



## Goddard Procedural Requirements (GPR)

**DIRECTIVE NO.** GPR 1700.8  
**EFFECTIVE DATE:** July 23, 2010  
**EXPIRATION DATE:** July 23, 2016

**APPROVED BY Signature:** Original signed by Arthur F. Obenschain for  
**NAME:** Robert Strain  
**TITLE:** Director

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### **COMPLIANCE IS MANDATORY**

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**Responsible Office:** Code 360/Safety Division

**Title:** GSFC Hazard Communication Program

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**GODDARD INTERIM DIRECTIVE (GID) 1700.0, HIGH PRIORITY PROCESS CHANGES TO GPR 1700.8, IMPLEMENTS CHANGES TO THE CENTER'S HAZARD COMMUNICATION PROCESS.**

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### CHANGE HISTORY LOG

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## **PREFACE**

### **P.1 PURPOSE**

This document defines the Hazard Communication (HazCom) Program for Goddard Space Flight Center (GSFC). It describes the requirements and responsibilities for the implementation of a comprehensive HazCom Program to meet the requirements of Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1200, Hazard Communication Standard. The Program goal is to ensure that employees are informed of chemical hazards they may be exposed to in the workplace.

### **P.2 APPLICABILITY**

This directive applies to all employees and contractors working at GSFC, including remote facilities and operations that engage in the use of hazardous chemicals. Employees and contractors engaged in the laboratory use of hazardous chemicals shall comply with GSFC's Chemical Hygiene Plan (GPR 1700.2).

### **P.3 AUTHORITY**

29 CFR 1910.1200, OSHA Hazard Communication Standard

### **P.4 APPLICABLE DOCUMENTS**

- a. 29 CFR 1910.1200, Hazard Communication
- b. GPR 1700.1, Occupational Safety Program at Goddard Space Flight Center
- c. GPR 1700.2, Chemical Hygiene Plan
- d. GPR 1840.2, Industrial Hygiene Program

### **P.5 CANCELLATION**

N/A

### **P.6 SAFETY**

See Sections 2 – 4.

### **P.7 TRAINING**

See Section 5.

**P.8 RECORDS**

Record Title	Record Custodian	Retention
GSFC Hazardous Communication Training	SATERN	* <u>NRRS 3/33G1</u> - Destroy 5 years after employee discontinues or completes training.
Specific training on hazardous materials	Supervisor	* <u>NRRS 3/33G2</u> - Destroy 5 years after separation of employee or when no longer needed.

\*NRRS – NASA Records Retention Schedules ([NPR 1441.1](#))

**P.9 MEASUREMENT/VERIFICATION**

M1 – An annual analysis of all chemical related mishaps/close calls to identify potential trends for process improvement shall be conducted by the Occupational Safety & Health Division.

**PROCEDURES**

In this document, a requirement is identified by “shall,” a good practice by “should,” permission by “may” or “can,” expectation by “will,” and descriptive material by “is.”

**1. RESPONSIBILITIES**

1.1 **The Center Director** has overall responsibility for ensuring that the Hazard Communication Program is implemented.

1.2 **Directors Of** in their areas of responsibility shall:

- a. Ensure that resources needed to comply with the Hazard Communication Program are available;
- b. Ensure that line management attends required training

1.3 **Branch Heads and Supervisors** shall implement the Hazard Communication Program for their areas of responsibility. Additionally, Branch Heads and Supervisors shall:

- a. Ensure that current MSDSs are maintained in the GSFC MSDS management system;
- b. Ensure that an accurate inventory of the hazardous chemicals used in the work area is compiled and maintained in the GSFC MSDS management system database and posted on storage cabinets;
- c. Ensure employees are trained on the specific hazards of the chemicals used in the work area, hazard control methods, and personal protective equipment as identified in the hazardous operating procedures and task safety analysis / job hazard analysis. Training shall be conducted in accordance with section 5;
- d. Attend/review the required Hazard Communication program training;

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- e. Enforce safety practices such as using appropriate Personal Protective Equipment (PPE); implement safety precautions and procedures for operations, which involve the use of hazardous chemicals; utilize the MSDSs as references;
- f. Ensure hazardous materials shipped from their laboratories have an MSDS precede or accompany each shipment of hazardous materials;
- g. Develop operating procedures for hazardous operations involving hazardous materials. Ensure that workers review these procedures prior to performing these tasks; and
- h. Ensure MSDSs for chemicals, brought on the Center by contractors or projects, shall be entered in the GSFC MSDS management system;

**1.4 Laboratory Managers, Designated Safety Officers and Chemical Hygiene Representatives shall:**

- a. Ensure personnel working in their areas have received Hazard Communication Training;
- b. Maintain an accurate inventory of the hazardous chemicals used in the work area;
- c. Ensure that the containers of hazardous chemicals in the work area are appropriately labeled. Commercial containers without appropriate labels shall be sent back to the supplier unless the contents of the container are definitely known. Where contents are known, the container shall be immediately labeled with the appropriate information;
- d. Ensure hazardous materials shipped from their laboratories have an MSDS precede or accompany each shipment of hazardous materials; and
- e. Ensure hazardous operating procedures are used.

**1.5 All GSFC employees shall:**

- a. Read the MSDSs and labels to become familiar with the safety precautions, chemical and physical properties, and potential health hazards of the chemicals prior to handling or working near the chemicals;
- b. Exercise all necessary precautions in the safe use of hazardous chemicals, including wearing appropriate PPE as specified on the MSDS or as recommended by their supervisor or by the Occupational Safety & Health Division;
- c. Notify their supervisor of any apparent hazards involving hazardous materials, which they cannot mitigate themselves. Examples are missing MSDSs, improperly labeled containers of hazardous chemicals, chemicals not listed on the hazardous chemical inventory for the work area, chemicals they are not trained to use, etc;
- d. Report to a supervisor all working conditions which may cause substantial personal exposure to hazardous chemicals;
- e. Review operating procedures prior to performing tasks involving hazardous materials;
- f. Properly label containers of hazardous chemicals in accordance with OSHA's Hazard Communication Standard;
- g. Properly store hazardous materials; and
- h. Attend required training.

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- 1.6 **The Safety Division** has overall responsibility for monitoring this program. Specific responsibilities include but are not limited to the following:
- a. Maintain this document, the written Hazard Communication Program for the Center;
  - b. Assist supervisors and managers in determining the level and content of training required by each organization to adequately inform employees of the hazards of workplace chemicals;
  - c. Provide HazCom training on the Center's HazCom Program. (Contractors may provide their employees training on their own company program.);
  - d. Provide industrial hygiene (IH) surveys to identify employee exposure, as described in GPR 1840.2;
  - e. Audit GSFC organizations to ensure that employees are trained in the HazCom Program, and their chemicals are properly labeled, stored and used;
  - f. Ensure the Program defined herein is maintained;
  - g. Alert GSFC organizations, in writing, of any chemicals that are banned at GSFC due to safety and health concerns;
  - h. Provide technical support to GSFC organizations, including but not limited to assisting in conducting hazard analyses of the workplace, safety inspections and audits, observations and reviews of work practices, procedures, PPE, and procurements;
  - i. Ensure contractors programs are compliant with 29 CFR 1910.1200, the Hazard Communication Standard and this GPR;
  - j. Ensure contractors have access to MSDSs of the chemicals used or stored in the areas where they will perform their stated contractual duties and understand the GSFC labeling system; and
  - k. Provide technical support to Contracting Officers and Contracting Officer Technical Representatives on the requirements of this GPR.
- 1.7 **Contracting Officers (CO) and Contracting Officer Technical Representatives (COTRs)** shall:
- a. Ensure that Contractors administer a written HazCom Program, which complies with 29 CFR 1910.1200, the Hazard Communication standard promulgated by the Occupational Safety and Health Administration (OSHA) and this document;
  - b. Ensure contractors whose work involves working with chemicals are trained in accordance with Section 5;
  - c. Ensure that Contractors supply MSDSs to GSFC for chemicals brought on-site for entry into the GSFC MSDS management system;
  - d. Ensure that Contractors inform personnel of precautionary measures which must be taken, prior to or during the stated work period, to ensure that the contractor's work does not present a health or safety hazard (e.g., a painting contractor should notify occupants at least 24 hours prior to painting a room so that appropriate measures may be taken to protect equipment or to relocate personnel who may be affected by odors associated with painting); and

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- e. Ensure that Contractors understand that containers of hazardous chemicals, which they import or use at GSFC are labeled in accordance with the provisions of the OSHA Hazard Communication Standard and maintain a list of the hazardous materials brought onto the GSFC facility.

1.8 **Contractors** shall:

- a. Administer a written Hazard Communication Program, which complies with 29 CFR 1910.1200, the Hazard Communication Standard and this document, including labeling, MSDS maintenance, notification of the COTR, and training; and
- b. Ensure their personnel are aware of and understand the GSFC Hazard Communication Program.

**2. LABELING AND OTHER FORMS OF WARNING**

- 2.1 Every container of hazardous materials that enters the Center shall be properly labeled or tagged with the following:
  - a. Identity of the hazardous material;
  - b. Appropriate hazard warnings including target organ effects; and
  - c. Name and address of the chemical manufacturer, importer, or other responsible party.
- 2.2 Commercial Containers without appropriate labels shall be sent back to the supplier unless the contents of the container are definitely known.
- 2.3 When contents are known, the container shall be immediately labeled with the appropriate information.
- 2.4 When the contents are unknown, the vendor shall be contacted for a return authorization. The material shall be isolated and stored pending vendor pick-up and return instructions.
- 2.5 Labels or tags shall be legible, written in English, and prominently displayed on the container.
- 2.6 Vats, dip tanks, etc., shall be labeled with placards or other signs in close proximity to the container, dip tank, etc. and the contents clearly identified.
- 2.7 Pipes, ducts, and valves carrying hazardous materials shall be clearly identified and the contents described.
- 2.8 Portable containers (all secondary containers), into which chemicals are transferred from labeled (primary) containers and which are intended only for the immediate use of the employee who performs the transfer shall be clearly labeled with the identity of the hazardous material.
- 2.9 If a chemical is transferred into a secondary container that is not intended only for the immediate use of the employee who performs the transfer, the container shall bear the name of the chemical

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along with the hazard warnings. An example of a label is the diamond symbol of the NFPA in accordance with NFPA 704. This symbol indicates the severity of the hazard on a numerical scale of 0 – 4, and the type of hazard according to a color code. Assistance in filling out the label can be obtained from the Safety Division. An example of a label can be found in Appendix D.

- 2.10 Exemptions to container labeling will be those containers which due to physical limitation cannot have all of the aforementioned hazard warnings, such as small chemical samples. Exempted containers must, however, be identified by some appropriate means; i.e., by chemical name or tag attached with identifying information.

### **3. HAZARDOUS MATERIALS INVENTORY**

- 3.1 An inventory of all hazardous materials used or stored at GSFC shall be maintained in the GSFC hazardous materials management system. This inventory shall specify locations of materials and the responsible Codes/Organizations and shall be available to all affected employees.
- 3.2 Each chemical storage cabinet shall be posted with a list of the chemicals in the cabinet, unless the materials in the cabinet are used in the manner a household consumer would use them and the same type and quantity that could be found in household use (such as a bottle of Windex used occasionally to clean glass surfaces, etc.).
- 3.3 Supervisors or their designees shall ensure the list of chemicals is updated when new chemicals are introduced into the work area, or when the use of a chemical is discontinued. The chemical list shall be reviewed for accuracy during the Supervisors Quarterly Inspections as defined in GPR 1700.1, Occupational Safety Program at Goddard Space Flight Center.
- 3.4 Hazardous materials storage guidelines can be found at <http://safety1st/>

### **4. MATERIAL SAFETY DATA SHEET**

- 4.1 An MSDS is required for each hazardous chemical used in the work place. All employees are required to review and understand the information contained in the MSDS prior to the start of work with any chemical. Employees shall be informed how to access MSDSs on-line at [Safety1st.gsfc.nasa.gov](http://Safety1st.gsfc.nasa.gov).
- MSDS shall be accessible to all employees; and
  - All MSDS shall be entered in the GSFC MSDS management system database.

### **5. TRAINING**

- 5.1 All employees who handle or use chemicals during the normal course of their work shall receive information and training before initial assignment and when there are changes to the employees' assignment or whenever a new hazard is introduced into the employees' work area.

- 5.2 The GSFC Hazard Communication Training Program shall include:
- Specifics of the OSHA Hazard Communication Standard and employee rights and responsibilities;
  - Specifics of the GSFC Hazard Communication Program;
  - How to access and read MSDSs;
  - Center labeling and inventory requirements;
  - Hazardous chemical groups such as inorganics, acids, bases, oxidizers and solvents. In some cases, this basic training course on hazardous chemical safety or similar generalized training may be sufficient. When exposure is unlikely or low, such as when using simple cleaners, generic training may be adequate as determined by the IH survey; and
  - Hazards of the chemicals and potential health effects

- 5.3 In addition, specific employee On-the-Job training (OJT) is required to ensure employees understand the specific chemicals they may be exposed to. This training shall be provided by the employee's supervisor or designee and shall include the following. The supervisor or designee will document all additional training received in a hard copy in the employee's file. Supervisors may request support from the OSHD in implementing this training.

The following types of OJT are required:

- Explanation of the operations in employees' work areas, which involve the use of hazardous chemicals;
  - Locations of the hazardous chemicals in the work area;
  - Methods and observations that may be used to detect the presence or release of specific hazardous materials in the work area;
  - The physical and health hazards of the chemicals in the work area; and
  - The measures employees can take to protect themselves from these work place hazards, such as use of appropriate work practices, emergency procedures, proper use of engineering controls, and the use of PPE. (Note: this information should be in the area operation procedures and/or Job Hazard Analyses.)
- 5.4 The GFSC HazCom training course is mandatory for supervisors of employees who handle chemicals and for the employees. Classroom training is available to be scheduled through SATERN. SATERN course HAZARD COMMUNICATION FOR OFFICE WORKERS COURSE ARC-001-03 or its equivalent is an acceptable alternative.
- 5.5 Additional training shall be provided as new information becomes available on:
- A specific agent,
  - When special precautions are needed due to the introduction of new chemicals into the work area,
  - When a change in chemical use or chemical application practices occurs, or
  - As considered necessary and appropriate to refresh and demonstrate the potential hazards associated with the hazardous chemical.

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- 5.6 Precautions for using hazardous materials shall be incorporated into operating procedures, and may be used to inform employees of the hazards of routine as well as non-routine tasks.

### Appendix A – Definitions

- A.1 Chemical – Any element, chemical compound or mixture of elements and/or compounds.
- A.2 Engineering Controls – Control methods that reduce or eliminate the hazard either by initial design specifications or by applying methods of substitution, isolation, or ventilation.
- A.3 Hazardous Chemical – Any chemical, which is a physical or a health hazard.
- A.4 Hazard Communication – A process whereby hazards of chemicals are identified, evaluated, and transmitted to employees. This transmittal of information is accomplished by means of comprehensive hazard communication programs, including container labeling and other forms of warning, material safety data sheets, and employee training.
- A.5 Immediate use – The hazardous chemical will be 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.
- A.6 Material Safety Data Sheet (MSDS) – A document that describes the physical and chemical properties of a product, its health hazards, and precautions for safe storage, handling and use.
- A.7 MSDS management system – A Center electronic records keeping system for managing material safety data sheets (e.g., MSDS Pro, Hazardous Materials Management System [HMMS])
- A.8 Secondary Container – Material transferred from the original labeled container to portable container intended only for the immediate use of the individual who performs the transfer.

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## Appendix B – Acronyms

CO	Contracting Officer
COTR	Contracting Officer Technical Representative
GPR	Goddard Procedural Requirements
GSFC	Goddard Space Flight Center
HazCom	Hazard Communication
HMIS	Hazardous Materials Identification System
HMMS	Hazardous Materials Management System
IH	Industrial Hygiene
MSDS	Material Safety Data Sheets
NFPA	National Fire Protection Association
NSS	NASA Safety Standard
OHCM	Office of Human Capital Management
OJT	On The Job Training
OSHA	Occupational Safety and Health Administration
POC	Point of Contact
PPE	Personal Protective Equipment

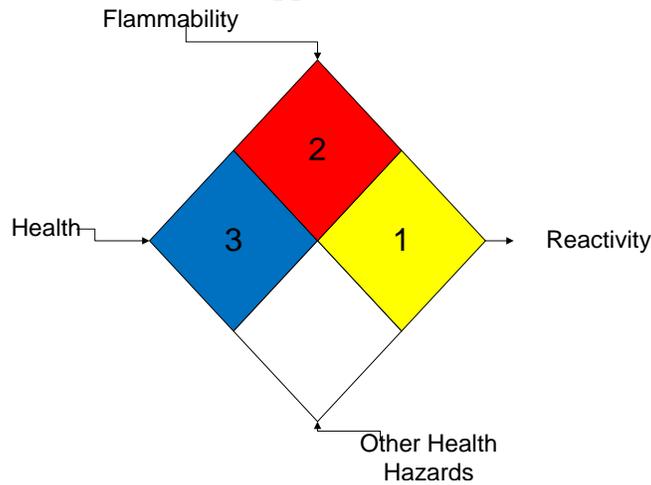
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### **Appendix C – References**

- A. 29 CFR 1910. 1450, Occupational Exposure to Hazardous Chemicals in Laboratories
- B. GPR 8710.3, Certification and Recertification of Ground-based Pressure Vessels and Pressurized Systems
- C. GPR 8710.7, Cryogenic Safety
- D. GPR 8715.5, Fire Protection at GSFC/Greenbelt

**Appendix D**



Identification of Health Hazards Color Code: BLUE		Identification of Flammability Color Code: RED		Identification of Reactivity Color Code: YELLOW	
Type of Possible Injury		Susceptibility of Materials to Burning		Susceptibility to Release of Energy	
Sign		Sign		Sign	
4	Materials, which on very short exposure could cause death or major residual injury even though prompt medical treatment, is given.	4	Materials, which will rapidly or completely, vaporized at atmospheric pressure and normal ambient temperature, or which are readily dispersed in air and which will burn readily.	4	Materials, which in themselves are readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.
3	Materials, which on short exposure could cause serious temporary or residual injury even though prompt medical treatment, is given.	3	Liquids and solids that can be ignited under almost all ambient temperature conditions.	3	Materials, which in themselves are capable of detonation or explosive reaction, but require a strong initiating source or which must be heated under confinement before initiating, or which react explosively with water.
2	Materials, which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical treatment, is given.	2	Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.	2	Materials, which in themselves are normally unstable and readily undergo violent chemical change but do not detonate. Also materials which may react violently with water or which may form potentially explosive mixtures with water.
1	Materials, which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical treatment, is given.	1	Materials that must be preheated before ignition can occur.	1	Materials, which in themselves are normally stable, but which can become unstable at elevated temperatures and pressures, or which may react with water with some, release of energy, but not violently.
0	Materials, which on exposure under fire conditions, would offer no hazard beyond that of ordinary combustible materials.	0	Materials that will not burn.	0	Materials, which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.

Other Hazards - Color Code: WHITE  
 Ox - Oxidizer  
 W - Use no water

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Baseline	07/23/10	Initial Release
-	07/06/2015	Administrative extension for 1 year and updating Responsible Office