Identification	Contains all hazards regarding the chemical that required as label components.
Section 3: Composition/Information on Ingredients	Contains information on chemical ingredients and/or trade secret claims if applicable.
Section 4: First-Aid Measures	Contains important symptoms/effects (acute and/or chronic) and required treatment.
Section 5: Fire-Fighting Measures	Provides appropriate extinguishing techniques, equipment, and also specifies chemical hazards from fire.
Section 6: Accidental Release Measures	Provides emergency procedures, protective equipment, and proper methods of containment and cleanup.
Section 7: Handling and Storage	Provides precautions for safe handling and storage and also includes chemical incompatibilities.
Section 8: Exposure Controls/Personal Protection	Provides OSHA's Permissible Exposure Limits (PEL's), Threshold Limit Values (TLV's), appropriate engineering controls, and personal protective equipment (PPE).
Section 9: Physical and Chemical Properties	Provides the chemical's characteristics.
Section 10: Stability and Reactivity	Provides chemical stability and possibility of

	hazardous reactions.
Section 11: Toxicological Information	Explains possible routes of exposure, related symptoms, acute and chronic effects, and numerical measures of toxicity.
Section 12: Ecological Information	*Non-mandatory
Section 13: Disposal Considerations	*Non-mandatory
Section 14: Transport Information	*Non-mandatory
Section 15: Regulatory Information	*Non-mandatory
Section 16: Other Information	Contains the date of preparation or last revision.

Discussion

The HCS 1994 has been undoubtedly effective. It has achieved to drastically reduce fatalities, injuries, and illnesses associated to chemical exposures. Nevertheless, too many employees happen to still be dying, being injured, or becoming ill as a result of these chemical exposures in the workplace. Evidence shown by statistical data from the Bureau of Labor Statistics (BLS) within the Department of Labor (DOL) has revealed that there are tens of thousands of illnesses each year related to chemical exposure [11]. Therefore, HCS 2012 is being implemented by OSHA in order to further reduce fatalities, injuries, and illnesses associated to chemical exposures. HCS 2012 expectations are to increase the quality and consistency of information communicated to the employees, employers, and chemical users.

In addition to HCS 2012, there is also a requirement for employers to update/revise workplace labeling and hazard communication program as necessary, and give additional training for employees for newly identified physical or health hazards. This includes any employer documents that pertain to their hazard communication written program. As supplemental information, Appendix A is included in this report in order to illustrate how an employer (ex. New Jersey Institute of Technology) updates/revises a document (Employee Hazard Communication) that relates to its hazard communication written program.

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Appendix A

NJIT Employee Hazard Communication Document (Complies with HCS 1994):

NJIT New Jersey's Science & Technology University	UNIVERSITY SAFETY ENVIRONMENTAL MANAGEMENT SYSTEM University Heights Newark, New Jersey 07102	**Document Control No. USEMS SOP S - 4 - 2**
Document Title: Employee Hazard Communication **29 CFR 1910.1200**		

1.0 Purpose and Scope

1.1 The purpose of this procedure is to describe the program for informing all employees of the risks of chemical hazards associated the work place and how they can protect themselves.

2.0 Responsibilities

2.1. The Director for Environmental Health and Safety with the assistance of the Department Environmental Health and Safety Officer (DESHO is responsible for administering the *HAZCOM Plan* throughout the designated department).

2.2 The Director for Environmental Health and Safety with the assistance of the DESHO is responsible for reviewing the policies outlined in the *NJIT Chemical Hygiene Plan* and the *HAZCOM Plan* with Department Chairs and Facility Managers.

2.3 The designated DESHO in each department is responsible for implementation of the HAZCOM Plan in their respective departments

2.4 The Principal Investigator is responsible for conducting an inventory of the workplace for chemicals and toxic substances, maintaining a current record of the inventory, and ensuring a MSDS is available for the chemicals inventoried and accessible to all employees that are potentially exposed.

2.5 The Purchasing Department will insure that on all chemical orders instructions are printed for the supplier to send a copy of the MSDS to the Office of Environmental Health and Safety.

2.6 The DESHO is responsible for the training education and information available to each new employee, transferred employee, and employee observed not following the program requirements.

3.0 Assessment, Prevention and Control Procedures

3.1 Copies of the *NJIT Hazard Communication Program* will be available on-line. The central file of *MSDS Files* is maintained in the Public Safety Office and are accessible 24 hours a day, seven days a week. The master *MSDS Files* is available during normal business hours in the Office of Environmental Health and Safety. In addition, to MSDS, a copy of the last chemical inventory by facility will be maintained in both offices.

3.2 The Director of Environmental Health and Safety with the assistance of the DESHO will:

A. Train anyone providing assistance implementing the Hazard Communication Plan (i.e., facility managers or department supervisor).

B. Maintain an inventory of hazardous chemicals for the Department by facility.

C. Submit the inventory for the Department annually to the University Safety and Environmental Program Director for review and compilation toward the Community Right to Know Plan (NJIT SOP 4-E-9)

D. Maintain training records of HAZCOM training and periodically submit to the Assistant Director.

E. Identify non-routine task that may involve the introduction of new chemicals into the workplace.

3.3 The Department Environment, Safety and Health Officer will:

A. Identify chemicals found in the workplace, review the associated hazards, and adverse effects.

B. Ensure the *Chemical Hygiene Plan* and *HAZCOM Plan* are current and available to all employees.

C. Communicate to employees the chemical hazards involved when performing non-routine tasks.

D. Instruct employees relocated to new facilities/areas the physical and health hazards associated with the chemicals in their work area.

3.4. The DESHO reviews the *HAZCOM Plan* with new employees, at the time of hire, and documents this review on Hazard Communication Training Documentation Form

3.5 All Staff will:

A. Review the *HAZCOM Plan* during the first 2 weeks of employment.

B. Be familiar with MSDS and the location of the *MSDS File/Binder.*

C. Label secondary containers upon transfer of chemicals.

D. Attend refresher training provided by DESHO as required.

E. Consult with the Facility Manager, Department Chair and/or DESHO regarding the chemical hazards involved when performing non-routine tasks.

3.6 All hazardous chemical containers must be labeled unless the contents are designated for immediate and complete use during the shift. Labeling of containers will be in accordance with *The NFPA Hazard Identification System.*

3.7 Chemical inventories (e.g., exposure records) must be kept for at least 30 years. These records should identify the chemical, where it was used, and when it was used. The Department Environmental Safety and Health Officer is responsible for submitting chemical inventories to the University Safety and Environmental Program Director for archival.

3.8 When relevant, results of environmental and biological monitoring, designated as exposure records and analyses using exposure or medical records, will be preserved and maintained for at least 30 years. The University Safety and Environmental Program Director is responsible for archival of these documents.

3.9 Medical records must be kept for the duration of employment plus 30 years. The University Safety and Environmental Program Director is responsible for archival of these documents.

3.10 Research staff using/storing hazardous chemicals in a facility must provide MSDS sheets to the DESHO to be included in the *MSDS File/Binder.* These chemicals and MSDSs will be inventoried and indexed separately from facility inventories.

3.11 Environmental Health and Safety and/or the Director of Environmental Health and Safety will *audit* the *HAZCOM Plan annually.*

NJIT Employee Hazard Communication Document (Complies with HCS 1994 and 2012):

NJIT New Jersey's Science & Technology University	UNIVERSITY SAFETY ENVIRONMENTAL MANAGEMENT SYSTEM University Heights Newark, New Jersey 07102	**Document Control No. USEMS SOP S - 4 - 2**
Document Title: Employee Hazard Communication		

1.0 Purpose and Scope

1.1 The purpose of this procedure is to describe the program for informing all employees of the risks of chemical hazards associated the work place and how they can protect themselves.

2.0 Responsibilities

2.1. The Director for Environmental Health and Safety with the assistance of the Department Environmental Safety and Health Officer (DESHO is responsible for administering the *HAZCOM Plan* throughout the designated department).

2.2 The Director for Environmental Health and Safety with the assistance of the DESHO is responsible for reviewing the policies outlined in the *NJIT Chemical Hygiene Plan* and the *HAZCOM Plan* with Department Chairs and Facility Managers.

2.3 The designated DESHO in each department is responsible for implementation of the HAZCOM Plan in their respective departments

2.4 The Principal Investigator is responsible for conducting an inventory of the workplace for chemicals and toxic substances, maintaining a current record of the inventory, and ensuring a (M)SDS is available for the chemicals inventoried and accessible to all employees that are potentially exposed.

2.5 The Purchasing Department will insure that on all chemical orders instructions are printed for the supplier to send a copy of the (M)SDS to the Office of Environmental Health and Safety.

2.6 The DESHO is responsible for the training education and information available to each new employee, transferred employee, and employee observed not following the program requirements.

Note: As of June 1, 2015, SDS (Safety Data Sheets) will be required to be provided by all chemical manufacturers in order to conform to the revised HAZCOM 2012 standard. (M)SDS or MSDS (Material Safety Data Sheets will be replaced as new SDS are received to the Office of Environmental Health and Safety.

3.0 Assessment, Prevention and Control Procedures

3.1 Copies of the *NJIT Hazard Communication Program* will be available on-line. The central file of (*M)SDS Files* is maintained in the Public Safety Office and are accessible 24 hours a day, seven days a week. The master (*M)SDS Files* is available during normal business hours in the Office of Environmental Health and Safety. In addition, to (M)SDS, a copy of the last chemical inventory by facility will be maintained in both offices.

3.2 The Director of Environmental Health and Safety with the assistance of the DESHO will:

A. Train anyone providing assistance implementing the Hazard Communication Plan (i.e., facility managers or department supervisor).

B. Maintain an inventory of hazardous chemicals for the Department by facility.

C .Submit the inventory for the Department annually to the University Safety and Environmental Program Director for review and compilation toward the Community Right to Know Plan (NJIT SOP 4-E 9)

D. Maintain training records of HAZCOM training and periodically submit to the Assistant Director.

E. Identify non-routine task that may involve the introduction of new chemicals into the workplace.

3.3 The Department Environment, Safety and Health Officer will:

A. Identify chemicals found in the workplace, review the associated hazards, and adverse effects.

B. Ensure the *Chemical Hygiene Plan* and *HAZCOM Plan* are current and available to all employees.

C. Communicate to employees the chemical hazards involved when performing non-routine tasks.

D. Instruct employees relocated to new facilities/areas the physical and health hazards associated with the chemicals in their work area.

3.4. The DESHO reviews the *HAZCOM Plan* with new employees, at the time of hire, and documents this review on Hazard Communication Training Documentation Form

3.5 All Staff will:

A. Review the *HAZCOM Plan* during the first 2 weeks of employment.

B. Be familiar with (M)SDS and the location of the (*M)SDS File/Binder*.

C. Label secondary containers upon transfer of chemicals.

D. Attend refresher training provided by DESHO as required.

E. Consult with the Facility Manager, Department Chair and/or DESHO regarding the chemical hazards involved when performing non-routine tasks.

3.6 All hazardous chemical containers must be labeled unless the contents are designated for immediate and complete use during the shift. Labeling of containers will be in accordance with *The NFPA Hazard Identification System* or conform to the *Global Harmonizing System (GHS)*.

3.7 Chemical inventories (e.g., exposure records) must be kept for at least 30 years. These records should identify the chemical, where it was used, and when it was used. The Department Environmental Safety and Health Officer is responsible for submitting chemical inventories to the University Safety and Environmental Program Director for archival.

3.8 When relevant, results of environmental and biological monitoring, designated as exposure records and analyses using exposure or medical records, will be preserved and maintained for at least 30 years. The University Safety and Environmental Program Director is responsible for archival of these documents.

3.9 Medical records must be kept for the duration of employment plus 30 years. The University Safety and Environmental Program Director is responsible for archival of these documents.

3.10 Research staff using/storing hazardous chemicals in a facility must provide MSDS sheets to the DESHO to be included in the *MSDS File/Binder.* These chemicals and MSDSs will be inventoried and indexed separately from facility inventories.

3.11 Environmental Health and Safety and/or the Director of Environmental Health and Safety will *audit* the *HAZCOM Plan annually.*

Note: As of June 1, 2015, compliance with the GHS will be required and replace *The NFPA Hazard Identification System*.

Note: As of June 1, 2016, NJIT will only have SDS on file in order to comply with the revised HAZCOM 2012 standard. All MSDS will be replaced indefinitely.

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