Ames Proceudral Requirements

Last Revised: 10/24/2008

COMPLIANCE IS MANDATORY

Chapter 24 - Chemical Hazard Communication Plan

Table of Contents

24.1 Overview
24.2 References
24.3 Definitions
24.4 Responsibilities

24.4.1 Occupational Safety & Health and Medical Services Division
24.4.2 Supervisors
24.4.3 Employees
24.4.4 Contracting Officer's Technical Representative (COTR)
24.4.5 Acquisition Division/SEMA Agreement Routing
24.4.6 Shipping and Receiving Personnel

24.5 Hazard Communication Plan

24.5.1 Material Safety Data Sheet (MSDS)
24.5.2 Labeling

24.5.2.1 General Requirements
24.5.2.2 Chemical Labels

24.5.3 Information Management

24.5.3.1 Documents
24.5.3.2 Trade Secrets
24.5.3.3 Communication in Multi-Employer Workplace

24.5.4 Purchasing/Sema Agreements
24.5.5 Training

25.5.5.1 Updating Training
25.5.5.2 Training Documentation

24.6 Appendices

24.6.1 Appendix A: Performance Checklist for Communication Program
24.6.2 Appendix B: Substances Regulated by a Specific OSHA Standard
24.6.3 Appendix C: Chemical Labels Requirements (National Fire Protection Association (NFPA) Material Signal Code
24.6.4 Appendix D: SEMA Agreement (sample)

24.1 Overview

The Hazard Communication Program was established in order to reduce the chemical-related occupational illnesses and injuries.

[Back to Table of Contents]

24.2 References

1. NHS/IH-1845.3A, NASA Health Standard on Hazard Communication
2. 29 CFR 1910.1200, OSHA Hazard Communication Standard
3. 29 CFR 1960, Basic Program Elements for Federal Occupational Safety and Health Programs
4. NPR 8710.2, NASA Safety and Health Program
5. ANSI Z400.1-1993, Material Safety Data Sheets - Preparation
6. 58 FR 41981, Executive Order 12856, August 3, 1993, Occupational Safety and Health Programs for Federal Employees

[Back to Table of Contents]

24.4 Definitions

- **Hazardous Chemical:** Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment if released into the workplace or the environment. If a hazardous chemical comprises 1% (0.1% for carcinogens) or greater of a compound or mixture, the compound or mixture must be treated as a hazardous chemical.
- **Health Hazard:** A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principals, that acute or chronic health effects may occur in exposed employees. The categories of chemicals meeting health hazards include:

  - Carcinogens
  - Corrosives
  - Toxic and highly toxic chemicals
  - Irritants

- Asphyxiants
- Sensitizers
- Chemicals that cause effects in organs (e.g. liver, kidney, central nervous system, blood, lung, reproductive, skin, eye)

Appendices A and B of the Hazard Communication Standard (29 CFR 1910.1200, OSHA HAZCOM Standard) provide further guidance in defining the scope of health hazards and determining whether or not a chemical is to be considered hazardous for purposes of this standard.

- **Physical Hazard -** include the following characteristics:

  - Combustible liquid
  - Compressed gas
  - Cryogenic
  - Explosive material
  - Flammable material
  - Oxidizer
  - Pyrophoric material
  - Asphyxiant
  - Unstable or reactive material
  - Water-reactive material

- **Excluded Materials:** Items to which this program does not apply (but which may be subject to separate requirements), including:

  - Any hazardous waste as defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) (1976)
  - Tobacco or wood products, when not treated with hazardous chemicals and not to be processed
  - Foods, drugs, or cosmetics for personal consumption or use by employees while in the workplace
  - Nuisance particulates that do not pose a health hazard.
  - Ionizing and non-ionizing radiation
  - Biological hazards
  - Any other substances excluded from regulation by 29 CFR 1910.1200, that do not expose employees to hazards under normal conditions of use. This category includes "articles," that are defined as manufactured items:
  - That are formed to a specific shape or design during manufacture
  - That have end-use function(s) dependent in whole or in part upon their shape or design

during end use

[Back to Table of Contents]

24.4 Responsibilities

24.4.1 Occupational Safety, Health and Medical Services Division

1. Provide Hazard Communication training to civil service employees.
2. Establish SEMA Agreements for new chemical purchasers. SEMA Agreements are established for a 3-year period and should be renewed accordingly.
3. Provide oversight of chemical purchases on Bank Cards, and special approval on SAP purchases over $2500.

[Back to Table of Contents]

24.4.2 Supervisors

[redacted]

[Back to Table of Contents]

24.4.3 Employees

Every employee is responsible for workplace safety and must act within the guidelines provided in applicable MSDSs. Employee Hazard Communication responsibilities include:

1. Attend Hazard Communication training before working with hazardous material.
2. Read/understand the MSDS for each hazardous material that you will handle or may be exposed to at work.
3. Establish SEMA Agreement with the Safety and Health Division before purchasing chemicals.
4. Use the least hazardous material appropriate for the job.
5. For large inventories, use the Central Chemical Storage Facility. Purge unwanted chemicals by using the Ames Chemical Exchange (ACE) program.
6. Use PPE when required.
7. Follow all site procedures for acquisition, labeling, storage, and handling of hazardous materials.
8. In the event of personnel exposure to a hazardous material, provide applicable MSDSs along with other relevant information to emergency personnel and medical care providers.

[Back to Table of Contents]

24.4.4 Contracting Officer's Technical Representative (COTR)

The COTR evaluates contractor performance and compliance with all contract requirements. Most Ames contracts specify compliance with OSHA standards and the Ames Health and Safety Procedural Requirements as contract requirements. The COTR communicates with the responsible government managers and the Safety, Health and Medical Services Divsion, as appropriate, regarding compliance issues. Tasks that the COTR may perform to ensure Hazard Communication compliance include:

1. Ensure that contractor employees know ARC Hazard Communication policies and comply with this program while working on site.
2. Ensure that contractor purchases of hazardous materials are reviewed for compliance with applicable regulations and ARC policy and requirements as specified in this chapter.
3. Review and evaluate contractor Hazard Communication policies, written hazard communication program, and performance, using the Chemical Hazard Communication Performance Checklist (See Appendix A).

[Back to Table of Contents]

24.4.5 Acquisition Division/SEMA Agreement Routing

Ensure that Government Purchase Request for hazardous materials, including requests for open orders and credit cards have Safety, Health and Medical Services Division authorization.

[Back to Table of Contents]

24.4.6 Shipping and Receiving Personnel

1. Ensure that received containers of hazardous materials are properly labeled.

2. Ensure that MSDSs accompany all incoming hazardous chemicals as required on the purchase request.
3. Ensure that the lab-generated materials shipped from ARC are accompanied by appropriate MSDSs.

[Back to Table of Contents]

24.5 Hazard Communication Plan

The Hazard Communication Plan describes how ARC provides MSDSs, labels and other warnings, employee information and training, and lists of hazardous chemicals present in the workplace to government and contractor employees. This information is provided in English and in other languages as needed.

[Back to Table of Contents]

24.5.1 Material Safety Data Sheet (MSDS)

The manufacturer's current MSDS is obtained by the user before acquisition of any hazardous material and is maintained in a location accessible within 10 minutes to worksites where the material is stored or used. MSDSs may be obtained by contacting the vendor directly, or through the Code Q website/ChemWatch. If an online service is used, the MSDS obtained must exactly match the product name and manufacturer of the item to be purchased.

24.5.1.1 Users should always verify that they have the current MSDS for the product or chemical in question

[Back to Table of Contents]

24.5.2 Labeling

Each workplace container of hazardous material is labeled, tagged, and marked to identify the material and to provide appropriate warnings.

24.5.2.1 General Requirements

The following rules and guidelines apply to all chemical containers.

1. At a minimum, the label should identify the chemical(s), and the hazard warnings (including target organ effects). The chemical (s) identity provided on the label must be the same as or cross-referenced to the same identifier on the MSDS and inventory. The user shall label all containers to which chemicals may be transferred from the primary container, prior to transfer.
2. Incoming containers received with defaced or missing labels should be rejected unless the contents are definitely known and the container is immediately labeled with the appropriate information.
3. Labels shall not be removed or defaced, and must remain intact.
4. Labels must be legible, in English (another language may be used in addition to English

when appropriate), and prominently displayed on the exterior of the container.

5. Preprinted and manufacturers' labels must be revised within three months of receipt of significant new information and before the material is reintroduced into the worksite.
6. The Safety, Health and Medical Services Division strongly recommends that labels also contain the following supplemental information:

   - Name of owner or responsible person.
   - Date dispensed or mixed.
   - Expiration date.

24.5.2.2 Chemical Labels

Labels for many pure chemicals can be printed from the Code Q website using ChemWatch II . Biohazard and Target Organ labels are also available. A current list and set of instructions is available from the Safety, Health and Medical Services Division. Blank NFPA system labels are also available from Ames Stores Stock (AIB).

[Back to Table of Contents]

24.5.3 Information Management

24.5.3.1 Documents

Copies of this Hazard Communication Plan and relevant standards are maintained in the Safety, Health and Medical Services Division, and are accessible to employees, contractors, health care providers, and emergency responders. The Division is available to provide additional information, reference materials, and consultation.

MSDSs are available via web-links (ChemWatch) from the Code Q website.

The Building Emergency Action Plan (BEAP), which contains chemical inventories for each building, is compiled and updated annually. The BEAP is provided to NASA management (Division, Branch, or Office Chief) resident in each building, as well as to local emergency responders and agencies as needed.

24.5.3.2 Trade Secrets

In an emergency, where a treating physician or nurse determines that the specific chemical identity of a hazardous chemical is necessary for emergency or first aid treatment, the manufacturer shall be contacted immediately at the emergency information number provided on the MSDS. The manufacturer or importer is required by law to disclose the specific chemical identity of a trade secret chemical, regardless of the existence of a written statement of need of a confidentiality agreement.

In a nonemergency situation, the employee, physician, or other persons with a need to know a manufacturer's trade secret information may request that information in writing. However, the employee should consult first with the Office of the Patent Counsel (DL). Information acquired for an employee's medical record must be labeled ÒTrade Secret.Ó

24.5.3.3 Communication in Multi-employer Workplace

Identification of major facility hazardous operations, and chemical inventories, is available to contractor employees through the COTRs.

Hazardous chemicals to be acquired or used by onsite contractors are identified to contracting officers, government managers, and/or COTRs in proposals and/or safety plan. MSDSs for proposed hazardous materials are provided to the Safety & Health Division with the Safety & Health Plan, if possible, and in all cases prior to onsite use of hazardous materials. An explanation of any labeling system must be provided along with the chemical inventory list. Storage and use areas should be labeled to identify the hazard, with standard NFPA labels. Sample NFPA Labels can be found in Appendix C.

When necessary in order to prevent exposure to others, operations with hazardous chemicals shall be performed in a designated, labeled controlled access area.

[Back to Table of Contents]

24.5.4 Purchasing/SEMA Agreements

If you purchase hazardous materials using the P-Card system, you must establish a Safety, Environmental and Mission Assurance (SEMA) Agreement with Code Q. SEMA Agreements spell out the requirements for chemical users and must be renewed every three years, or when any new chemical is being ordered. Sample SEMA Agreement can be found in Appendix D.

Material Code 68 "Chemical and Chemical Products" should be used when creating your Order Log. Use chemical desciptors in the text fields so your Approving Official will know you have purchased a chemical. If you are purchasing for someone else, you are still the responsible party.

Refer to QE any new or significantly changed use of air pollutants, including gases and volatile solvents. Refer to QH any new use of hazardous materials or a familiar material in a new process.

[Back to Table of Contents]

24.5.5 Training

OSHA requires Hazard Communication training for employees who use or are potentially exposed to hazardous chemicals on a routine basis or in a foreseeable emergency. At ARC, the diversity and distribution of operations with hazardous materials necessitates all employees to attend general Hazard Communication Training. Employees who handle hazardous materials also receive task-specific training by their supervisors.

See Appendix E for specific training requirements

A copy of this document is provided for each employee at the time of training.

24.2.1.1 Udating Training

Update training is provided by Supervisors whenever:

1. New chemica hazard is introduced to the workplace.
2. New or updated information is received relative to materials used in the workplace 9example: new MSDSs).
3. Chemical use or work practices are changed.

24.2.1.2 Training Documentation

The Safety, Health and Medical Services Division maintains records of training provided by Occupational Safety, Health and Medical Services Division. Supervisors may obtain attendance rosters and verifications from Occupational Safety, Health and Medical Services Division. Managers maintain records of supervisor-provided task specific training. Records of site and task-specific training shall include the date and time (duration), name of trainer, and outline or summary of topics presented.

[Back to Table of Contents]

24.6 Appendices

24.6.1 Appendix A: Performance Checklist for Hazard Communication Program

From (Contractor):	
Contract No:	
To (COTR):	
Org Code:	
Date:	Reporting Period: to
Location:	
Bldg:	
	Laboratory(29 CFR 1910.1450 applies):
	Other(29 CFR 1910.1200 applies):

Brief Description of Operation:

Yes	No		
Yes	**No**	**1.**	**Chemical Hazard Communication Plan**
		a.	Chemical Hazard Communication Plan is current and is in compliance with ARC Chemical Hazard Communication Program, at a minimum. Hazard Communication Plan issue/review date: _____ (Requirement: annual review/update)
Yes	**No**	**2.**	**Material Safety Data Sheets**
		a.	Material Safety Data Sheets are available at the worksite for all hazardous materials.
		b.	Material Safety Data Sheets are transmitted to the Safety Office for CASH database.
Yes	**No**	**3.**	**Chemical Inventory**
		a.	Annual Chemical Inventory prepared and transmitted to the Safety Office in a complete and timely manner.
Yes	**No**	**4.**	**Labels**
		a.	Incoming chemical containers are inspected for intact labels, and manufacturers' labels are retained on containers and not defaced.
		b.	Labels are provided for all secondary and other chemical containers.
Yes	**No**	**5.**	**Training**
		a.	Employees who use or are potentially exposed to hazardous chemicals on a routine basis have completed general Hazard Communication training and annual update training (documentation provided for review).
		b.	Task-specific training is conducted by supervisors
			1. For all new employees.
			2. When a new hazard is introduced into the workplace.
			3. When hazard is increased by a substantial change in procedure.
Yes	**No**	**6.**	**Acquisition**
			a. Safety Office review and authorization/registration of use of extremely hazardous materials and hazardous air pollutants (as defined in ARC Chemical Hazard Communication Program) precedes acquisition (documentation provided for review).
Yes	**No**	**7.**	**Action Plan for Items Not Verified**
			a. Explanation and Action Plan for each "NO" answer is attached.

Submitted by:	
Printed Name	
Signature	
Date	

[Back to Table of Contents]

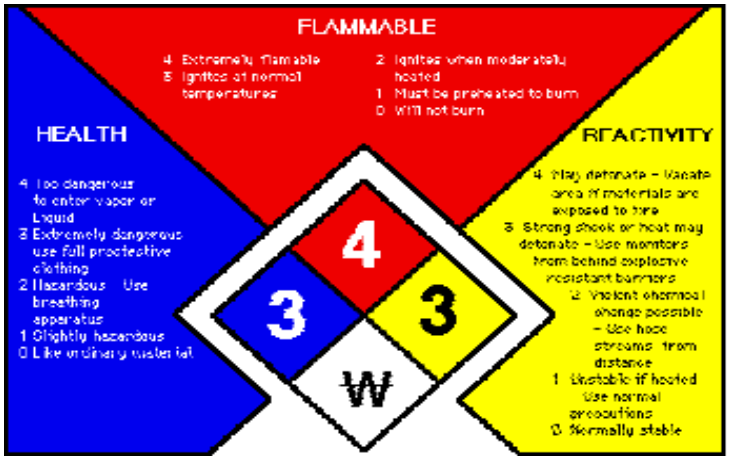
24.6.2 Appendix B: Substances Regulated by a Specific OSHA Standard

1910.1000	Air contaminants (Permissible Exposure Limit List)
1910.1001	Asbestos, tremolite, anthophyllite, and actinolite (see AHB 1700.1, Chapter 30)
1910.1003	4-Nitrobiphenyl
1910.1004	alpha-Naphthylamine
1910.1006	Methyl chloromethyl ether
1910.1007	3,3'-Dichlorobenzidine (and its salts)
1910.1008	bis-Chloromethyl ether
1910.1009	beta-Naphthylamine
1910.1010	Benzidine
1910.1011	4-Aminodiphenyl
1910.1012	Ethyleneimine
1910.1013	beta-Propiolactone
1910.1014	2-Acetaminofluorene
1910.1015	4-Dimethylaminoazobenzene
1910.1016	N-Nitrosodimethylamine
1910.1017	Vinyl chloride
1910.1018	Inorganic arsenic
1910.1025	Lead
1910.1027	Cadmium
1910.1028	Benzene
1910.1029	Coke oven emissions
1910.1030	Bloodborne Pathogens (see AHB 1700.1, Chapter 32)
1910.1043	Cotton dust
1910.1044	1,2-dibromo 3-chloropropane
1910.1045	Acrylonitrile
1910.1047	Ethylene oxide
1910.1048	Formaldehyde
1910.1050	Methylenedianiline
1910.1051	1,3-Butadiene
1910.1052	Methylene Chloride
1910.1101	Asbestos (see AHB 1700.1, Chapter 30)

[Back to Table of Contents]

24.6.3 Appendix C: Exceptions to Chemical Labels Requirements

National Fire Protection Association (NFPA) Material Signal Code



Fire Hazard Fire Hazard (red): ranks the specific material's susceptibility to burn		Health Hazard Health Hazard (blue): ranks the specific material's probable severity to personal health, and recommended protection	
Reactivity Reactivity (yellow): ranks the specific material's ease, rate, and quantity of energy released		**Specific Hazard** Specific Hazard (white): identifies the specific material's special hazard potential or any special protection which may be required	
Flammability		**Health**	
4	Very Flammable; Below 73°F, Boiling point below 100°F	4	Deadly; Special full protective suit and breathing apparatus must be worn
3	Ignites under normal temperature conditions; Above 73°F (Boiling point at/above 100°F) and At or above 73°F (Boiling point not exceeding 100°F)	3	Extreme Danger; Full protective suit and breathing apparatus should be worn
2	Ignites with moderate heating	2	Hazardous; Breathing apparatus with full face mask should be worn
1	Ignites when preheated	1	Slightly Hazardous; Breathing apparatus may be worn
0	Will not ignite	0	Normal Material; No precautions necessary
Reactivity		**Special**	
4	May detonate under normal conditions	OX	Oxidizer
3	May detonate with shock or heat	ACID	Acid
2	Violent chemical change but does not detonate	ALK	Alkali
1	Not stable if heated - use precautions	COR	Corrosive
0	Normally stable	W	Use No Water
			Radioactive

[Back to Table of Contents]

24.9.4 Appendix D: SEMA Agreement

BANKCARD PURCHASE AUTHORIZATION

AGREEMENT FOR SAFETY RESTRICTED ITEMS

I intend to purchase potentially hazardous chemicals or materials by BankCard for use in the _____(lab, shop, area) in N-____, Room ___. I understand that I must help ensure workplace safety and environmental compliance. I agree to fulfill the following:

1. **(Training) Complete annual HazCom training, initial PPE training and other safety training identified herewith, by supervisor or Safety Division. Maintain familiarity and ensure compliance with applicable regulations and ARC policies for hazardous materials.***
2. **(MSDS) Review MSDS and suitability of conditions and precautions prior to purchase. Try to identify an alternative less hazardous material or application to meet your needs.**
3. **(Coordinating) Request industrial hygiene review prior to acquisition of a new hazardous material or use in new process. Inform management of the inventory list of hazardous chemicals.*****
4. **(Inventory) Enter any new chemical purchase into the chemical inventory.**
5. **(Recycle) Utilize Ames Chemical Exchange (ACE) and Central Chemical Storage Facility (CCSF) chemicals and facilities to the maximum extent possible.**
6. **(Logistics) Make arrangements and post instructions for delivery of chemicals in my absence.**
7. **(Clean Air) Refer each new or significantly changed use of any air pollutant, including toxic gases and volatile solvents to Environmental Division for environmental compliance review prior to purchase.****
8. **(Exceptions) The purchase of radioactive materials, controlled drugs, chlorofluorocarbons, explosives or pyrotechnic devices is not authorized by this agreement.**

Authorized user purchaser:

_____	_____	_____
Printed Name	Signature	Date

Organization _____
Mail Stop _____
Phone _____

Safety Division review by: Effective for three years from date below:

_____	_____	_____
Printed Name	Signature	Date

cc: _____, M/S_____ (approving official)

BANKCARD PURCHASE AUTHORIZATION AND AGREEMENT FOR SAFETY RESTRICTED ITEM INFORMATION

*** Training includes, but is not limited to:**

Building Emergency Action Plan
Hazard Communication
Chemical Safety for First Responders
Decontamination Procedures
Hazardous Waste/Environmental Essentials
Personal Protective Equipment
Spill Control and Containment Strategy
Storm Water Pollution Prevention

For course descriptions. registration, and contact information, access Training folder at http://dq.arc.nasa.gov or call [redacted]

**** For information on the following hazardous materials requirements, call the listed contact:**

Santa Clara County Hazardous Materials Storage
([redacted])

Air Pollutants, including solvent cleaning
([redacted])

Toxic Gas
([redacted])

Hazardous Waste
([redacted])

Industrial Waste Water Discharge
([redacted])

***** Hazardous Materials definitions**

Materials identified on the MSDS or ARC Chemical Inventory as hazardous for transport according to U.S. Department of Transportation (DOT) criteria and/or the OSHA Hazard Communication Standard.

See Ames Health and Safety Manual APR 1700.1 and Ames Environmental Management Handbook APR 8800.3 for more information. (Access at http://dq.arc.nasa.gov/)

The manner of use is frequently the determining factor. If planned use of the material can cause exposure to a target organ or general safety, an MSDS is required and stated precautions must be taken. For example, solder becomes a potential exposure hazard when heated.

[Back to Table of Contents]

END OF DOCUMENT