



**U.S. DEPARTMENT OF TRANSPORTATION**  
**FEDERAL AVIATION ADMINISTRATION**  
National Policy

**ORDER**  
**3900.78**

Effective Date:  
6/16/20

**SUBJ:** Flight Standards Service Chemical Safety and Hazard Communication Program

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1. The Flight Standards Service (FS) Chemical Safety and Hazard Communication (CSHC) Program is an element of the FS Occupational Safety and Health (OSH) Program and establishes the minimum requirements for chemical safety and hazard communication for FS employees. This program outlines the requirements that must be met to achieve an effective Chemical Safety Program, and includes the requirements for an effective Hazard Communication (HazCom) Program.
2. The purpose of the FS Chemical Safety Program is to provide a framework to establish a written program that can be used by all FS employees to carry out their work activities safely. FS office management may develop a more stringent Chemical Safety and/or HazCom Program as long as it meets all of the minimum requirements in this order.
3. The requirements detailed in this document are based upon applicable portions of Occupational Safety and Health Administration (OSHA) regulations under Title 29 of the Code of Federal Regulations (29 CFR) parts 1904, 1910, and 1926; Federal Aviation Administration (FAA) Order 3900.19, Federal Aviation Administration (FAA) Occupational Safety and Health Policy; and industry consensus standards. FS management and employees must implement the requirements found herein.
4. Chemical safety involves safety requirements for various external industry workplaces and aircraft accident sites where chemicals are used or are a potential exposure. This order includes policies, practices, and procedures that FS employees must follow for their protection against potential chemical hazards encountered at maintenance and repair facilities, agricultural operators, aircraft accident sites, and FS-staffed facilities.

A handwritten signature in black ink, appearing to read "R. C. Carty".

Robert C. Carty  
Deputy Executive Director, Flight Standards Service

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## Chapter 1. General Information

**1. Purpose of This Order.** This order establishes a written program that outlines requirements, procedures, and guidelines to protect Flight Standards Service (FS) employees from injury, illness, or death while performing work-related duties where chemicals are used, mixed, applied, and/or stored. This order is applicable to work at external industry workplaces, aircraft accident sites, and FS offices where chemicals are present. External industry workplaces include, but are not limited to, maintenance, repair, and overhaul (MRO) facilities, plating facilities, agricultural operators, airports, and helipads.

**2. Audience.** This program is applicable to all FS employees, supervisors, and managers.

**3. Where You Can Find This Order.** You can find this order on the MyFAA employee website at [https://employees.faa.gov/tools\\_resources/orders\\_notices](https://employees.faa.gov/tools_resources/orders_notices). Inspectors can access this order through the Flight Standards Information Management System (FSIMS) at <https://fsims.avs.faa.gov>. Air carriers (operators) can find this order on the Federal Aviation Administration's (FAA) website at <https://fsims.faa.gov>. This order is available to the public at [https://www.faa.gov/regulations\\_policies/orders\\_notices](https://www.faa.gov/regulations_policies/orders_notices).

**4. Effective Date.** FS office managers must ensure the office has a written office Hazard Communication (HazCom) Program in accordance with Chapter 4, Hazard Communication (HazCom) Program Requirements, within one year of the publication date of this order. Initial Chemical Safety and Hazard Communication (CSHC) training will be implemented within one year of the publication date of this order. The training will follow the course requirements included in Chapter 5, CSHC Training Requirements. Training provided prior to employment with the FAA does not meet the requirements of this order.

**5. Distribution.** This order is distributed to all FS offices, branches, and facilities; and all FS employees.

**6. Directive Feedback Information.** Direct questions or comments to the FS Occupational Safety and Health (OSH) Team or via the FS OSH mailbox at [9-NATL-AVS-AFS-OSH@FAA.gov](mailto:9-NATL-AVS-AFS-OSH@FAA.gov). For your convenience, FAA Form 1320-19, Directive Feedback Information, is the last page of this order. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this order on FAA Form 1320-19.

## Chapter 2. Roles and Responsibilities

### 1. **Executive Director, Flight Standards Service.** The Executive Director shall:

- a. Ensure resources (funding and personnel) are available to implement this FS-wide CSHC Program effectively throughout the FS organization.
- b. Oversee the overall implementation and maintenance of the CSHC Program in the FS organization.
- c. Ensure the FS OSH Team has the resources to effectively oversee and manage the CSHC Program and to provide the necessary technical support to the FS offices.

### 2. **FS Division Managers.** The FS division managers shall:

- a. Provide oversight of the CSHC Program.
- b. Be informed of potential chemical hazards that may be encountered at offices and external industry workplaces within his/her jurisdiction.
- c. Ensure applicable employee participation in the CSHC training.

### 3. **FS Occupational Safety and Health (OSH) Team.** The FS OSH Team shall:

- a. Establish the CSHC Program, which includes the policy, procedures, training, and equipment necessary for an effective CSHC Program.
- b. Ensure this program complies with the current FAA, Occupational Safety and Health Administration (OSHA), and other applicable regulations, standards, and agency policies.
- c. Support the implementation of CSHC requirements at FS offices and evaluate FS office implementation of this CSHC Program.
- d. Serve as the subject matter expert (SME) and point of contact (POC) regarding technical aspects of the FS CSHC Program; provide consultation to any FS office regarding issues relating to CSHC, CSHC implementation, and performing analysis of any new hazards.
- e. Perform OSH hazard analyses at various external industry workplaces to gather hazard data on potential chemical hazards and utilize the data gathered to further revise and improve the program.

### 4. **FS Office Management.** The FS office management, with consultation from the FS OSH Team, shall:

- a. Implement the requirements of this CSHC Program for his/her office.
- b. Ensure the office has a written office HazCom Program in accordance with Chapter 4 that is updated annually, a chemical inventory that is complete and current, and all Safety Data Sheets (SDS) accessible and current.

c. Identify employees who may perform work activities where chemical exposure is a potential and whose duties may require them to use CSHC personal protective equipment (PPE), and ensure that these employees receive FS-provided CSHC FS Chemical Safety training.

d. Assign an FS Office CSHC Program Administrator (FO-CSHC-PA) whose duties will include, but are not limited to, assisting in the implementation and evaluation of the chemical safety and HazCom for their office.

e. Ensure that the designated FO-CSHC-PA has received CSHC FS Chemical Safety training that has been developed by the FS OSH Team.

f. Have the authority to determine the need for acquisition of CSHC PPE, and consult with the FS OSH Team prior to any purchase of such PPE.

g. Report any conditions brought to their attention by an employee to the FS OSH Team regarding potential chemical exposure.

**5. Flight Standards Office CSHC Program Administrators (FO-CSHC-PA).** The FO-CSHC-PA shall:

a. Receive CSHC FS Chemical Safety training provided by FS that meets the basic requirements of OSHA and this CSHC Program.

b. Be familiar with the content and requirements of this CSHC Program and assist the Front Line Manager (FLM) with implementing and complying with the requirements of this program.

c. Collaborate with the OSH Team regarding the overall assessment, oversight, and implementation of CSHC requirements, policies, and procedures.

d. Inspect and maintain office-provided CSHC equipment (if applicable) and supplies, including inspection prior to issuing, and upon return, for damage or defects; and ensure that the equipment is properly stored.

e. Serve as the POC for the FS office regarding the chemical protection requirements.

**6. FS Employees at External Industry Workplaces.** FS employees who work at external industry workplaces where chemical exposure is a potential shall:

a. Become familiar and comply with the requirements in this CSHC Program, and understand the chemicals they may encounter during their work activities.

b. Disengage from any activity or work environment that the employee feels is unsafe or unhealthful and immediately notify their frontline supervisor, per the Aviation Safety (AVS) OSH Policy Statement.

c. Not subject themselves to unmitigated chemical hazards, use defective CSHC equipment, or perform any function that they feel may expose them to potential injury or illness.

**d.** Receive FS Chemical Safety training and HazCom training per Chapter 5 and apply them to their work activities.

**e.** Obtain, use, inspect, maintain, clean, store, return, and/or dispose of PPE, in accordance with the requirements of this CSHC Program.

**f.** Request information on the hazardous chemicals present when they arrive at external industry workplaces. This includes becoming familiar with the external industry workplace's labeling system, the location of their SDSs, how to access their SDSs, the locations of their chemical storage and use, and what chemicals are a higher hazard than other chemicals.

**g.** Notify their supervisor of conditions where chemical exposure(s) resulted in headaches, dizziness, eyes watering, nasal or throat irritation, shortness of breath, or other physical or mental impairment from potential exposure.

**h.** Be aware that, if the information on a particular chemical exposure is deficient, they can request a chemical hazard assessment be conducted by the OSH Team, if feasible.

**i.** Be aware that they are empowered and encouraged to submit an Unsatisfactory Condition Report (UCR) per Chapter 3, paragraph 1.

**7. FS Employees in the Office.** FS employees who work in an office environment shall:

**a.** Become familiar and comply with the requirements in this CSHC Program.

**b.** Be trained to the FS HazCom awareness level per Chapter 5 of this program.

**c.** Become familiar with the office's HazCom Program, where SDSs are located, and any site-specific HazCom information.

**d.** Be aware that they are empowered and encouraged to submit a UCR where situations are observed that may cause or contribute to accidents or incidents, or otherwise present a hazard to employees and equipment.

## Chapter 3. Chemical Safety Program Requirements

### 1. Unsatisfactory Condition Report (UCR).

**a. Background.** No FS employee is expected to perform work activities that subject him or her to an unsafe or unhealthful work condition. If an inspector is potentially exposed to a safety hazard, he or she must not perform the task until the hazard is remediated. If it cannot be corrected or alternate measures are not feasible to address the hazard, the inspector must not complete the activity.

**b. UCR Reporting.** Preferably, the hazardous condition should be discussed with the supervisor to abate the unsafe condition. However, any employee or employee representative who believes that an unsafe or unhealthful working condition exists has the right to make a report of the unsafe or unhealthful working condition to an appropriate agency safety and health official and request an inspection of the workplace.

**c. Filing a UCR.** A UCR may be submitted electronically or in writing on FAA Form 1800-1, Unsatisfactory Condition Report. The electronic UCR form can be found in the intranet favorites under “AVS Resource Links” or by going to “Electronic UCR Form”. Refer to FAA Order 1800.6, Unsatisfactory Condition Report, for further instructions.

**2. AVS OSH Policy Statement.** Per the AVS OSH Policy Statement, employees who determine their duties cannot be performed due to unsafe work activities or working environments must disengage from the activity or work environment and immediately notify their frontline supervisor.

**3. Scope of FAA at External Industry Workplaces.** This CSHC Program addresses FS employees working in external industry workplaces where the FAA does not have the authority to abate hazardous conditions. FS employees work at external industry workplaces (multi-employer) that the FAA does not control (such as an aircraft repair facility or airport facility). FAA employees should request information on the hazardous chemicals present when they arrive at external industry workplaces.

**a. Facility Responsibility.** When an external industry workplace is visited, it will be the responsibility of the external industry workplace to advise the FAA employees of any hazardous chemicals to which there is a potential for exposure, the labeling system, and the appropriate protective measures to be taken.

**b. FAA Responsibility.** The FAA is ultimately responsible for the safety and health of its employees at any workplace.

**c. Workplace HazCom Program.** Accordingly, FS will rely on the external industry workplace’s HazCom Program, if available. FS will supplement the external industry workplace’s HazCom Program by ensuring FS employees become familiar with:

- (1) The location of the workplace’s SDSs;
- (2) What SDS system they use and how a visitor would access their SDSs;

- (3) Where they store, use, and mix their chemicals; and
- (4) Which on-site chemical may be a higher hazard than other chemicals.

#### **4. Hazard Identification and Control.**

##### **a. Identification of Chemical Hazards.**

###### (1) Safety Hazard Analysis (SHA).

(a) The FS OSH Team performs SHAs at various external industrial workplaces, which include, but are not limited to, international and domestic MRO facilities, plating shops, and aircraft accident sites.

(b) Identifying, assessing, and managing hazards in the workplace are key components in maintaining a safe environment. A hazard is defined as a potential source of harm or adverse health effect (on a person or persons).

###### (c) Purpose of SHA.

1. The purpose of SHA is to assess the potential safety hazards that FS employees may encounter when performing their regular duties in these external industry workplaces. The SHA reports outline the hazards, potential exposures, and recommended actions the FS employees take to protect themselves.

2. The SHA reports also assist FS employees and managers with potential workplace and environmental occupational hazards.

3. In particular, refer to the SHA reports on MRO facilities, plating shops, and agricultural operators for detailed information on the safety and health findings for these types of facilities.

(d) The SHA reports can be found on the FS OSH website at <https://my.faa.gov/org/linebusiness/avs/offices/afx/work/osh.html>.

(2) Aircraft Accident Investigation Site Hazards. Aircraft accident investigation sites often present many different types of hazards, requiring careful analysis and preparation by FS investigators prior to site entry. Chemicals that were onboard the aircraft prior to the accident can pose a significant hazard to FS employees investigating the accident.

(a) Aerial Application Accidents. Chemical exposure has a higher probability for aerial application aircraft accidents (e.g., crop dusters or agricultural operators) since they may crash with a hopper full of chemicals. Sometimes the pilot dumps the chemical load prior to crashing; other times they do not have the time. See subparagraph 5e for more information on aerial applicator hazards.



(b) Cargo Aircraft Accidents. Cargo aircraft can be carrying various chemicals that when combined during impact can cause a hazardous chemical combination resulting in a dangerous reaction.

(c) Byproducts of Combustion at Aircraft Accidents. Many chemicals can produce byproducts when burned, which can be dangerous. For instance, a byproduct of combustion can be hydrogen cyanide or hydrogen chloride, which are carcinogens. In addition, the resins from composites when they burn can off-gas hazardous vapors.

(d) Other Chemical Hazards at Aircraft Accidents. An aircraft accident can also pose other chemical risks such as explosives, flammable gases, liquids, solids, toxic or corrosive substances, etc.

**Note:** Refer to FAA Order 3900.69, Flight Standards Service Aircraft Accident Investigation Safety Program, for detailed information on employee safety during an aircraft accident investigation.

(3) Maintenance, Repair, and Overhaul (MRO) Facilities. MRO facilities have many chemical hazards associated with them that include, but are not limited to, plating shops where chemicals are in open vats, hexavalent chromium, additive manufacturing (3D printing), chemical storage, etc. Each of these types of MRO hazards are discussed further in paragraph 5.

(4) Plating Shops. Plating shops can be standalone facilities or an associated shop within an MRO facility. Plating shops have open vats of various chemicals where parts are inserted. Plating shop hazards are discussed further in subparagraph 5d.

(5) Aerial Application Operators. Aerial application operators have many chemical hazards due to the number of chemicals they store on hand, the mixing of the chemicals, and equipment and/or procedure they use to load the chemical onto the aircraft. Aerial application operator hazards are discussed further in subparagraph 5e.

**b. Hazard Control Measures.** The following hazard control measures are listed in order of best control to the least preferred control measure. If an FS employee does not feel a hazard has been mitigated/controlled to a safe level, they should avoid the area or discontinue that activity.

(1) Hazard Elimination. Hazard elimination involves removing the hazard from the workplace or allowing the work to be done from a safe distance. Although this is the preferred hazard control measure, due to the nature of an FS inspector's job, this is rarely possible. If it is not possible, other methods must be employed by the inspector to mitigate hazards.

(a) Inspectors and their supervisors must exercise good judgment when determining the need to execute tasks that present significant hazards that cannot be eliminated.

(b) Practical examples of hazard elimination measures include waiting at a safe distance until fires are extinguished during aircraft accident investigation and not entering regulated hexavalent chromium areas during sanding operations.

(2) Engineering Controls. If the hazard cannot be eliminated, using an engineering control is the next-best measure to control the risk. An example is the facility's ventilation system in the plating shop. Proper ventilation limits the accumulation of chemical vapors at each vat and around the area.

(3) Administrative Controls. Work procedures can occasionally be adjusted to mitigate chemical hazards. For example, limit time around plating areas or in chemical storage areas and wait until the hazardous material (hazmat) team says the aircraft accident site is safe to enter. In some cases, administrative controls can be combined with elimination measures or the use of PPE.

(4) Personal Protective Equipment (PPE) and Systems. PPE shall be used after other control measures are determined not to be practical.

## **5. Chemical Safety Hazard Requirements.**

### **a. General Chemical Hazards at MRO Facilities.**

#### (1) Background.

(a) All MRO facilities use and store chemicals.

(b) Chemicals at MRO facilities can range from a few flammable cabinets of chemicals to vats of chemicals for plating, to large chemical storage rooms, to areas with dozens of flammable storage cabinets throughout the facility, or a combination of these.

#### (2) MRO Activities and Operations with Potential Chemical Exposure:

(a) Verifying chemicals are in date when an FS employee is inspecting an MRO facility. This can include picking up containers with chemicals spilled on them, moving containers, and working in a chemical storage room.

(b) Walking through and inspecting the plating area with vats of chemicals. See subparagraph 5d below for more information on plating shops.

(c) Working near an external industry workplace's employees who are using chemicals on aircraft and aircraft parts during maintenance, repair, and/or overhaul activities.

#### (3) Employee Protection Procedures.

(a) FS employees need to become familiar with the external industry workplace's chemicals, storage areas, and procedures; avoid prolonged time in chemical storage/plating areas; and limit contact with any chemicals.

(b) In general, avoiding the area is a best practice. However, if being in the area is required, wear gloves and safety glasses and avoid touching any surfaces.

**b. Hexavalent Chromium (Cr(VI)).****(1) Background.**

(a) Chromium occurs in the environment primarily in two valence states, trivalent chromium (Cr(III)) and hexavalent chromium (Cr(VI)). Exposure may occur from natural or industrial sources of chromium. Cr(III) is much less toxic than Cr(VI).

(b) Hexavalent chromium, also known as Chromium 6 or Cr(VI), is a toxic form of chromium that can cause severe health effects to workers, including lung cancer. Chromium compounds are added to paints and primers to provide corrosion protection and to create specific colors.

(c) Painting operations in the aerospace and air transportation industries can expose workers to hazardous levels of Cr(VI).

**Note:** Due to the nature of the FS job duties at MRO facilities, FS employees will not have repeated, prolonged, or high levels of Cr(VI) exposure. However, it is important for FS employees to understand the Cr(VI) hazard.

(d) The following are examples of hexavalent chromium regulated area signs:

**(2) Painting Operations that Expose Workers to Cr(VI):**

(a) Anti-corrosion primers and paints that contain chromium (e.g., zinc chromate and strontium chromate) are usually in the Cr(III) state. When sanded or ground, it becomes Cr(VI).

(b) Exposure to Cr(VI) can also occur during the painting of aircraft exteriors, interiors, or parts, and during the removal of chromate-based coatings. Job tasks that may expose workers to Cr(VI) include spray painting, sanding, grinding, welding or torch cutting, and abrasive blasting.

(3) Potential Health Effects of Cr(VI) Exposure.

- (a) Lung cancer and nasal and sinus cancer;
- (b) Eye, nose, and throat irritation;
- (c) Nasal septum ulcerations/perforations, gastritis, and gastrointestinal ulcers; and
- (d) Contact dermatitis, irritation, ulcers, and sensitization from skin contact.

(4) Cr(VI) Exposure Limits.

(a) Per Title 29 of the Code of Federal Regulations (29 CFR) part 1910, § 1910.1026, the OSHA permissible exposure limit (PEL) for worker exposure to Cr(VI) is 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) over an 8-hour time-weighted average (TWA).

(b) However, OSHA's Cr(VI) standard provides that where employees are painting aircraft or large aircraft parts, engineering and work practice controls must be used to reduce Cr(VI) exposures to or below  $25 \mu\text{g}/\text{m}^3$  (8-hour TWA), unless the employer can demonstrate that such controls are not feasible. The employer must supplement engineering and work practice controls with respirators to achieve worker protection to the PEL of  $5 \mu\text{g}/\text{m}^3$  (8-hour TWA).

(c) This means OSHA allows up to five times the PEL in the air. However, the facility has to mitigate the actual exposure to their employee to below the PEL using respirators, engineering controls (proper ventilation/air changes), and work practices.

(d) Without a respirator, an FS employee can be overexposed in approximately 90 minutes if observing the operation unprotected. Thus, FS employees must stay out of areas where sanding or grinding on paint/primer layers occurs.

**Note:** International MRO facilities are not likely to have the hexavalent chromium areas posted, proper PPE, or proper ventilation. Many countries do not have an equivalent regulation to OSHA's. Therefore, if a primer layer is being sanded or ground, the FS employee must stay away from the area.

**c. Additive Manufacturing (3D Printing with Metal Powder).**

(1) Background.

(a) Additive manufacturing, which is 3D printing of aviation parts, is a relatively new process for the aviation industry. It is currently occurring at aviation part manufacturing facilities and is imminent for MRO facilities to start using.

(b) The metal powders used in these processes are usually a combination of metals such as nickel, chromium, cadmium, etc. The metal powders are carcinogens.

(c) The following is an example of a 3D printer:



(2) Additive Manufacturing Machines. These machines:

(a) Usually use a laser or electron beam to weld the powder particles into the part.

(b) Have a chamber that is usually filled with inert gas (e.g., argon), which is interlocked to ensure the door is not opened while the part is manufactured.

(c) Have a hopper where the metal powder is loaded.

(3) Exposure Activities. Potential metal powder exposure activities are:

(a) Facility employee filling the container with the powder for pouring into the machine's hopper;

(b) Facility employee filling the hopper;

(c) Facility employee removing the part (still has loose powder around it);

(d) Facility employee cleaning the machine's chamber;

(e) Facility employee recycling powder and repackaging powder for re-use that, if not controlled, can produce airborne dust in the ambient workplace; and

(f) Contacting surfaces in the area around the machine that has a buildup of powder.

(4) Combustible Dust.

(a) The metal powders used for this process can create dust clouds, which may be explosive. High concentrations of dust are more likely to form an explosive mixture with air.

(b) The external industry workplace must implement methods to control the dust buildup. The methods discussed and recommended by the National Fire Protection Association (NFPA) include, but are not limited to, robust housekeeping practices, segregation of the product, segregation of the activities that produce dust, vacuuming practices and dust collection,

water blowdown, compressed air blowdown, and proper ventilation. Each of these methods have many limitations and requirements associated with them. Thus, an FS employee may see one or a selection of these methods used; however, they will probably not see all of them. If an FS employee sees dry sweeping or another action that is distributing the combustible dust associated with additive manufacturing into the air, they should leave the area and notify their manager.

(5) Employee Protection Procedures.

(a) FS employees need to become familiar with which external industry workplaces have additive manufacturing processes, their procedures, and how to protect themselves.

(b) In general, avoiding the area is a best practice; however, if being in the area is required, wear gloves and avoid touching any surfaces.

(c) Avoid being in the area when the powder is being poured, handled, blown, or vacuumed.

**d. Plating Shops.**

(1) Background.

(a) Plating shops have large quantities of various chemicals including strong acids in open vats with walkways between the rows of vats.

(b) The following are examples of plating shops:



(2) Plating Shop Hazards.

(a) The highest chemical risk is to the external industry workplace's employee. However, the FS employee can be standing nearby or observing the operation and accidentally be splashed, or otherwise contact the chemical.

(b) Additionally, when the external industry workplace does not have sufficient air ventilation, the FS employee can start to have symptoms such as dizziness, headache, eye irritation, etc. Corrosion of metals in the area are a warning sign that air ventilation is not adequate.

(c) FS employees can also have symptoms if they are sensitive to one of the products in the plating area.

(3) Employee Protection Procedures.

(a) Eye protection must be worn in plating areas.

(b) If an FS employee starts feeling light-headed or dizzy or starts getting a headache, they should leave the area. Notify the manager of the occurrence and symptoms.

(c) Avoid touching any surface while in a plating shop. Many areas can have residue chemicals on them and some surfaces are sharp due to corrosion.

(d) Liquids are often present on the flooring and may cause a slipping hazard. These liquids are strong acids and also pose a contact hazard and should not be touched without hand protection.

(e) Most plating shops have modular grated flooring that tends to be uneven and can cause tripping hazards. This creates potential contact and absorption hazard if an employee falls or stumbles and contacts a chemical or chemical residue with skin or clothing. Be aware of these surface changes and avoid shuffling your feet.

**e. Aerial Application Operators.**

(1) Background.

(a) Aerial application operators have many chemical hazards due to the number of chemicals they store on hand, the mixing of the chemical, and the equipment and/or procedure they use to load the chemical onto the aircraft.

(b) Aerial application operators can have various insecticides, pesticides, fungicides, fertilizers, and other types of chemicals throughout the year. The chemicals can be in liquid form or a dry form (e.g., powder, pellets, or crystalline).

(2) Aerial Application Operator Hazards.

(a) The system the aerial application operator uses to load the chemical or mixture of chemicals in the aircraft's hopper can range from a basic vat siphoned to the hopper to a closed-loop pump system.

(b) The following is an example of an aerial applicator operator's loading station:



(c) There is a potential, no matter the filling system, for an unintended release of chemicals while inspecting the facility. The closed systems have a lesser probability of release if used properly.

(d) There is potential contact with the chemical products on wings, sides, dry hopper, and nozzles of aircraft. The residue on the nozzles or aircraft can be multiple chemicals combined and may irritate skin or eyes and may stain clothes.

(e) FS employees observing aerial application and/or chemical dispensing need to be aware of the wind direction and take precaution to avoid inhalation of chemicals dispensed by agricultural aircraft.

(3) Employee Protection Procedures.

(a) Avoid standing near open mixing activities.

(b) When the chemical is being loaded into the hopper (liquid or crystalline chemical), stand away from the aircraft, and preferably upwind, if feasible.

(c) Be aware of spills and avoid stepping in them if possible. They may just be water, but they may have chemicals in them too.

**f. Aerial Application Accident Sites.**

(1) Background. Aerial application aircraft accidents will have the chemicals that were being applied to the crop. Whether it is the chemical residue because the hopper was empty when



it crashed or if the hopper was full, it is important to find out what chemicals were on board and look up their SDSs. The SDSs provide safety and health information on those chemicals.

**Note:** A good resource is the Greenbook website (<https://www.greenbook.net/>) to look up chemicals' health and safety information.

(2) Aerial Application Accident Site Hazards.

(a) Aerial application chemicals can be combined and have byproducts of combustion that can be hazardous.

(b) Some byproducts of combustion include hydrogen chloride and hydrogen cyanide, which are both carcinogens.

(3) Employee Protection Procedures.

(a) Avoid standing in pools of the chemical/fuel from the aircraft.

(b) Wear the rubber boots in the go-kit for all aerial application crashes. The rubber boots are easily decontaminated, and they provide the same toe and puncture protection of the issued leather protective footwear.

(c) Assess the crash site and determine if a respirator is needed per Aircraft Accident Investigation Safety (AAIS) training.

**g. Composites.**

(1) Per the AAIS Program and the AAIS training, aircraft accidents with composites must be assessed to determine if a respirator is required. The resins from composite burning can off-gas hazardous vapors.

(2) Composite shops, when they are creating the composite layers/bonds, can use chemicals that may produce hazardous vapors.

(3) Composite production facilities contain hazards from airborne composite fibers and from resin production. In particular, as powder additives are dumped into the resin mix they have the potential to become airborne. Both pose an ambient inhalation hazard if not controlled.

(4) Good workplace controls the external industry workplace should implement are essential in controlling exposure to composite production facilities and process materials. Many of the materials, particularly the resins, curing agents, and fibers, present a potential dermal-exposure hazard. Many of the solvents and some of the curing agents present a potential inhalation hazard. Some materials present both a dermal and inhalation hazard. Ingestion may be a potential exposure hazard, but usually involves poor personal hygiene or contamination of eating facilities. They also may schedule operations with the highest exposures at a time when the fewest employees are present.

(5) The external industry workplace's employees are likely to don eye and respiratory protection.

(6) FS employees should wear eye protection when working near these activities.

(7) Composite materials and raw fibers pose a contact hazard. Proper hand protection is needed if contacting composite materials.

#### **h. Beryllium and Other Chemical Hazards.**

(1) Beryllium.

(a) In some repair facilities that specialize in aircraft sensors, integrated systems, micro-electrical mechanical systems, and other parts/component repair, there can be potential exposure to beryllium, nickel, lead, and other metals. The external industry workplace should have their employees on an exposure monitoring program and require PPE use.

(b) The element beryllium is a grey metal that is stronger than steel and lighter than aluminum. Its physical properties of great strength-to-weight, high melting point, excellent thermal stability and conductivity, reflectivity, and transparency to X-rays make it an essential material in the aerospace and many other industries.

(c) Inhaling or contacting beryllium can cause an immune response that results in an individual becoming sensitized to beryllium. Individuals with beryllium sensitization are at risk for developing a debilitating disease of the lungs called chronic beryllium disease (CBD) if they inhale airborne beryllium after becoming sensitized. Beryllium-exposed workers may also develop other adverse health effects, such as acute beryllium disease or lung cancer.

(d) Beryllium has a very low permissible exposure limit of  $2 \mu\text{g}/\text{m}^3$  of air, which means the FS employee must not enter a beryllium area unless it has been cleaned. This still requires the FS employee to wear gloves to avoid touching any surfaces.

(2) Nickel, cadmium, lead, and other metals should be treated in the same manner as beryllium.

(3) Isocyanates are often used in urethane coatings and foam materials. Isocyanates are both toxic and sensitizers, which means that severe reactions to isocyanates can occur over multiple exposures.

#### **i. Lithium-Ion (Li-ion) Battery Hazards.**

(1) Li-ion batteries are generally safe and unlikely to fail, but only if there are no defects and the batteries are not damaged. When Li-ion batteries fail to operate safely or are damaged, they may present a fire and/or explosion hazard. Damage to Li-ion batteries can occur immediately or over time from physical impact, exposure to certain temperatures, and/or improper charging.

(2) Damage from improper use, storage, or charging may also cause Li-ion batteries to fail. The operator must test batteries, chargers, and associated equipment following an appropriate test standard, address product recalls, and help identify defects.

(3) The heat released during cell failure can damage nearby cells, releasing more heat in a chain reaction known as a thermal runaway. The high-energy density in Li-ion batteries makes them more susceptible to these reactions. Depending on the battery chemistry, size, design, component types, and amount of energy stored in the Li-ion cell, Li-ion cell failures can result in chemical and/or combustion reactions, which can also result in heat releases and/or over-pressurization.

(4) In some Li-ion batteries, combustion can separate fluorine from Li-ion salts in the battery. If mixed with water vapors, fluorine may produce hydrofluoric acid, which is particularly hazardous because workers may not feel its effects until hours after skin exposure.

(5) Signs of deterioration in a Li-ion battery include, but are not limited to, expanded walls, byproducts leaking out such as chemicals or water vapor, deformed shell, etc.

(6) Many Unmanned Aircraft Systems (UAS) have Li-ion batteries; and FS employees who work around unmanned aircraft and/or investigate unmanned aircraft accidents need to avoid the area around the battery, especially if there are signs of deterioration.

## **6. International Chemical Safety Hazards.**

### **a. Background.**

(1) International facilities, whether they are MRO, part-repair, engine-repair, plating, or avionics shops, may or may not use the proper pictograms or labels to communicate the hazard to the FS employee.

(2) Developing countries are not likely to have an OSHA equivalent to ensure the safety of workers and visitors.

### **b. Employee Protection Procedures.**

(1) FS employees working overseas need to be extra vigilant about their surroundings and use situational awareness.

(2) Some practices employees should perform when working overseas include:

(a) Become familiar with the signal words in the local language. Key signal words to know in that language include exit, fire, danger, warning, evacuation, poisonous, and toxic.

(b) Become familiar with their alarm sounds, visual notification/warning, emergency, and other lighting systems. Some facilities have different sounds and visual notifications for different emergencies.

(c) Become familiar with evacuation procedures and locate emergency exits.

- (d) Become familiar with emergency shower locations, if they are present.
  - (e) Stay near the facility's escort person and follow them in the event of an emergency.
  - (f) Disengage from any work activities the employee feels is unsafe or unhealthful and notify their frontline supervisor when able.
- (3) If an FS employee starts feeling light-headed or dizzy or starts getting a headache, they should leave the area. Notify the manager of the occurrence and symptoms.

## Chapter 4. Hazard Communication (HazCom) Program Requirements

1. **General.** This chapter addresses the HazCom requirements for FS offices.

2. **HazCom for FS Offices.**

a. **Office HazCom Program.** Each FS office must have an office HazCom Program. If offices are collocated, a HazCom Program for those in the same building is recommended.

b. **OSHA Regulation.** This written office HazCom Program is required to meet the OSHA hazard communication regulation (29 CFR Part 1910, § 1910.1200, Hazard Communication). The hazard communication regulation was promulgated to ensure that all chemicals would be evaluated and that information regarding the hazards would be communicated to employers and employees.

c. **Program Goal.** The goal of the OSHA standard and this order is to reduce the number of chemically related occupational illnesses and injuries where employees may be exposed to hazardous chemicals under normal working conditions or during an emergency. This written office HazCom Program covers work operations at the office and addresses the hazards when working at external work locations.

d. **Program Template.** Appendix B includes the Office Hazard Communication (HazCom) Program Template. To download the Word version of the template, refer to the FS OSH website at <https://my.faa.gov/org/linebusiness/avs/offices/afx/work/osh.html>.

3. **HazCom at External Workplaces.** FS employees work at external industry workplaces (multi-employer) that the FAA does not control (such as an aircraft repair facility or airport facility). HazCom training will include how to be aware of potentially hazardous chemicals in the work area and to know how to seek further information about the chemical from an SDS and container label. FAA employees should request information on the hazardous chemicals present when they arrive at external industry workplaces.

a. **Facility Responsibility.** When an external industry workplace is visited, it will be the responsibility of the external industry workplace to advise the FAA employees of any hazardous chemicals to which there is a potential for exposure, the labeling system, and the appropriate protective measures to be taken.

b. **FAA Responsibility.** The FAA is ultimately responsible for the safety and health of its employees at any workplace.

c. **Workplace HazCom Program.** Accordingly, FS will rely on the external industry workplace's HazCom Program. FS will supplement the external industry workplace's HazCom Program by ensuring FS employees become familiar with:

- (1) The location of the workplace's SDSs;
- (2) What SDS system they use and how a visitor would access their SDSs;



## 5. Globally Harmonized System for Chemical HazCom.










**a. Background.** The Globally Harmonized System of Classification and Labeling of Chemicals, also known as the GHS, was adopted into the OSHA Hazard Communication Standard when it was revised in 2012.

**b. Approach.** The GHS is a system for standardizing and harmonizing the classification and labeling of chemicals. It is a logical and comprehensive approach to:

- (1) Defining the health, physical, and environmental hazards of chemicals;
- (2) Creating classification processes that use available data on chemicals for comparison with the defined hazard criteria; and
- (3) Communicating hazard information, as well as protective measures, on labels and SDSs.

**c. International Use.** Since the GHS is an international system, the FS employees who work in international locations are likely to see the pictograms if the country and/or external industry workplaces have adopted the GHS.

**d. GHS Classification and Pictograms.** The following is a diagram of the GHS classification, pictograms, and their associated meaning:

<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>

## Chapter 5. CSHC Training Requirements

**1. General.** This chapter addresses the training requirements for chemical safety and HazCom for FS employees.

**2. Training.** Initial CSHC training will be implemented within one year of the publication date of this order. The training will include training required for FS employees who perform work at external industry workplaces and the training required for the office HazCom Program.

**a. FS Chemical Safety.** This is a more complex training for employees who work at MRO facilities, plating facilities, agricultural operators, and aircraft accident sites.

**b. Training Elements.** The FS Chemical Safety training will include:

- (1) The requirements contained in this CSHC Program;
- (2) Familiarization with the hazardous chemicals that are a potential exposure;
- (3) Safe working procedures, to include methods and observations which may be used to detect the presence or release of a hazardous chemical in the work area (e.g., monitoring methods and devices, visual appearance and/or odor, etc.);
- (4) Protective measures and practices for chemical safety when working at external workplaces, to include the external industry workplace's emergency procedures, chemical locations, SDS location, and how to access the SDSs, etc.; and
- (5) Administrative and engineering controls.

**c. Required Training for All FS Employees.**

(1) Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This training provides familiarization with this system, which is intended to standardize and harmonize the classification and labeling of chemicals globally. This is a one-time only training.

(2) Hazard Communication: An Employee's Right to Know. This training is an awareness level HazCom training for the office environment where chemicals may be stored and used by FS employees and/or janitorial services. This is a one-time only training.

(3) Flight Standards Site-Specific Hazard Communication (HazCom). In addition to the Right-to-Know training, employees must also receive site-specific HazCom training that covers the HazCom aspects that are specific to the office, such as the location of chemicals, location of SDSs, who manages the SDSs, etc. This is required for all employees at the time of their initial assignment to that office. Additionally, this training is required whenever a new physical or health hazard to the employees that they have not previously been trained on is introduced into their work area. It is recommended that these site-specific HazCom topics be refreshed annually during the training on the Occupant Emergency Plan/Facility Security Plan.

**3. Other Training.** Training provided prior to employment with the FAA does not meet the requirements of this order.



## Appendix A. CSHC Program Definitions

- 1. Additive Manufacturing.** The official industry standard term for all applications of the technology. It is defined as the process of joining materials to make objects from 3D model data, usually layer upon layer.
- 2. Aerial Application.** Any chemical or product applied to the ground crop from an aircraft.
- 3. Beryllium.** An element that is a grey metal that is stronger than steel and lighter than aluminum. Its physical properties of great strength-to-weight, high melting point, excellent thermal stability and conductivity, reflectivity, and transparency to X-rays make it an essential material in the aerospace industry.
- 4. Combustible Dust.** OSHA defines combustible dust as “a solid material composed of distinct particles or pieces, regardless of size, shape, or chemical composition, which presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations.” This generally means any combustible material that can burn rapidly when in a finely divided form.
- 5. External Industry Workplaces.** Workplaces FS employees visit that are not owned or controlled by the FAA. They include, but are not limited to, maintenance, repair, and overhaul (MRO) facilities, plating facilities, agricultural operators, airports, helipads, aircraft accident sites, and aircraft accident reconstruction sites.
- 6. Globally Harmonized System of Classification and Labeling of Chemicals (GHS).** An international system for standardizing and harmonizing the classification and labeling of chemicals.
- 7. Hazard Communication.** Also known as the Employee’s Right To Know, the Hazard Communication Standard was promulgated to ensure that all chemicals would be evaluated and that information regarding the hazards would be communicated to employers and employees. The goal of the standard is to reduce the number of chemically related occupational illnesses and injuries where employees may be exposed to hazardous chemicals under normal working conditions or during an emergency.
- 8. Hexavalent Chromium.** Also known as Chromium 6 and Cr(VI), and is a toxic form of chromium that can cause severe health effects to workers, including lung cancer. Chromium compounds are added to paints and primers to provide corrosion protection and to create specific colors. Painting operations in the aerospace and air transportation industries can expose workers to hazardous levels of Cr(VI).
- 9. OSHA.** The U.S. Department of Labor Occupational Safety and Health Administration, a Federal agency charged with enforcing workplace health and safety regulations promulgated under the Occupational Safety and Health Act of 1970.
- 10. Plating Shop.** An area where aircraft parts are plated with various coatings. The shop has vats of chemicals that produce the chemical reaction needed for the plating of the part.

**11. Safety Data Sheet (SDS).** OSHA requires that the chemical manufacturer, distributor, or importer provide SDSs (formerly Material Safety Data Sheets (MSDS)) for each hazardous chemical to downstream users to communicate information on these hazards. The SDS includes information such as the properties of each chemical; the physical, health, and environmental hazards; protective measures; and safety precautions for the chemical.

**12. Unsatisfactory Condition Report (UCR).** Provides all agency employees with direct means for advising the management of an existing unsatisfactory condition per Order 1800.6. Although the condition may be an isolated occurrence, the collection and tracking of reports via the Safety Management Information System (SMIS) may assist in the identification of trends or patterns that require a broader corrective action than is apparent from a single occurrence.

**13. Work Area.** The portion of a walking/working surface where job duties are being performed.

## Appendix B. Office Hazard Communication (HazCom) Program Template

### HAZARD COMMUNICATION (HAZCOM) PROGRAM [LOCATION OFFICE, TYPE OFFICE]










#### Introduction

This written Hazard Communication (HazCom) Program for the [Location Office (office acronym)] is established to meet the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR Part 1910, § 1910.1200, Hazard Communication). The Hazard Communication Standard was promulgated to ensure that all chemicals would be evaluated and that information regarding the hazards would be communicated to employers and employees. The goal of the standard is to reduce the number of chemically related occupational illnesses and injuries where employees may be exposed to hazardous chemicals under normal working conditions or during an emergency. This written [OFFICE ACRONYM] Hazard Communication (HazCom) Program covers work operations at the [Office Name] and at external work locations.

#### Labeling

##### Label Elements.

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) provides tables for each hazard class. The pictograms below are the hazard symbols that are used in the new Hazard Communication/GHS Standard.

<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>

**Label Requirements.** Information required on a GHS label:

#### 1. Signal Words.

A signal word indicates to the reader if a hazard is generally more severe or less severe. The label should include the relevant signal word in accordance with the classification of the hazardous substance or mixture. In case your substance or mixture displays a more severe hazard, the label should bear the signal word “**danger**”; and in case of less severe hazards, it should bear the signal word “**warning**”.

**2. Hazard Pictograms.**

A hazard pictogram is a pictorial presentation of a particular hazard. Accordingly, the classification of your substance or mixture determines the hazard pictograms that should be displayed on your label.

**Note:** Hazard pictograms should be in the shape of a square set at a point (diamond shape), and should have a black symbol on a white background with a red border.

**3. Hazard Statements.**

Labels should also bear the relevant hazard statements describing the nature and severity of the hazards of your substance or mixture.

<i>Hazard Class</i>	<i>For Example</i>
<i>Physical Hazards</i>	Self-heating in large quantities; may catch fire
<i>Health Hazards</i>	May cause illness
<i>Environmental Hazards</i>	Very toxic to aquatic life with long-lasting effects

**4. Precautionary Statements.**

Labels should bear the relevant precautionary statements, giving advice on measures to prevent or minimize adverse effects to human health or the environment arising from the hazards of your substance or mixture.

<i>Precautionary Measurement</i>	<i>For Example</i>
<i>General</i>	Keep out of reach of children
<i>Prevention</i>	Keep away from heat/sparks/open flames/hot surfaces
<i>Response</i>	Call a poison center or doctor/physician
<i>Storage</i>	Store in a well-ventilated place

**5. Supplemental information.**

Labels should include the relevant supplemental information when the substance or mixture has been classified as hazardous and has the physical or health properties described. The name, address, and telephone number of the manufacturer or supplier of the substance or mixture should be provided on the label.

<i>Supplemental Information Codes</i>	<i>For Example</i>
<i>EUH001</i>	Explosive when dry
<i>EUH014</i>	Reacts violently with water

**6. Container Labeling.**

All hazardous chemical containers used at this workplace will clearly identify the chemical on the label and include an appropriate hazard warning and the manufacturer's name and address. If needed, secondary containers in which a substance has been transferred from the original manufacturer's container are labeled either with the original manufacturer's label or with labels marked with the chemical identity and the appropriate hazard warning.

**Safety Data Sheets (SDS)**

A Safety Data Sheet (SDS) is a document that describes the physical and chemical properties of products, substances, and chemicals, physical/health hazards, and precautions for their safe handling and use in the workplace. The chemical manufacturers, distributors, and importers must perform hazard determination/evaluation on the chemical products they produce and publish the SDS.

Even though the [OFFICE ACRONYM] does not store or use chemicals beyond household quantities or use, the [OFFICE ACRONYM] Occupational Safety and Health (OSH) point of contact (POC) obtains the necessary SDSs for all hazardous materials. SDSs are kept locally in a binder located [*location of SDSs, be specific*] and are available to all employees on all shifts who wish to review them or need them for emergency information. The [OFFICE ACRONYM] OSH POC will maintain a master file of all SDSs for chemicals stored at the [OFFICE ACRONYM], if applicable.

The [OFFICE ACRONYM] manager and OSH POC have implemented procedures to ensure the necessary SDSs for any new chemical stored and/or used onsite are obtained. In addition, they ensure any new chemical information is communicated to affected employees.

Any hazardous chemical that is not required for the completion of the employee's duties will not be permitted. Supervisory personnel or their designee are responsible to add new/revised/updated copies of the SDSs and chemical/product inventory lists to the work area binders and/or files where the chemicals or products will be used.

### **Minimum Information for an SDS.**

Information in the SDS should be presented using the following 16 headings in the order given below:

- |  |  |
|--|--|
| 1. Identification.                         | 9. Physical and chemical properties.         |
| 2. Hazard(s) identification.               | 10. Stability and reactivity.                |
| 3. Composition/information on ingredients. | 11. Toxicological information.               |
| 4. First-aid measures.                     | 12. Ecological information – not mandatory.  |
| 5. Firefighting measures.                  | 13. Disposal considerations – not mandatory. |
| 6. Accidental release measures.            | 14. Transport information – not mandatory.   |
| 7. Handling and storage.                   | 15. Regulatory information – not mandatory.  |
| 8. Exposure controls/personal protection.  | 16. Other information.                       |

### **SDS Access.**

SDSs will be readily available to all employees during each work shift. The primary method for accessing SDSs for the [OFFICE ACRONYM] is the binder located [*location of SDSs, be specific*].

1. **Primary System.** Employees may access SDSs at any time via the HazCom file binder [*location of SDSs, be specific*].
2. **Backup System.** Employees or their representatives may also download SDSs from a Google search.
3. **New or Revised SDSs.** [OFFICE ACRONYM] management and/or designee will review new SDSs and replace obsolete SDSs.

### **Hazard Communication at External Workplaces**

[OFFICE ACRONYM] employees work at external workplaces (multi-employer) that the FAA does not control (such as an aircraft repair facility or airport facility). HazCom training will include how to be aware of potentially hazardous chemicals in the work area and to know how to seek further information about the chemical from an SDS and container label. FAA employees should request information on the hazardous chemicals present when they arrive at non-FAA workplaces.

When an external non-FAA workplace is visited, it will be the responsibility of the external industry workplace to advise the FAA employees of any hazardous chemicals to which there is a potential for exposure, the labeling system, and the appropriate protective measures to be taken.

Conversely, the FAA is ultimately responsible for the safety and health of its employees at any workplace. Accordingly, the [OFFICE ACRONYM] will rely on the external industry workplace's HazCom Program with the supplemental requirements and procedures below. [OFFICE ACRONYM] employees working at external workplaces need to become familiar with:

1. The location of the workplace's SDSs;
2. What SDS system they use and how a visitor would access their SDSs;
3. Where they store, use, and mix their chemicals; and
4. Which on-site chemical may be a higher hazard than other chemicals.

## **Employee Information and Training**

### Initial Training.

Employees who work with or are potentially exposed to hazardous chemicals will receive initial training on the Hazard Communication Standard. HazCom training should cover the following topics:

- An overview of the requirements in OSHA's Hazard Communication Standard.
- The location of the written HazCom Program.
- Hazardous chemicals present in their workplace and applicable physical and health hazards associated with them.
- Any operations in their work area where hazardous chemicals are used.
- How to understand and use the information on labels and in SDSs.
- Methods used to detect the presence or release of hazardous chemicals in the work area.
- Steps taken to prevent or reduce exposure to these chemicals.
- How employees can protect themselves from exposure to these hazardous chemicals with engineering controls/work practices and personal protective equipment (PPE).
- An explanation of any special labeling present in the workplace regarding pictograms, signal words, hazard statements, and any precautionary statements.
- Emergency procedures to follow if an employee is exposed to these chemicals.

### Additional Training—New Type of Chemical Hazard.

Before a new type of hazardous chemical is introduced into the [OFFICE ACRONYM], each employee who works with or is present in the affected work area will be given information and training for the new chemical hazard.

### Training Content and Format.

Each new employee will receive the information and training listed above, and become familiar with the location of the SDS files system and the written HazCom Program. Employees who may potentially be exposed to hazardous materials/chemicals must complete the eLMS training course: Hazard Communication: esh\_sah\_b23\_sh\_enus (An Employee's Right to Know). In addition, employees must also receive site-specific HazCom training (Hazard Communication (Site-Specific) Training).

Training will also be provided on an as-needed basis when new hazards are introduced into the workplace, new hazards are discovered, and/or new information on an SDS has been revised.

Recordkeeping. An electronic record will be made of each employee who attends HazCom training including the completion date.

### **Informing Employees who Perform Non-Routine Tasks**

Employees need to notify their supervisor if they see the need to perform non-routine tasks that may expose them to hazardous chemicals. The supervisor will raise the concern to the FS National OSH Team for evaluation. The FS OSH Team will evaluate the hazards of these tasks and provide appropriate controls as required.

### **Informing Contractors and Other Employers About Our Hazardous Chemicals (and Vice Versa)**

If the FAA uses or has stored chemicals onsite that may expose an outside contractor to chemical hazards, then the FAA must provide information and SDSs to the exposed contractor or vendor supervisor and/or employees. It is the responsibility of the Contract Officer to provide the contractor and their employee's information on how to find and review our HazCom Program and SDSs. Contractors working in the FAA leased space will be informed of [OFFICE ACRONYM] written HazCom Program and locations of the office's SDSs. During any renovations at the FAA facility, the contractor must provide the information on any hazardous chemicals they are introducing to the area and the associated SDSs, so the manager can implement mitigation procedures, if appropriate. It will be the responsibility of that employer to train their employees on the avoidance and/or emergency procedures for these materials.

### **Chemical Inventory**

A list (or inventory) of all known hazardous chemicals used or stored [OFFICE ACRONYM] are included below. The list is cross-referenced with the SDSs and is kept with this program and SDSs to serve as an index to help employees identify and locate necessary information.

Revised [revision date].

<u>Chemical Name</u>	<u>Manufacturer</u>	<u>Location</u>	<u>Container Size</u>	<u>SDS</u>
<i>Sample Acme Chemical</i>	<i>Sample Acme</i>	<i>Janitor's closet</i>	<i>1 Gallon</i>	<i>Yes</i>

## Appendix C. Applicable Standards and Regulations

The following standards, regulations, and requirements are applicable to the FS CSHC Program.

### 1. FAA Order 3900.19, Federal Aviation Administration (FAA) Occupational Safety and Health Policy.

### 2. Title 29 CFR Part 1910, Occupational Safety and Health Standards:

- a. Section 1910.120, Hazardous Waste Operations and Emergency Response.
- b. Subpart I, Personal Protective Equipment.
  - Section 1910.132, General Requirements.
  - Section 1910.133, Eye and Face Protection.
  - Section 1910.134, Respiratory Protection.
  - Section 1910.135, Head Protection.
  - Section 1910.136, Foot Protection.
  - Section 1910.137, Electrical Protective Equipment.
  - Section 1910.138, Hand Protection.
- c. Subpart Z, Toxic and Hazardous Substances.
  - Section 1910.1000, Air Contaminants.
  - Section 1910.1001, Asbestos.
  - Section 1910.1003, 13 Carcinogens (4-Nitrobiphenyl, etc.).
  - Section 1910.1018, Inorganic Arsenic.
  - Section 1910.1020, Access to Employee Exposure and Medical Records.
  - Section 1910.1024, Beryllium.
  - Section 1910.1025, Lead.
  - Section 1910.1026, Chromium (VI).
  - Section 1910.1027, Cadmium.
  - Section 1910.1052, Methylene Chloride.
  - Section 1910.1200, Hazard Communication.
- d. Section 1960.8, Agency Responsibilities.
- e. Section 1960.59, Training of Employees and Employee Representatives.

### 3. Consensus Standards:

- a. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA):
  - ANSI/ISEA Z87.1-2015, American National Standard for Occupational and Educational Personal Eye and Face Protection Devices.
  - ANSI/ISEA Z89.1-2014, Industrial Head Protection.
  - ANSI/ISEA 105-2016, American National Standard for Hand Protection Classification.



b. ASTM International, ASTM F2413-18, Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear.

c. The National Fire Protection Association (NFPA) 652, Standard on the Fundamentals of Combustible Dust (2019).

### Directive Feedback Information

Please submit any written comments or recommendation for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: FAA Order 3900.78, Flight Standards Service Chemical Safety and Hazard Communication Program

To: Flight Standards Directive Management Officer, AFB-120 Directives Mailbox  
(9-AWA-AFB-120-Directives@faa.gov)

*(Please check all appropriate line items)*

- An error (procedural or typographical) has been noted in paragraph \_\_\_\_\_ on page \_\_\_\_\_ .
- Recommend paragraph \_\_\_\_\_ on page \_\_\_\_\_ be changed as follows:  
*(attach separate sheet if necessary)*
- In a future change to this order, please cover the following subject:  
*(briefly describe what you want added)*

Other comments:

I would like to discuss the above. Please contact me.

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Routing Symbol: \_\_\_\_\_