



Department of the Air Force  
HQ AEDC (AFMC)  
Arnold AFB, TN 37389

## Safety, Health, and Environmental Standard

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**Title:** HAZARD COMMUNICATION  
**Standard No.:** A9  
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The provisions and requirements of this standard are mandatory for use by all personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

Approved:

Contractor/ATA Director  
Safety, Health, and Environmental

Air Force Functional Chief

## SHE Standard A9, Hazard Communication

### Record of Review/Revision

(Current revisions are highlighted in yellow and marked with a vertical line in the right margin.)

Date/POC	Description
04/25/14 M.B. Bragg	Revised paragraph 1.3.7 to include changes in AFI90-821 specifying HazCom requirements for Contractor and AF Medical Clinics. The changes refer to medications where personnel administering come in direct contact with the medications such as counting, crushing, injecting, etc. This change effects only Clinic operations.
08/30/2013 M.B. Bragg	Changes made to allow compliance with the OSHA Hazard Communication Global Harmonization Standard (GHS), revised definitions, added EESOH-MIS, MSDS changed to SDS to match revised OSHA standard etc. Multiple changes that relate to OSHA standard changes. Responsibilities and duties of offices did not change.
04/26/13	Added NFAC supplement; no other change.
03/2011 M. B. Bragg	Minor revision: Removed reference to Sentinel and replaced with HMMS; added information to provide clarity with regard to ordering and maintenance of MSDS and HAZCOM notebooks; updated references.
09/2007 M. B. Bragg; Dave Wetzel	Minor revision - Reorganized and Expanded Exemptions, Added information to provide clarity, Added Annex C Workplace Specific Training Template, Added AFI90-821 as a reference.
04/2006 M. B. Bragg	Minor revision – Expanded Applicability, Standardized Hazard Communication Program Elements, Provides Chemical Listing Template for Users. Added Chemical Inventory annex.
10/2004 M.B. Bragg	Major revision and reformatting to comply with COI. Eliminates and incorporates SHE Standard B9 Container Labeling



## Safety, Health, and Environmental Standard

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### HAZARD COMMUNICATION

#### 1.0 INTRODUCTION/SCOPE/APPLICABILITY

- 1.1 Introduction – This Hazard Communication Standard (HCS) is based on the principle that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working.
- 1.2 Scope – This standard contains AEDC requirements to achieve compliance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) and Air Force Instruction (AFI) 90-821 Hazard Communication, 30 March 2005.
- 1.3 Applicability – This standard applies to work areas where employees are potentially exposed to hazardous chemicals. It serves as the written Hazard Communication Program for AEDC. It specifies the requirements and responsibilities for implementing a written program and for maintaining chemical inventories, Safety Data Sheets (SDSs), container labeling and employee information and training. This standard does not apply to the following:
  - 1.3.1 Hazardous wastes as defined by the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976.
  - 1.3.2 Hazardous substances subject to a remedial action or removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
  - 1.3.3 Tobacco or tobacco products.
  - 1.3.4 Wood or wood products that have not been chemically treated or will not be processed and only present a fire hazard.
  - 1.3.5 Articles (as that term is defined in Section 3 Definitions).
  - 1.3.6 Food and alcoholic beverages.
  - 1.3.7 Any drug, when it is in solid, final form for direct administration to the patient (e.g., tablets or pills); and drugs intended for personal consumption by employees while in the workplace (e.g. first aid supplies). **Per AFI90-821: Tablets, capsules, or pills which are designed to be dissolved or crushed by employees prior to administration to the patient are no longer exempt from the Hazcom Standard. Also no longer exempt is the counting of tablets/pills/capsules for packaging and processing, even when in their solid, final form. Liquid drugs, injections, gels, and ointments are no longer exempt from the HazCom Standard.**
  - 1.3.8 Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by employees while in the workplace.
  - 1.3.9 Consumer products which are used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure, which is not greater than exposures experienced by consumers. This will be a case by case judgment by the supervisor with concurrence from the Base Operating Contractor Safety, Health and Environmental (i.e. Office personnel who use all-purpose cleaner infrequently to clean their desk vs. custodians using the same cleaner daily).
  - 1.3.10 Nuisance particulates (e.g. copier toner) that do not pose any physical or health hazard.
  - 1.3.11 Ionizing and non-ionizing radiation.
  - 1.3.12 Biological items such as vaccines, serums, and blood products.
  - 1.3.13 Warehousing or other operations where employees only handle materials in sealed containers, which are not opened under normal conditions of use except:

- 1.3.13.1 Supervisors will ensure labels on incoming containers of hazardous materials are not removed or defaced.
- 1.3.13.2 SDSs received with incoming shipments of the sealed containers will be maintained, an SDS shall be obtained as soon as possible for those not having one, and employees will have access to the SDS during each work shift.
- 1.3.13.3 Employees will receive training on the hazards of materials in their work area, to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.
- 1.3.14 Laboratories, *except* the following:
- 1.3.14.1 Supervisors will ensure labels on incoming containers of hazardous materials are not removed or defaced.
- 1.3.14.2 SDSs received with incoming shipments will be maintained, and employees will have access to the SDS.
- 1.3.14.3 Employees will receive information and training on the hazards of materials in their work area.
- 1.3.14.4 Laboratories/work areas that meet the OSHA definition of a laboratory will prepare a written Chemical Hygiene Plan and comply with the requirements of 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories.
- 1.4 Applicability to outside/subcontractor projects – Each outside/subcontractor working at AEDC shall maintain its own company written program for the project(s) it is working at AEDC to include employee access to SDSs. See Section 4.2.4 of this standard for additional information.

## 2.0 BASIC HAZARDS/HUMAN FACTORS

Chemicals pose a wide range of health hazards (such as irritation, sensitization, and carcinogenicity) and physical hazards (such as flammability, corrosion, and reactivity). When employees have information about chemicals being used, they may take steps to reduce occurrence of work-related illnesses and injuries caused by chemicals. These steps include substituting less hazardous materials and establishing proper work practices to protect themselves.

## 3.0 DEFINITIONS

Article – "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Authorized Use List – The list of chemicals by stock codes that have been approved by the Safety, Health and Environmental Branch for authorized use by the shop.

Base Operating Contractor (Base) – The base operating contractor directly accountable to the Air Force for the AEDC mission.

Chemical – Any element, chemical compound or mixture of elements and/or compounds.

Chemical manufacturer – An employer with a workplace where chemical(s) are produced for use or distribution.

Chemical name – The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which shall clearly identify the chemical for the purpose of conducting a hazard evaluation.

Classification – Means to identify the relevant data regarding the hazards of a chemical. Classification includes the determination of the degrees of health and physical hazards that is determined by comparing the data with the criteria for health and physical hazards (This is determined by manufacturers of products prior to shipment during SDS preparation).

Combustible liquid – Any liquid having a flashpoint at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C), or higher, the total volume of which make up 99% or more of the total volume of the mixture.

Common name – Any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Compressed gas

1. A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70°F (21.1°C); or
2. A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or
3. A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D-323.

Container – Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative – The individual who is appointed by the section manager or above to administer the hazard communication requirements within their section/workplace/work area.

Director – The individual assigned oversight for a particular department.

EESOH-MIS – A computer-based data system designed to track and manage the use of hazardous materials in organizations throughout AEDC and administered by Base Operating Contractor Safety, Health and Environmental.

Employee – A worker (other than office workers, etc.) who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

Explosive – A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed – That an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. (Also see *Subjected*.)

Flammable – A chemical that falls into one of the following categories:

1. Aerosol, flammable – an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;
2. Gas, flammable
  - a. A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13% by volume or less; or
  - b. A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12% by volume, regardless of the lower limit;
3. Liquid, flammable – Any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99% or more of the total volume of the mixture.
4. Solid, flammable – A solid, other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Foreseeable emergency – Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

Hazardous chemical – Any chemical which is a physical hazard or a health hazard. These include a simple asphyxiant, combustible dust, pyrophoric gas or a hazard otherwise classified. The hazard communication standard covers chemicals in all forms--liquids, solids, gases, vapors, fumes and mists – whether they are contained or not. The broadest perspective should be used when identifying hazardous chemicals. This term includes chemicals that may be generated as a by-product of a process such as fumes from welding processes or nitrogen oxides from combustion processes.

Hazard class – The hazard class is the determination of hazard category for a chemical or product as determined by the chemical manufacturer or importer as required by 29 CFR 1910.1200. These describe the physical or health hazards of the product e.g., flammable solid, carcinogen, acute toxicity, etc.

Hazard not otherwise classified (HNOC) – HNOC is an adverse physical or health effect identified through evaluation of scientific evidence during the manufacturer's classification process that does not meet the specified criteria for the physical and health hazard classes found in 29 CFR 1910.1200. This applies to the physical or health hazards where the effects of the chemical are below the cut-off value/concentration limit of the hazard class but still may cause a hazard.

Hazard statement – This is the statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Hazard warning – Any words, pictures (pictograms), symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for *Physical hazard* and *Health hazard* to determine the hazards which must be covered.)

Health hazard – A health hazard means a chemical which 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; or aspiration hazard).

Base Identity – Any chemical or common name which is indicated on the SDS for the chemical; the identity used shall permit cross-reference among the required list of hazardous chemicals, the label and the SDS.

Immediate use – A hazardous chemical that is under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label – A label is an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging. Refer to the definition of hazardous chemical indicated above. (See Annexes A and D for labeling of any container that does not have a manufacturer's label.)

Label elements - Label elements are the specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category. See Annex D for additional information concerning pictograms.

Laboratory – A facility where relatively small quantities of hazardous materials are used on a non-production basis. Use of hazardous materials must meet all of the following conditions:

1. Chemical manipulations are carried out on a laboratory scale with all work with substances in containers designed to be easily and safely manipulated by one person.
2. Multiple chemical procedures or chemicals are used.
3. Procedures involved are not part of a production process, nor in any way simulate a production process.
4. Protective laboratory practices and equipment are available.

Mixture – A mixture is a combination or a solution composed of two or more substances in which they do not react.

Outside Contractor/Subcontractor – An organization employed by the Base Operating Contractor or the Air Force to do construction, maintenance, repair or other work at AEDC. There is no employment relationship, control or supervision of the subcontractor's employees by AEDC contractors. This term includes those who may be subcontracted by an outside contractor for specific portions of a project.

Oxidizer – A chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard – A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

Pictogram – A pictogram is one of the nine pictograms shown in Annex D that is intended to convey specific information about the hazards of a chemical.

Precautionary statement – A precautionary statement is a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

Product identifier – The product identifier is the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-reference to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Produce – To manufacture, process, formulate, blend, extract, generate, emit, or repackage.

Pyrophoric – A chemical that will ignite spontaneously in air at a temperature of 130°F (54.4°C) or below.

Safety Data Sheet (SDS) – A fact sheet provided by the manufacturer or supplier of a hazardous material. The SDS describes a material's hazards in sufficient detail to develop proper storage, use, and handling procedures. AEDC SHE Standard A9, *Hazard Communication*, provides specific requirements for maintaining SDSs at AEDC. OSHA has changed the term MSDS to SDS. Manufacturers will begin using the new SDS format as they transition into

compliance with the revised standard. Until full compliance is reached by manufacturers both MSDS and SDS formats may be encountered (OSHA 1910.1200).

Simple asphyxiant – A simple asphyxiant is a substance or mixture that displaces oxygen in the ambient (normal) atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.

Specific chemical identity – The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Subjected – (In terms of health hazards) Any route of entry (e.g. inhalation, ingestion, skin contact or absorption). (Also see *Exposure or exposed*.)

Substance – A substance is the chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Unstable (reactive) – A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use – To package, handle, react, emit, extract, generate as a byproduct, or transfer.

Water-reactive – A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work area – A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace – An establishment, job site, or project, at one geographical location containing one or more work areas. There may be multiple crafts/shops located in one facility but each craft/shop may be considered a separate workplace (i.e. Model Shop Building 451-Iron Workers and Boilermakers are separate workplaces).

#### 4.0 REQUIREMENTS/RESPONSIBILITIES

**4.1 General Requirements for Hazard Communication Program Elements** – To standardize the elements of a complete hazard communication program each AEDC workplace will:

- 4.1.1 Designate a representative to implement and maintain the program within the section. (Noting this on the Chemical List is sufficient.)
- 4.1.2 Establish a Hazard Communication Notebook(s) containing the following sections:
  - 4.1.2.1 A copy of the most recent HCS [AEDC Safety, Health, and Environmental (SHE) Standard A9 Hazard Communication].
  - 4.1.2.2 A comprehensive chemical list of materials used by this workplace. Annex B is a template for use with the minimum field requirements.
  - 4.1.2.3 An SDS for each chemical listed.
  - 4.1.2.4 An updated Authorized Use List (AUL) shall be placed in the notebook following the approval of any new chemical. This will aid in the maintenance of the comprehensive chemical list that shall be updated every time a new chemical is obtained. Note: The requirement to maintain in the notebook the AF Form 3952 for each chemical is no longer required because of the formatting differences between EESOH-MIS and HMMS. Any current AF Form 3952 presently in the notebook may stay in the notebook until the form becomes obsolete.
  - 4.1.2.5 A record of employee workplace-specific training. This is the record for employee training generally given by the supervisor. See Section 5.2 for requirements.

#### 4.2 Specific Requirements

- 4.2.1 Chemical Inventories – This HCS requires a list of the hazardous chemicals using an identity that is referenced on the appropriate SDS and a stock number as listed on the shop AUL.
  - 4.2.1.1 The HCS covers chemicals in all physical forms – liquid, solid, gas, vapor, fume, and mist. The hazardous nature of the chemical and the potential for exposure are the factors which determine whether a chemical is covered. Non-hazardous chemicals are not covered by this HCS. If there is no potential for exposure (e.g., the chemical is inextricably bound and cannot be released), the HCS does not cover the chemical. All potentials for chemical exposure, including chemicals in containers and pipes as well as those generated by

the work process, shall be identified. Sources for exposure include welding fumes, dusts, and exhaust fumes. When ordering chemicals, order when possible the least toxic and most environmentally friendly product that will do the job.

- 4.2.1.2 Each workplace using hazardous materials shall prepare and maintain a comprehensive chemical inventory. The inventory shall identify the section, designated representative, product name, manufacturer, stock or part number, and unit of issue (12 oz sp cn, 55 gl dr etc.). The product name on the inventory must match or make reference to an identity on the appropriate SDS. New chemical products shall be added as received and deleted when no longer used. The listing shall be reviewed and updated at least annually by the section representative to validate the need and ensure there is a corresponding SDS. This review shall be documented by writing an appropriate statement (i.e. listing reviewed and updated), signing and dating. This will be validated during annual industrial hygiene surveys. Form GC-1786 (Annex B spreadsheet) may be used to compile the listing or alternatives such as the EESOH-MIS authorized users list (AUL) may be used if it reflects your section's complete chemical inventory. Chemicals no longer required must be turned in for recycling or disposal and the list updated to reflect this action.
- 4.2.1.3 A hard copy of the inventory shall be maintained in Section B of each workplace's Hazard Communication Notebook.
- 4.2.2 Safety Data Sheets – Each SDS is a detailed information bulletin prepared by the chemical manufacturer describing the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures, and control measures of the listed hazardous chemicals. An SDS must be immediately accessible for every item on the work area/shop-specific hazardous chemical inventory. The SDS on file must match the manufacturer and part number/trade name of the material on-hand. In addition, the SDS preparation date must be consistent with the date/lot of any material on-hand. If a new SDS is received, but the old material is still on hand, the SDS which matched the old material must be retained.
  - 4.2.2.1 Each workplace using hazardous chemicals shall make the SDS available for each item listed on its chemical inventory. A hard copy of each SDS shall be kept in Section C of the workplace's Hazard Communication Notebook for easy access. The SDSs shall be cross-referenced to the chemical inventory for easy retrieval.
    - 4.2.2.1.1 SDSs for new chemicals used in the workplace shall be dated as to when use was started.
    - 4.2.2.1.2 SDSs for chemicals no longer used by the workplace shall be dated as to when the use was terminated and a copy archived in a separate folder for future reference as needed.
    - 4.2.2.2 All workers shall be informed of the location of the Hazard Communication Notebook and how to use the SDS. The notebook shall be available for each shift.
    - 4.2.2.3 The base contractor purchasing office shall request an SDS from vendors when ordering any hazardous material. An SDS must be available prior to ordering the material. It is the requester's responsibility to procure a copy (preferably electronic) of the manufacturer's SDS for the specific product. The chemical request cannot be reviewed or authorized without a copy of the manufacturer's SDS.
    - 4.2.2.4 Base Operating Contractor Safety, Health and Environmental shall maintain a master listing of SDSs via the EESOH-MIS and shall assist personnel in the workplace in obtaining an SDS for new hazardous materials if they have trouble procuring it from the manufacturer or vendor.
    - 4.2.2.5 Employees shall be responsible for knowing the location of the SDSs and using the information when preparing a Job Safety Analysis or Job Safety Review prior to using the chemical.
    - 4.2.2.6 Where personnel must travel between work area/shops during a work shift (e.g., a mobile worksite where their work is carried out at more than one geographical location), the SDS may be kept at the primary work area/shop facility. In this situation, the supervisor shall ensure that personnel can immediately obtain the required information in an emergency such as reading the information over the phone.
    - 4.2.2.7 Each SDS will have a corresponding AF Form 3952 completed in either HMMS or EESOH-MIS for any chemicals ordered after October 1, 2008. An AF Form 3952 completed in EESOH-MIS may have multiple SDSs representing the different chemicals used in the process identified by the form.

### 4.2.3 Container Labeling

- 4.2.3.1 All containers of hazardous chemicals, **other than portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer**, shall be labeled, tagged, or marked with the identity of the material and appropriate hazard warnings. The label shall be durable, legible and located so it can be easily read.
- 4.2.3.2 For hazardous chemicals regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor or employer is responsible for ensuring that the labels or other forms of warning used are in accordance with the requirements of that substance-specific standard.
- 4.2.3.3 All workplaces using hazardous chemicals shall ensure each container is labeled, tagged or marked with the following:
- 4.2.3.3.1 Identity of the hazardous chemical in the container, identified by either the product name or the chemical name or both.
- 4.2.3.3.2 Name and address of the manufacturer or distributor; including telephone numbers when available.
- 4.2.3.3.3 Appropriate hazard warnings describing health and physical hazards of the chemical and providing special handling procedures. These include pictograms when available, signal word (danger or warning), hazard statements, and precautionary statements found on the original container.
- 4.2.3.4 Any container holding a substance which could be mistaken for a hazardous chemical shall be labeled or marked as to contents. Writing directly on the container shall be permissible as long as the writing is clearly legible and does not come off during regular use.
- 4.2.3.5 Employees shall be responsible for labeling containers when transferring hazardous chemicals into a new container unless it is for immediate use in the workplace as indicated above in 4.2.3.1.
- 4.2.3.6 Labels on incoming containers shall not be removed or defaced unless the container is immediately relabeled with the required information.
- 4.2.3.7 Re-labeling shall not be required for containers on which the manufacturer's original label is in good condition. Containers with illegible labels shall be re-labeled using information from the original container or the SDS.
- 4.2.3.8 Re-labeling containers shall be accomplished using Form GC-1514, Chemical Hazard Alert.  
**NOTE:** If a Form GC-1514 cannot be used to label the container due to size or other constraints, a durable, legible label containing the required information shall be created and affixed to the container.
- 4.2.3.9 Containers that have been emptied of the original contents and refilled with different contents shall be relabeled to identify the new contents. Labeling examples are provided in Annex A.
- 4.2.3.10 Before refilling a container with a different chemical, the employee filling the container shall:
- 4.2.3.10.1 Verify compatibility of the container material with the chemical being used. This is to prevent break-down of the container resulting in the release of the chemical.
- 4.2.3.10.2 Ensure the container has been properly cleaned to prevent the mixing of incompatible materials which could result in an unwanted chemical reaction.
- 4.2.3.11 If, for security or other legitimate reasons, the exact chemical contents of a hazardous material container cannot be identified, the container shall be labeled as follows:
- 4.2.3.11.1 Identity of the material, using a generic term for the type of product (e.g. jet fuel, oil, solvent, acid).
- 4.2.3.11.2 Name and phone number of the person responsible for the material.  
**NOTE:** This person shall be contacted in the event of an emergency and shall have immediate access to an SDS or other detailed health and safety information about the chemical. Since this information may be required at any time, this person shall be accessible at all times when the hazardous material is in use or an alternate person having immediate access to required data shall be designated and available.
- 4.2.3.12 Appropriate hazard warnings (e.g. flammable, irritant, toxic, corrosive).
- 4.2.2.13 Containers shall be properly chosen for the use intended to prevent break-down of the container material resulting in the release of the chemical and shall be maintained in good condition and replaced or repaired when damaged.

4.2.3.14 Special cases of labeling are described in the following AEDC SHE Standards:

- D3 Piping Systems
- D4 Compressed Gas Cylinders
- D11 Ionizing Radiation
- E6 Hazardous Material Management
- E7 Asbestos
- E16 Polychlorinated Biphenyls (PCBs)
- E18 Chemical Waste Management

**NOTE:** Mixing of chemicals is prohibited unless prescribed by the manufacturer's directions for separate components.

#### **4.2.4 Outside Contractor/Subcontractor Operations**

4.2.4.1 The AEDC project monitor shall ensure that the outside contractor/subcontractor is informed of any precautionary and/or safety measures to be taken, location of SDSs, and an explanation of the labeling system prior to entering a work area that uses hazardous chemicals in a way that the outside contractor/subcontractor or contractor employees may be exposed. Form GC-1732, Master Work Permit, shall be used to document this communication. For additional requirements see SHE Standard B1, Master Work Permit. The AEDC project monitor shall also ensure compliance with Section 4.2.4.2 and 4.2.4.3. These requirements shall also be followed by AEDC Test Users or Test Customers that have the same duty to provide this information to AEDC employees. Base Operating Contractor organizations that provide services to AEDC Test Users or Test Customers shall ensure that this information is obtained and available to the AEDC workforce in their individual work areas as appropriate. Hazards created by these activities shall be addressed in the job safety analysis for the work as required.

4.2.4.2 Purchasing and contracting organizations shall ensure that the procurement package require that each Outside Contractor/Subcontractor provide the following information through the Base Operating Contractor Contracting Officer/Purchasing Agent to Base Operating Contractor Safety, Health and Environmental prior to the project start. The AEDC project monitor shall provide support to Purchasing and Contracting organizations with obtaining the information listed below in 4.2.4.2.1 through 4.2.4.2.4, determining if it is complete as required, and verifying that the outside contractor/subcontractor has complied with the requirements.

4.2.4.2.1 The name of the outside contract/subcontractor point of contact for hazard communication.

4.2.4.2.2 An inventory listing of all chemicals the outside contractor/subcontractor shall have on base to include base location and quantity.

4.2.4.2.3 SDS for each hazardous chemical they bring to AEDC.

4.2.4.2.4 Documentation indicating that the AEDC supervisor or area contact has been informed of hazards introduced into the work area by the outside contractor/subcontractor work so that any hazard may be addressed. This would be done through the completion of the Master Work Permit as indicated in 4.2.4.1 above which a copy of the permit would be submitted to the AEDC project monitor to include in the project file.

4.2.4.3 See SHE Standard A6, User and Subcontractor Safety, and SHE Standard E6, Hazardous Material Management, for additional requirements.

#### **4.3 Base Operating Contractor Responsibilities: Written Hazard Communication Program**

Hazard communication shall be a continuing program in each facility. Responsibility for both the initial and ongoing activities shall be assigned as follows:

##### **4.3.1 Base Contractor Safety, Health and Environmental (Safety and Health) shall**

4.3.1.1 Develop and maintain the Written Hazard Communication Program for implementation at AEDC specifying implementing a written program, chemical inventories, SDSs, container labeling and employee information and training. This will serve as the written Hazard Communication Program for all work area/shops where workers may be potentially exposed to hazardous chemicals.

4.3.1.2 Provide technical expertise to the workplace supervisor/or designated representative on potential health hazards, training requirements, and regulatory requirements.

4.3.1.3 Review compliance with the HCS during periodic surveys of the workplace.

4.3.1.4 Review work area AF Form 3952 requests/authorizations in accordance with AFI 32-7086, Hazardous Materials Management, prior to adding the new authorization to the work area/shop hazardous chemical inventory.

**4.3.2 Directors shall**

Designate a representative for oversight of implementation and compliance within their department.

**4.3.3 Managers/Supervisors shall**

4.3.3.1 Designate a representative to implement and maintain program compliance within their sections for all workplaces where employees are exposed to hazardous chemicals

4.3.3.2 Ensure employees on all shifts are covered by the program and have access to required information and training.

**4.3.4 Employees shall**

4.3.4.1 Assist their designated representative in compliance with requirements

4.3.4.2 Review SDSs prior to use of hazardous chemicals and comply with safeguards specified by the SDS.

**4.3.5 Base Contractor Safety, Health and Environmental (Environmental Quality) shall**

4.3.5.1 Designate a representative to administer the EESOH-MIS SDS Management Program for entering workplace chemical inventories, additions, deletions etc.

4.3.5.2 Assist workplaces in procuring SDSs when not available with the product via EESOH-MIS.

4.3.5.3 Upon receiving an SDS for new chemicals from Purchasing verify that the SDS is identical to the one already present in EESOH-MIS.

**4.3.6 Hazardous Material Pharmacy (HAZMART) shall**

Ensure all hazardous chemicals received are labeled and the material is listed in the shop's AUL and is authorized to receive it prior to delivery to the workplace.

**5.0 AEDC EMPLOYEE INFORMATION AND TRAINING**

All employees shall receive initial and shop specific information and training on hazardous chemicals in their work area at the time of their initial assignment. Additional information and training shall be provided whenever a new physical or health hazard is introduced into their work area. Information and training shall be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals as appropriate for the hazard. Chemical-specific information shall always be made available through labels and SDSs.

5.1 **Initial Training** – All new employees shall be trained on the general requirements of the OSHA Standard and the requirements of this HCS during New Employee Orientation. Training will be provided by the Base Operating Contractor Safety, Health and Environmental. Training for Base Operating Contractor personnel will be documented in the PeopleSoft Training System.

5.2 **Shop-specific Workplace Training** – Shop-specific training shall be provided by the work area/shop supervisor or section designated representative(s) in their work area at:

5.2.1 The time of the employee's initial assignment prior to the use of hazardous chemicals;

5.2.2 Whenever a new physical hazard or health hazard is introduced into their work area, or a non-routine task is conducted; or a process changes; and

5.2.3 Whenever the employee is required to work in a different area that poses a new physical or health hazard or is transferred to another shop/work area.

5.3 **Minimum Training Requirements** – The employee, as a minimum, must receive the following information/training:

5.3.1 The details of the AEDC Hazard Communication Program, including an explanation of the labeling and SDS system, and how employees can obtain and use the appropriate hazard information.

5.3.2 The location and availability of the written Hazard Communication Program, including the required list of hazardous chemicals, and SDS required by this HCS.

5.3.3 Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released).

5.4 All operations in their work area where hazardous chemicals are present.

5.5 The physical and health hazards of the chemicals in the work area.

- 5.6 The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures and personal protective equipment to be used.

**NOTE:** Upon written request, the Base Operating Contractor Safety, Health and Environmental Industrial Hygiene can also provide training classes that introduce the new employee to labeling requirements and understanding of SDSs, and technical assistance with information required for training on specific chemicals found in the workplace.

#### 5.4 Base Operating Contractor Training Documentation:

- 5.4.1 Initial AEDC Training for Base Operating Contractor personnel shall be documented in the PeopleSoft.
- 5.4.2 Workplace specific training shall be documented by using the attached template (Annex C) or equivalent and maintained in Section E of the Hazard Communication Notebook for review during periodic workplace surveys. Supervisors may use AF Forms 3952's, SDS's, and Industrial Hygiene Survey Reports as sources of information to meet training requirements. A copy of the most recent Industrial Hygiene Survey Report shall be kept in Section E.
- 5.4.3 A Job Safety Analysis (JSA) or Job Safety Review (JSR) as required by SHE Standard A10 may be included in Section E of the Hazard Communication Notebook as proof of training of the hazards for new and non-routine tasks. If the JSA/JSR is not used or referenced, some record of proof of training shall be included in the notebook. The JSA/JSR shall be signed by all that developed or reviewed the analysis. Also see Annex C of this standard.

#### 6.0 INSPECTIONS/AUDITS

AEDC Air Force organizations may conduct inspections of work activities. Base Operating Contractor Safety, Health and Environmental may assist in this task as required.

#### 7.0 REFERENCES

##### AEDC Safety, Health and Environmental Standards:

- A6, User and Subcontractor Safety
- B1, Master Work Permit
- D3, Piping Systems
- D4, Compressed Gas Cylinders
- D11, Ionizing Radiation
- E6, Hazardous Material Management
- E7, Asbestos
- E16, Polychlorinated Biphenyls (PCBs)
- E18, Chemical Waste Management

##### Air Force Instructions (AFI):

- AFI 90-821, Hazard Communication
- AFI 32-7086, Hazardous Material Management

##### American Society for Testing and Materials (ASTM International) ASTM D 323, Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)

##### Chemical Abstracts Service (CAS) Registry Number

##### Code of Federal Regulations:

- Commercial Practices 16 CFR 1500.44 Method for determining extremely flammable and flammable solids
- Commercial Practices 16 CFR 1500.45 Method for determining extremely flammable and flammable contents of self-pressurized containers
- OSHA 29 CFR 1910.109(a) Hazardous Materials
- OSHA 29 CFR 1910.1200 Hazard Communication
- OSHA 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories

##### International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS)

#### 8.0 ATTACHMENTS

**Annex A:** Hazard Communication Labeling Requirements

**Annex B:** Chemical Listing Template

**Annex C:** Workplace Specific Training Template

**Annex D:** The Nine Pictograms Used by Manufacturer's to Identify Hazard Categories for SDS's and Labels

**9.0 SUPPLEMENT**

NFAC A321-0801-XSP A9 Hazard Communication

ANNEX A

HAZARD COMMUNICATION LABELING REQUIREMENTS

Any container that does not have a manufacturer's label shall be clearly labeled using data from the original container or the SDS. Acceptable labels shall be Form GC-1514 [available from Base Operating Contractor Forms Management Office (454-5274) in the A&E Building] or any other label which clearly communicates the required information. Following are some general rules for labeling:

- Label information shall be durable and of a material that shall not come off the container during use.
- Writing directly on the container shall be acceptable as long as the writing will not come off during regular use.

Examples of Acceptable Labels

**General Label Requirements for Secondary Container Labels**

To complete the label, refer to original container label or manufacturer's SDS for the necessary information for each item listed below.

(The GC-1514 may be used as long as all information is included on the label):

- Chemical or Produce Identifier
- Signal word (Danger or Warning)
- Pictograms if available or at least the words representing the pictograms
- General information concerning the chemical
- Hazard Statements (both health and physical)
- Precautionary Statements (requirements for ventilation, PPE, grounding/bonding, etc.)
- Supplier information (name, address, phone number)

**ACETONE**

**DANGER**

[pictograms and words for flammable, health hazard, irritant]

Industrial Solvent

Highly flammable liquid and vapor

Causes mild skin irritation

Causes serious eye irritation

May cause damage to organs

Avoid prolonged skin contact

Use adequate ventilation, respirator, Nitrile gloves, goggles, other PPE as required

XYZ Chemical Company  
Possum Trot, AL 22550  
205-555-1212

**CHEMICAL HAZARD ALERT**

GC1514

Chemical Trade Name:

**ACETONE**

Manufacturer's Name and Address:

XYZ Chemical Company  
Possum Trot, AL 22550  
205-555-1212

**Danger**

Industrial Solvent  
Flammable, Health Hazard, Irritant

Health Hazard:

**Highly flammable liquid and vapor**

**Causes mild skin irritation**

**Causes serious eye irritation**

**May cause damage to organs**

Physical Hazard:

**Extremely Flammable**

**Keep away from heat, sparks and flames.**

**Use with adequate ventilation, respirator.**

**Avoid prolonged skin contact.**

**Use Nitrile gloves, chemical goggles, other PPE as required.**





**ANNEX D**  
**THE NINE PICTOGRAMS USED BY MANUFACTURER'S TO IDENTIFY HAZARD**  
**CATEGORIES FOR SDS'S AND LABELS**

**HCS Pictograms and Hazards**

<p><b>Health Hazard</b></p>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<p><b>Flame</b></p>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<p><b>Exclamation Mark</b></p>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (Harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
<p><b>Gas Cylinder</b></p>  <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<p><b>Corrosion</b></p>  <ul style="list-style-type: none"> <li>• Skin Corrosion/Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<p><b>Exploding Bomb</b></p>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><b>Flame Over Circle</b></p>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p><b>Environment (Non-Mandatory)</b></p>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p><b>Skull and Crossbones</b></p>  <ul style="list-style-type: none"> <li>• Acute Toxicity (Fatal or toxic)</li> </ul>

For labels used on secondary containers include pictograms when available, signal word (danger or warning), hazard statements, precautionary statements found on the original container and the name, address and telephone number of the chemical manufacturer. Labels on secondary containers must include the same information as the original container. If pictogram stickers are not available, then the wording from the pictogram must be written on the secondary container label (e.g. if flame pictogram is not available, the word Flame shall be clearly written on the container.)

# A321-0801-XSP A9 Hazard Communication Supplement

This supplement has been approved for the NFAC Site.

**Review:** This supplement will be reviewed and updated using the same cycle as the AEDC Safety, Health, and Environmental (SHE) Standard A9 Hazard Communication.

**References:** AEDC SHE Standard A9 Hazard Communication

## **Scope:**

NFAC will follow the NASA Ames Safety Procedural Requirements APR8715.1 Chapter 24 "Chemical Hazard Communication Plan" which follows the OSHA 29 CFR 1910.1200 requirements.

This supplement serves as the written Hazard Communication Program for NFAC. It specifies the requirements and responsibilities for implementing a written program and for maintaining chemical inventories, Safety Data Sheets (SDSs), container labeling and employee information and training.

This supplement applies to all personnel conducting operations, maintenance, testing and support at NFAC, NASA AMES.

## **NFAC Worksite Application:**

Chemical inventories will be maintained via the NASA Building Emergency Action Plan (BEAP). Copies of the BEAP are located in the Office Main Lobby Bldg 221, Bldg 221-B, and Bldg 246.

Safety Data Sheets (SDSs) are placed in binders located in the Office Main Lobby Bldg 221, Bldg 221-B, Bldg 246 and Safety Office Bldg 221. New SDSs will be placed on placed on the Share Drive along with an index with an index form so personnel will able to call up the required SDS.

Per the ATOM purchasing approval process, the SDS for any chemicals not on the approved chemical purchase list must be submitted to the NFAC Safety Engineer for approval. During the safety orientation, customers and vendors are instructed that no chemicals can be brought into NFAC facilities without review of and approval of the SDS by the NFAC Safety Engineer.

## **Requirements/Responsibilities:**

- I. NFAC Site Management shall apply this supplement to all work areas where employees are potentially exposed to hazardous chemicals.
- II. NFAC Supervisors and Test Directors shall
  1. Comply with all standards and review their areas of responsibility.
  2. Ensure that their personnel are current on their Hazard Communication Training.
- III. NFAC Safety Engineer/Management Designee shall
  1. Review SDS s for all chemicals brought on the site by
    - a. NFAC Staff
    - b. Customers
    - c. Vendors
  2. Ensure use of proper personal protection equipment (PPE) as designated by the applicable SDS and approved by the Safety Engineer.
  3. Maintain the chemical inventory.
  4. Generate the Hazardous Material Business Plan (HMBP) for Santa Clara County Department of Environmental Health and AEDC Safety, Health, and Environmental Group.
  5. Notify AEDC/TSD-SG when current inventory changes.
- IV. NFAC Staff shall:
  1. Maintain their annual Hazard Communication Training through NASA SATERN Training.
  2. Ensure all chemicals are labeled and stored correctly.
  3. Use appropriate PPE based on SDS requirements.