

Memorandum

AIR
PRODUCTS 

To: See Distribution Dept.:
From: J. C. Thirion Dept./Ext.: Corporate Safety/6206
Date: 15 March 1985
Subject: Standard Practices/Safety Guidelines

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Attached you will find copies of the recently drafted Hazardous Material Communication standard practice and Hazard Determination safety guideline, along with a revised Material Safety Data Sheet standard practice.

Please review, make comments or suggestions for improvement and return by 12 April. Your prompt attention to these documents will expedite our compliance with Federal legislation and the development of the Hazardous Material Communication Training Program



JCT/seb
Attachments

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DRAFT

HAZARD DETERMINATION
SAFETY GUIDELINE

1.0 PURPOSE

- 1.1 To provide additional information and direction for compliance with the Hazardous Material Communication, Standard Practice.

2.0 SCOPE

- 2.1 This guideline applies to all APCI facilities under OSHA jurisdiction. (U.S. and Puerto Rico)

3.0 GENERAL REQUIREMENTS

- 3.1 Health and physical hazards shall be determined for all chemicals produced, imported, processed or tolled by APCI.

- who? 3.2 Toxicology studies shall be made of those substances produced, processed, imported or tolled by APCI for which there is no valid data from which a hazard determination can be made.

- 3.3 Toxicology studies shall be initiated by the Product Manager and managed by the Corporate Toxicology Department.

- 3.4 Prior to inclusion on the Material Safety Data Sheet (MSDS), data concerning the hazards of a substance shall be reviewed and approved by the Hazard and Risk Analysis Control (HARAC) team.

- 3.5 The evaluation of chemicals shall consider the available scientific data concerning the hazards of the substance. For health hazards, statistically significant evidence based on at least one positive study is considered to be sufficient to establish a hazardous effect, if the results meet the definitions of health hazards.

- 3.6 Information in any of the following sources shall be considered in hazardous determination of a chemical.

3.6.1 Scientifically controlled human and animal study reports.

3.6.2 29CFR1910, Subpart Z, Toxic and Hazardous Substances, OSHA.

3.6.3 Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment, ACGIH.

3.6.4 Annual Report on Carcinogens, National Toxicology Program (NTP).

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3.6.5 Monographs, International Agency for Research on Cancer, (IARC).

3.6.6 29 CFR 1910.1001 (et. seq.) Subpart Z, Toxic and Hazardous Substances, OSHA.

NOTE: The latter three sources shall be used as the sole determinants for carcinogen hazards.

3.7 MIXTURES OF HAZARDOUS CHEMICALS

3.7.1 The results of testing mixtures as a whole may be used to determine whether the mixture is hazardous.

3.7.2 Mixtures not tested as a whole shall be assumed to present the same health hazards as do the components which comprise one percent (weight or volume) or greater of the mixture, except when available data on similar substances and products contradicts such an assumption. A mixture shall be assumed to present a carcinogenic hazard if it contains a component considered to be a carcinogen in a concentration of 0.1 percent or greater.

3.7.3 Any available scientifically valid data may be used to evaluate the physical hazard potential of a mixture if the mixture has not been tested as a whole.

3.7.4 When evidence indicates that a component of a mixture is in concentrations of less than one percent (0.1 percent for carcinogens) could be released in concentrations which would exceed OSHA permissible exposure limits or ACGIH Threshold Limit Values, or could present a health hazard to employees in those concentrations then the mixture shall be assumed to present the same hazard.

4.0 RESPONSIBILITIES

4.1 The Director, Corporate Safety and Environmental Activities is responsible for APCI's overall compliance with this standard practice.

4.2 The HARAC Team is responsible for providing assistance to Groups/ Divisions in determining the hazards of chemicals which APCI manufactures, imports, or sells. It is also responsible for reviewing and approving data addressing hazards of a particular chemical prior to inclusion on a Material Safety Data Sheet.

4.3 The Product Manager is responsible for insuring that an accurate hazard determination is made for each chemical under his/her control. If valid data is not available to make a hazard determination, then the Product Manager is responsible for

initiating the request for a toxicology study. The toxicology study shall be managed through the Corporate Toxicology Department.

- 4.4 Corporate Toxicology is responsible for determining the agent to be contracted for each toxicology study and analyzing and approving the data prior to inclusion on a Material Safety Data Sheet. Corporate Toxicology is also responsible for preparing proposals for HARAC's determination.

5.0 DEFINITIONS

- 5.1 Health Hazard - means a chemical property for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

- 5.1.1 Carcinogen: A chemical is considered to be a carcinogen if:

- It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or
- It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) latest edition; or,
- It is regulated by OSHA as a carcinogen.

- 5.1.2 Corrosive: A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the U.S. Department of Transportation in Appendix A to 49CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term shall not refer to action on inanimate surfaces.

- 5.1.3 Highly toxic: A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD₅₀) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD₅₀) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- A chemical that has a median lethal concentration (LC₅₀) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

5.1.4 Irritant: A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16CFR1500.41 for four hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A chemical is an eye irritant if so determined under the procedure listed in 16CFR1500.42 or other appropriate techniques. These substances are commonly known as primary irritants.

5.1.5 Sensitizer: A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

5.1.6 Toxic: A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD₅₀) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD₅₀) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

- A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less, if death occurs within one hour) to albino rats weight in between 200 and 300 grams each.

5.1.7 Target organ effects: The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace.

- Hepatotoxins: Chemicals which produce liver damage
Signs and Symptoms: Jaundice; liver enlargement
Chemicals: Carbon tetrachloride; nitrosamines
- Nephrotoxins: Chemicals which produce kidney damage
Signs and Symptoms: Edema; proteinuria
Chemicals: Halogenated hydrocarbons; uranium
- Neurotoxins: Chemicals which produce their primary toxic effects on the nervous system
Signs and Symptoms: Narcosis; behavioral changes; decrease in motor functions
Chemicals: Mercury, carbon disulfide
- Agents which act on the blood or hematopoietic system: Decrease hemoglobin function; deprive the body tissues of oxygen
Signs and Symptoms: Cyanosis; loss of consciousness
Chemicals: Carbon monoxide; cyanides
- Agents which damage the lungs: Chemicals which irritate or damage the pulmonary tissue
Signs and Symptoms: Cough; tightness in chest; shortness of breath
Chemicals: Silica; asbestos
- Reproductive toxins: Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)
Signs and Symptoms: Birth defects; sterility
Chemicals: Lead; DBCP

- Cutaneous hazards: Chemicals which affects the dermal layer of the body
Signs and Symptoms: Defatting of the skin; rashes, irritation
Chemicals: Ketones, chlorinated compounds
- Eye hazards: Chemicals which affect the eye or visual capacity
Signs and Symptoms: Conjunctivitis; cornea damage
Chemicals: Organic solvents; acids

5.2 Physical Hazard - A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water reactive.

5.3 "HARAC" Team (Hazard and Risk Analysis and Control) - The definition of HARAC may be found in the Hazardous Material Communication Standard Practice.