Hazard Communication Program

School of Dentistry
Medical College of Georgia
Augusta, Georgia 30912

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1 Purpose

This Hazard Communication Program establishes the responsibilities and procedures for identification, labeling, and training in the routine and non-routine use and management of hazardous chemicals in the workplace in accordance with the Occupational, Safety and Health Administration (OSHA) Hazard Communication Standard (HCS), Title 29, Code of Federal Regulations, Part 1910.1200 and Georgia Department of Labor, Chapter 300-3-19, Public Employee Hazardous Chemical Protection and Right To Know Rules: Official Code of Georgia Annotated, Title 45, Chapter 22.

2. Goal

This written program and its comprehensive application is intended to promote the safe use and handling of hazardous chemicals in the dental facility workplace.

3. Scope

The Hazard Communication Program applies to all departments and personnel working in the School of Dentistry (SOD) at the Medical College of Georgia (MCG).

4. References

A. Section 1200, Part 1910, Title 29, Code of Federal Regulations, (29 CFR 1910.1200),Occupational, Safety and Health Administration Hazard Communication Standard.

B. OSHA Instruction CPL 2-2.38C, November 19, 1990, Inspection Procedures for the Hazard Communication Standard.

C. American Dental Association compliance manual, American Dental Association.

D. Hazardous Materials Toxicology -- Clinical Principles of Environmental Health, 1992, Williams & Wilkins.

5. Organization.

This document provides an overview of the requirements of the Hazard Communication (HAZCOM) Standard in a manner specifically applicable to dentistry. Five key elements of this program are:

A. Hazardous Chemical Inventory.

B. Material Safety Data Sheet (MSDS) files.

C. Hazard Warning Labels.

D. Training.

6. Responsibilities

A. Dean, SOD, MCG:

1. The Dean exercises overall responsibility for the execution of the Hazard Communication Program.
2. Appoints the SOD Hazard Committee Chair in writing.

B. The Assistant Dean for Business Operations:

1. Administratively oversees the SOD Hazard Communication Programs, ensuring that it fulfills the requirements of 29 CFR 1910.1200 (OSHA Hazard Communication Standard) and Georgia Department of Labor, Chapter 300-3-19, Public Employee Hazardous Chemical Protection and Right To Know Rules: Official Code of Georgia Annotated, Title 45, Chapter 22.
2. May provide support in the form of training and information regarding universal aspects of hazard communication upon initial employee assignment as well as annual refresher course.
3. In coordination with the Chair of the Hazard Committee, monitors compliance through administrative and

on site inspections.
4. Coordinates support from the Environmental Health and Safety Division of MCG.

C. The Chair, Infection Control and Hazards Committee:

1. Serves as SOD program coordinator, ensuring that all aspects of the program are universally implemented among dental facilities.
2. Coordinates training and information.
3. Monitors compliance through administrative and on site inspections.
4. Reviews the Hazard Communication Program at least annually and revises the document as necessary to reflect current regulatory practices.
5. Ensures that annual surveys, monitoring, advice and help of the Environmental Health and Safety Division of MCG is coordinated as required.
6. Coordinates a consistent labeling system throughout the SOD. (See Appendix A.)
7. Ensures that this written program, the database of Material Safety Data Sheets (MSDSs), and the Hazardous Chemical Inventory are centrally located and readily accessible to all employees at all times.
8. Coordinates and ensures proper documentation of training of all personnel working in the SOD. Continually monitors and provides appropriate training as required when new chemical products are introduced.
9. Delegates responsibilities in writing to key resource personnel to ensure all listed tasks are accomplished.

D. Department Chairs:

1. Ensures compliance at the clinic level of all aspects of the HAZCOM Program
2. Appoints a department HAZARD Compliance Monitor.

E. Department HAZARD Compliance Monitor:

1. Reviews the SOD Hazard Communication Program annually.
2. Initiates investigations of all reported accidents, ensures proper documentation is forwarded to the Environmental and Health Safety Division of MCG
3. Reviews plans and specifications for all facility construction or renovation to ensure appropriate design criteria are incorporated.
4. Ensures that all non-assigned workers (such as outside contractors) working in the dental facility are provided information (oral and/or written, e.g., MSDSs) about the chemical hazards in the work area prior to initiating any work. Vendors and delivery personnel are also included. Ensures that visiting workers obey their OSHA responsibilities by obtaining from them pertinent information regarding any potential chemical hazard brought into a dental facility (e.g., painters bringing in paint, solvents, etc.) to ensure that no dental unit employee is inappropriately exposed to any hazardous materials or chemicals.
5. Ensures appropriate personal protective equipment (PPE) is available for all employees, and provide training for its proper use.
6. Conducts periodic inspections of the department

F. All individuals:

1. Comply with all regulations, policies, and guidance when working with or in the vicinity of hazardous chemicals/ materials.
2. Properly use and maintain protective clothing and equipment while working with hazardous chemicals/materials,
3. Warn others, and if necessary, take appropriate action to prevent improper use of, or exposure to, hazardous chemicals/materials. The cooperative protection of all employees and their co-workers is paramount, and non-compliance cannot be tolerated.
4. Report hazardous conditions, exposures or abnormal circumstances associated with an operation to their supervisor.
5. Ensures all complimentary or sample products used in the dental facility have the appropriate MSDS.

7. Policy

A. All personnel will be provided information about the hazardous chemicals to which they are exposed, safe

handling procedures, and measures to take for personal protection during routine as well as non-routine tasks. This will be accomplished by means of a hazard communication program, labels and other forms of warning, Material Safety Data Sheets, information and training, and self study by the employee.

1. Routine tasks are those tasks performed daily, weekly or monthly and consistently by the same individual(s). Routinely or regularly performed tasks done by individuals on a rotating basis (i.e., done infrequently by any single individual) are considered non-routine tasks.
2. Non-routine tasks are those tasks performed less frequently than monthly, infrequently or irregularly. Supervisors must provide briefing (training) for the task, appropriate PPE and training for its proper use, and followup inspection to ensure the task is being performed safely. The management of spills, fires, and other chemical hazard emergencies are also considered non-routine tasks, for which training must be provided in advance of any such occurrence.

B. The quantity of hazardous chemicals/materials stocked by the user will not exceed the minimum necessary to satisfy operational requirements. Less hazardous or non-hazardous chemicals/materials will be used when they are technically acceptable to accomplish the task. If less hazardous materials are found acceptable for a task, that information should be made available to the SOD Supply Coordinator.

C. Products containing hazardous chemicals/materials will not be used under the following circumstances:

1. The MSDS for a product is not available.
2. Required protective clothing and/or equipment are not available.

D. Acutely toxic compounds, carcinogens and reproductive toxins shall be handled using special procedures (Contact MCG Environmental Health and Safety Division)

8. Rights of Employees

A. This Hazard Communication Program and list of hazardous chemicals will be available and readily accessible to all employees at any time during the work day.

B. Employees may, and are encouraged to, indicate possible deficiencies in the implemented Hazard Communication Program. Any aspect may be addressed, especially regarding training and information dispersal.

C. Employees have ready access to occupational health monitoring, counseling, and medical records review through the Employee and Student Health Departments.

9. Material Safety Data Sheet (MSDS)

All employees should review in detail the MSDS for each chemical used during work.

Obtaining MSDSs:

A. MSDSs are available on line at: http://www.mcg.edu/services/ehs/chemsafe/chemsafe.htm

B. MSDSs may also be obtained from the manufacturer.

10. Hazard Warning Label

A. Labels, and other forms of warning are the third part of the triad of specific chemical identification and information. The warning label on the chemical agent container provides an immediate warning to employees of potential chemical hazards. See Appendix A for specific labeling guidance.

B. Pipes containing a gas do not require labeling to meet OSHA standards, but the chemical hazards of a gas in any unlabeled pipes will be provided to employees during training. Appropriate MSDS for the gas will be available.

C. Additional labeling requirements apply to hazardous chemicals and materials being transported. Contact the

11. Information and Training

All employees will be given information and training about hazardous communication at the time of their initial assignment within the SOD and whenever a new hazard is introduced into their workplace. Employee attendance to all training sessions will be documented. Online training and documentation is available at: http://www.usg.edu/ehs/training/rtkbasic/

12. Management of Chemicals is addressed in Appendix B.

13. Control of the Chemical Work Environment (Hazard Control)

A. Engineering Controls. These are used to isolate the hazard from the employee or to remove the hazard from the workplace. Often times these are structural components of the physical facility, installed at the time of the facilities construction or added later. Their installation is permanent and include:

1. Building ventilation. This includes the heating and cooling systems, with all of its various air ducts and filters. The building ventilation system is adequate enough to provide sufficient ventilation for the great majority of chemical procedures performed in the dental clinic, including most laboratory operations. The MCG Environmental Health and Safety Division is responsible for periodic inspection and maintenance of the facility ventilation system.
2. Fume Hoods (Chemical Hoods). Dental laboratories usually have a fume hood that serves the toxic and flammable chemical transfer needs of the entire clinic. It is an enclosure designed to draw air inward by means of mechanical ventilation (i.e., its own fan, turned on by a switch located on the enclosure). Laboratory fume hoods prevent toxic, flammable, or noxious vapors from entering the laboratory, present a physical barrier from chemical reactions, and serve to contain accidental spills. This type of hood should not be confused with a canopy hood, discussed below.
   a.) The minimal face velocity of a fume hood should be about 100-150 feet per minute.
   b.) Exhaust from the hood will be directed out of the building by a single, fully intact dedicated air duct.
   c.) Sash stops will be present to prevent the sash (the vertically sliding door of the hood) from closing all the way and possibly causing a reversal in air flow. The sash will be closed to the fullest extent that the sash stops allow when not in use.
   d.) Work with the hood sash closed as much as possible during operations. Do not place your head inside the hood.
   e.) Minimize the storage of chemicals inside the hood.
   f.) The MCG Environmental Health and Safety Division will inspect and evaluate hood performance annually and after any repair or modification to the ventilation system.
3. Canopy Hoods. While the fume hood is enclosed and has an active means of air flow (i.e., its own dedicated fan), canopy hoods located in the laboratory are unenclosed large hoods that are positioned over strategic locations along work benches. The air flow through them is sometimes passive, dependent upon the general ventilation of the laboratory. These usually serve as the sole exhaust route of the laboratory's ventilation. For example, a canopy hood will usually be placed over the boil out area of the lab to facilitate the removal of steam and any chemical products used in that area.
   a.) Due to the passive nature of canopy hood function, all laboratory doors should be kept closed to ensure proper laboratory ventilation.
   b.) Canopy hoods are not designed, nor should be used, to provide entirely safe exhaust of vapors from highly toxic or flammable liquids; the fume hood serves this purpose. Use of the canopy hood should be limited to moderately low risk operations.
   c.) The MCG Environmental Health and Safety Division inspect and evaluate hood performance annually and after any repair or modification to the ventilation system. Any deficiencies found will need to be corrected in a timely manner by DPW.
4. Local Filtering Systems. These are usually located at each laboratory work bench and are turned on by an electrical switch that activates a fan that draws in air and the particulate matter being generated. They are intended to filter particulate matter only, e.g., the dust generated during grinding operations on a bench lathe and are not effective in filtering chemical fumes unless specifically designed for that function.

a.) f the amount of particulate matter cannot be captured and contained by the filtering system, respiratory protection will be worn, such as a face mask designed to filter dust.
b.) The filter system will be cleaned and inspected periodically, to include shaking the filters outdoors while wearing appropriate personal protective equipment (e.g., a respiratory mask designed to filter dust).

B. Personal Protective Equipment (PPE). PPE is a critical component of chemical safety protocol. All employees are obligated to use appropriate PPE when handling or using chemicals that have the potential for harming the health of the employee. PPE will be provided by the Department and training in the proper use of the PPE will be given. Material safety data sheets (MSDSs) provide PPE recommendations in addition to other important information about a particular chemical. Use, selection, and care of PPE will meet the OSHA standards. Consult the MCG Environmental Health and Safety Division for recommendations when any doubt about proper PPE exists. This is especially true prior to any chemical spill/cleanup efforts.

C. Additional PPE. When the quantity or nature of the chemical hazard exceeds the usual controls described, other specific PPE should be worn. This PPE should be ordered from a source that specializes in providing safety equipment and supplies, and provides items that meet specifications set forth by the regulatory or advisory agencies responsible for safety recommendations:

1. Eye protection: American National Standards Institute (ANSI), to meet or exceed the requirements of ANSI standard Z87.1-1979. Chemical goggles shall be worn during operations where a splash hazard exists or corrosives are used.
2. Respiratory protection: Meet standards set by joint approval of the National Institute for Occupational Health (NIOSH) and Mine Safety and Health Administration (MSHA).
3. Skin protection: OSHA recommendation is for a puncture-resistant glove (e.g., made of nitrile latex). Heavy-duty rubber gloves and apron are recommended when the task or quantity of chemical product indicates their use.
4. Dental laboratory personnel shall wear closed toe shoes. The use of sandals is prohibited. Steel-toe or conductive shoes shall be worn when appropriate.

D. Eyewash Stations. Proper inspection, maintenance and use of eyewash stations is imperative. It can eliminate or greatly minimize chemical injury to the eyes.

1. Each eyewash station will have a sign posted adjacent to it to clearly identify its location.
2. Eyewash station design and construction will meet ANSI recommendations (Z358.1) and OSHA requirements. Emergency eyewash and shower stations in isolated, infrequently visited areas where an employee may not be with another person should have a warning horn or other such device to signal use of the device.
3. All plumbed eyewash and emergency shower stations will be inspected and flushed with running water for at least three (3) minutes on a weekly basis. Other types of stations should be inspected according to the manufacturer's instructions. The person completing the inspection will complete a log posted near each eyewash station.
4. All employees that may be exposed to hazardous chemicals will be trained in proper use of these stations.

E. Use of Chemicals. Caution and prudent use of chemical products can greatly reduce the potential hazards associated with them.

1. Know what the chemical product is before using it; check the corresponding MSDS. Use the recommended PPE. Seek advice or assistance from your supervisor in the event of any question of safe use.
2. Comply with all container labeling requirements and read the labels to avoid accidental misuse of a chemical product.
3. Dispense and use only the quantities needed.
4. Handle all acutely hazardous (highly toxic and/or flammable) materials in the fume hood. Dispense and use minimal amounts.
5. Recap all containers immediately after use; do not allow the contents of a container to needlessly evaporate. Keep lids on all equipment items that contain chemicals, such as ultrasonic cleaning machines.
6. Ensure that you have a secure grip on all containers while handling them. Avoid using wet and/or

slippery hands.

7. Store all containers in their proper place, positioned securely on their shelf, and in secondary containment (e.g., tubs) if indicated.
8. Upon any acute potential chemical injury, initiate proper first aid procedures immediately. Seek followup medical treatment or evaluation after hazardous chemical exposure. Employee or Student Health service provides emergency and routine care in chemical injuries.
9. Report all chemical spills immediately to your supervisor. Evacuate the area and alert other personnel if the situation warrants. Do not attempt cleanup without approval, supervision, and the proper PPE and cleanup supplies. Cleanup procedures may have to be delayed until advice and/or assistance from other supporting agencies is obtained.

14. Personal Hygiene

A. Food and beverages will not be stored in any cabinet, refrigerator or other area where chemical products are intended to be stored. Food and beverages should not be consumed in areas where toxic/hazardous chemical use would make this a health hazard.

B. Personnel will wash their hands after handling hazardous chemicals. Personnel will shower after unusual circumstances which result in chemical contamination to the neck, arms, legs or body.

C. Personnel will restrain long hair and loose clothing to minimize the risk of chemical contamination.

D. Mouth pipetting is prohibited.

E. Employees whom are working with hazardous chemicals in a particular worksite are prohibited from engaging in hand-to-mouth and other activities in that specific worksite. These activities include but are not limited to: smoking, eating, drinking, gum chewing, handling contact lenses, applying cosmetics, etc..

15. Medical Surveillance

The MCG Environmental Health and Safety Division will determine the need for and proper technique for chemical surveillance needs of the SOD.

16. Emergencies

A. Fires. See Fire Prevention/Safety Plan.

B. Ventilation Failure in the dental laboratory.

1. Contact the MCG Environmental Health and Safety Division. Advise them of the situation, actions being taken, and request their immediate assistance.
   a.) Close the hand valve on all hazardous compressed gas cylinders.
   b.) Turn off flammable gas systems to equipment and apparatuses.
   c.) Close containers of volatile chemicals.
2. Laboratory or Clinic Evacuation.
   a.) Evacuate the laboratory/clinic in extreme circumstances (eg. chemical spill in conjunction with ventilation failure) or when advised by proper authorities.
   b.) Personnel will not re-enter the area until the MCG Environmental Health and Safety Division inspects the area and declares it safe for re-entry.

17. Chemical Spills

A. General:

1. Personnel will not attempt to clean up large spills. Evacuate the immediate area, seal off the area (close doors) if possible, restrict access and notify the MCG Environmental Health and Safety Division.
2. Only selected personnel trained in spill cleanup measures will perform chemical spill cleanup.
3. Cleanup will proceed only when the exact identity, nature, associated hazards and recommended cleanup methods of a chemical are known. Appropriate personal protective equipment (PPE) and clothing must

be used. Assistance from other local agencies must be immediately sought when safe and knowledgeable cleanup cannot be readily accomplished.

4. Clinics will have on hand the supplies and equipment to handle small spills. These include absorbents, neutralizers, mops, buckets, dust pans, paper towels, sponges, and waste containers or sealed impervious plastic bags.
5. Spill trays or other containment will be used for all complex operations where there is a reasonable probability a spill could occur.
6. All but easily managed small chemical spills will be reported to the MCG Environmental Health and Safety Division.

B. Liquid Spills:

1. Spills should be confined using trays, absorbents or paper towels whenever possible.
2. Neutralize inorganic acids with an appropriate chemical or an absorbent mixture (e.g., soda ash or diatomaceous earth). Other liquids should be absorbed with nonreactive material such as sand or vermiculite and placed in suitable containers. Each department must have a kit designed for spill cleanup.
3. Flammable liquids. Turn off or remove all ignition or heat sources.
4. Continuously ventilate the area. Absorb the liquid with a nonreactive material and place in a suitable container.

C. Solid Spills: Low toxicity materials should be swept into a dust pan and placed in a suitable container. Wet methods or high efficiency particulate aerosol (HEPA) -filtered vacuum will be used to clean up toxic chemicals. Dry sweeping will be prohibited for highly toxic materials.

18. Chemical Waste Disposal

A. Chemical wastes will be handled and disposed of in accordance with applicable federal, state and local environmental regulations and policies. Technical assistance in this matter will be obtained from the MCG Environmental Health and Safety Division.

B. Chemicals will be handled and stored in such a way that their identity is retained from initial receipt or production to use or ultimate destruction whenever feasible. When chemicals are combined and become part of a chemical waste mixture, a record of all chemicals in the mixture will be maintained.

C. Personnel will minimize the generation of hazardous waste whenever feasible. Common methods of waste minimization include substitution of less hazardous chemicals, process changes, recycling or reuse.

D. Containers holding waste will be labeled with the contents. Always check local regulations concerning hazardous chemical waste with the MCG Environmental Health and Safety Division.

E. Chemical waste will be disposed of according to existing guidance. If appropriate guidance is not available, a request for assistance will be sought from the MCG Environmental Health and Safety Division

F. Indiscriminate disposal of chemical waste into the sewer system is prohibited.

19. Housekeeping

A. Chemical spills will be cleaned up immediately to minimize contamination.

B. Hazardous waste will be stored in suitable containers clearly labeled and in areas away from normal work activities.

C. Excess equipment, apparatuses and chemicals will be turned in to minimize clutter.

D. Floors will be cleaned routinely to minimize resuspension of dust and toxic contaminants. Wet methods or high-efficiency particulate aerosol (HEPA) -filtered vacuum will be used for cleaning up acutely toxic chemicals.

Appendix A Container Hazard Warning Labeling System

A. Original containers are those labeled containers that contain the material as packaged and shipped by the manufacturer. A second label need not be affixed to an original container with a proper label that conveys the required information. Original labels may not be defaced or removed. If a new label is required a facsimile/substitute with the information required by 29 CFR 1910.1200 must be used.

B. Portable containers:

1. These are containers filled from a properly labeled container by an employee who uses the material immediately (one work shift). This container may not be passed on to another employee or work shift under any circumstances. This material must be used, returned to the original container, or disposed of in the proper manner. These portable containers are exempt from labeling requirements.
2. Examples of portable containers:
   - dappen dish
   - plaster bowl
   - beakers
   - glassware
   - porcelain staining palette

C. Secondary Containers.

1. Secondary containers are those containers used for storage of materials removed from the original container. Plastic bottles are the most common type of secondary containers. Other types of secondary containers and examples of some of the chemicals that might be stored in them are:
   - plastic bags (stone, acrylic polymer, etc.)
   - the ultrasonic cleaning machine (the cleaning solution used)
   - amalgam capsule container (if not the original container)
   - stainless steel containers (chemical contents)
   - other containers (disinfectant, etc.)
   - bins that hold hazardous materials
2. All secondary containers, without exception, need to be adequately labeled. Containers too small to label or containers that preclude labeling may need to use "area or batch labeling" or have a tag type label attached to the container.
   a.) Area or batch labeling is used to label items that are always used in the same place or area. An example would be labeling placed on the wall above an ultrasonic cleaner to keep the label from getting soaked from the solution in the machine. Another example would be labeling a drawer where a small container is always kept.
   b.) If a tag is made for an item, consider laminating the tag to increase its life expectancy.
3. One of the greatest problems of using secondary containers is that they tend to look like other commonly used containers. It is often easy to grab the wrong container if special care isn't taken. To minimize errors in the use of chemical products transferred to secondary containers, the following guidelines should be observed:
   a.) All secondary containers should be purchased new for specific use as secondary containers.
   b.) When an old original container is "recycled" for use as a secondary container, the old (original) label must be completely removed from that container.
   c.) Some containers have the product name impressed into the container itself, such a those of consumer commercial products (e.g., "409®"). This type of container is absolutely not suitable. DO NOT USE IT.
   d.) Containers originally used for medical items or pharmaceutical items may not be used as portable or secondary chemical containers. These containers can be confused with the original container due to the shape and color of the container. An example is placing sodium hypochlorite solutions in saline water containers. Even with new labels this is a dangerous practice and will not be allowed in the

SOD.

D. Labeling Secondary Containers.

1. Remove any previous labels from the container if the existing container's label is not appropriate for the chemical product.
2. A facsimile of the original container label or a substitute label with the information required by 29 CFR 1910.1200 (this may be as simple as the material name and associated hazard to more complex systems of information presentation--see 29 CFR 1910.1200 paragraph f) is the only acceptable secondary label to be used in the SOD. They may be reduced in size as long as the data on the label is still readable. Color reproduction is not required. It is essential that employees know what the information on the label is to be used for. For example, in a simple system that uses only the common material name, the employee would need to be briefed that the label is there to refer the employee to the appropriate MSDS for further information. More complex labeling systems may be used in a different manner. Whatever label information display is chosen, the most important aspect is that the employee realizes what the label means.

E. The mechanics of adding new labels to the system are:

1. Determine the need for a new label. This will occur when a new product is received and requires dispensing into a secondary container for use.
2. The need for a new label must be brought to the attention of supply personnel so a new label can be fabricated.

F. All secondary container labels will:

1. Be in plain English.
2. Have currently accurate information; must be cross-referenced with respective MSDSs and listing on the Chemical Inventory.
3. Contain:
   a.) The identity of the material, exactly matching the product name (trade name, common name, commercial name) used on both the respective MSDS and Chemical Hazard Inventory listing.
   b.) All appropriate hazard warnings (See 29 CFR 1910.1200 Para (f) (5) (f) (i-ii).
4. Be placed on a chemical container so as to not obscure any other warnings, instructions, or product information already on the container.

Appendix B Management of Chemicals

A. Chemical Storage.

1. The quantities of chemicals stored in the operatories and supply rooms should be limited to the amounts necessary to fulfill the tasks at hand on a relative short-term basis.
   a.) Containers of chemicals should not be left sitting out in work areas or on top of counters, but immediately returned to their proper storage areas after use.
   b.) Containers stored on open shelves should be kept in bins, tubs or the shelves should have other restraining devices to prevent the containers from spilling. This is especially important for flammable and/or toxic chemical liquids in glass containers. The bin, tub or other secondary containment used should be large enough to hold the entire contents of any bottle of chemical kept in it if that bottle happens to break or its contents spill.
   c.) Chemicals will be stored in separate cabinets according to compatibility categories listed at the end of appendix I. When this is not feasible, due to lack of enough cabinets, chemicals of differing (but not absolute) compatibilities may be stored on different shelves within a single cabinet provided secondary containment is used (e.g., plastic tub).
   d.) Cabinets and the shelving within will be labeled with storage codes, compatibility categories, and specific chemical identification to ensure that no potentially hazardous errors of storage occur.
   e.) Chemicals will be inspected at least semiannually to determine their condition and the condition of their containers. Outdated or excess chemicals will be turned into supply for disposition. Corroded or leaking containers will be over packed (placed in suitable secondary containment) and turned in to supply. Handling and disposition guidance should be sought from the Environmental and Health Safety Division of MCG and/or a chemical product's material safety data sheet.

B. Flammable and Combustible Liquids

1. Containers of flammable and combustible liquids will be stored in approved fire resistant cabinets designed in accordance with NFPA 30. Cabinets should not be located adjacent to an exit or in a stairwell. Cabinets will not be vented without approval from the Safety Office. Liquids in glass containers will be kept in a bin, tub or other secondary containment to minimize tipping and/or breakage. These secondary containers should be large enough to hold the entire contents of a glass container should it happen to break or spill.
2. Only refrigerators designed to store flammable liquids will be used for that purpose. Domestic models (i.e., normal commercial refrigerators, as we commonly know them) are not safe, and cannot be modified to be made safe, for the storage of flammable liquids. The inevitable flammable vapors that gradually accumulate can be ignited by the door light switch or the thermostat as they switch on. All domestic refrigerators that are used to store dental products will have a sign posted on their doors stating, "DO NOT STORE FLAMMABLE LIQUIDS IN THIS REFRIGERATOR."
3. Liquids will be stored within the same containers that the manufacturer provided with the chemicals. Only very small working quantities will be transferred to other containers for everyday use. These working secondary containers will be specifically designed for the chemical agent being used. Examples include placing denture repair monomer in the plastic dispenser made for that purpose, and placing denatured alcohol into a Hanau torch.

C. Handling Chemicals

1. Transport of Hazardous Chemicals
   a.) Toxic, flammable or corrosive chemicals should be placed in a carrying bucket or other unbreakable suitable container.
   b.) Wheeled carts should be used to move larger quantities of chemicals that cannot be carried by hand. Any open shelves on these carts will have a lip or other restraining device to prevent chemical containers from tipping or creeping.
   c.) Chemicals may be moved between floors on passenger elevators only when no other essential passengers are on board. The elevators may be place temporarily "out of service" for this use.
   d.) Compressed gas cylinders will be moved using a suitable hand truck. The gas cylinder will be strapped in place with the valve protector cap installed. Only one (1) cylinder will be moved at a

time.

2. Using Chemicals
   a.) Working quantities of chemicals outside of storage during an operation will be as small as practical.
   b.) Containers will be closed when not in use.
   c.) Containers of flammable materials will not be used or positioned near any type of flame (e.g., Bunsen gas burner, Hanau alcohol torch) or any other type of heat source.
   d.) Keep work areas clean and uncluttered.
   e.) Care should be taken to minimize aerosol formation when using chemical products that are sprayed onto surfaces, such as surface disinfectants. You should minimize the source-to-surface distance and avoid using a fine spray or mist that may tend to disperse in the air.
   f.) Mixing and/or dispensing relatively large quantities of chemicals, potentially toxic chemicals or flammable chemicals will only be done in areas designated for those procedures. For example, the mixing and dispensing of surface disinfectants will only be done in a suitable area with adequate ventilation, running water and a sink. Acutely toxic and/or flammable chemicals will be dispensed within the confines of the laboratory fume hood with the hood's exhaust fan on when manufacturers' information requires this type of protection.
   g.) In every instance of using chemicals, appropriate personal protective equipment (PPE) must be used. This is paramount for the safe use of chemical products. Employee failure to use PPE is a violation of regulations set forth in the OSHA Hazard Communication Standard.
3. Disposing of Chemicals.
   a.) All waste chemicals must be disposed of according to federal, state, and local guidelines.
   b.) Most of the chemical products used in dentistry are "used up" during their use, or as a result of their use become relatively nonhazardous (e.g., mixtures undergoing chemical reactions to produce an inert product, such as mixing acrylic resin monomer and polymer to produce the polymerized acrylic resin). There are chemical products that do require disposal, such as used radiographic fixer, some chemical disinfectants, and any product that is accidentally spilled. The material safety data sheet (MSDS) of any product is valuable in determining how a material should be handled for disposal. The Environmental and Health Safety Division of MCG is another good source of disposal information.