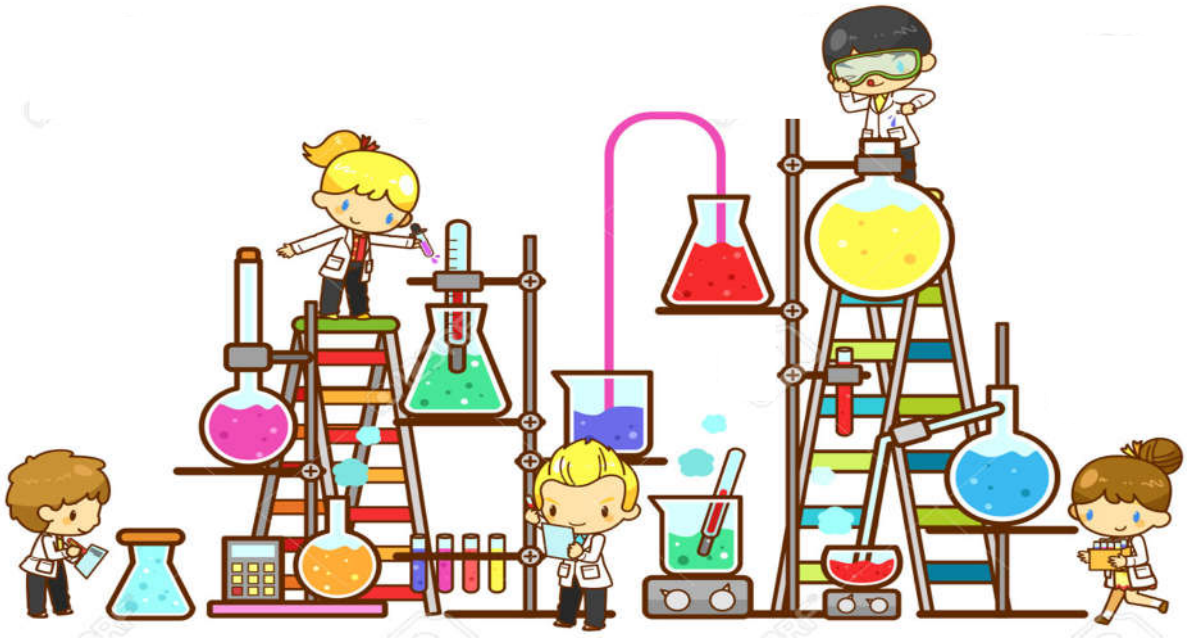
WELCOME LABARATORY DOCUMENT OF FOOD ENGINEERING DEPERTMENT OF GAZIANTEP UNIVERSTY

BASIC LABARATORY SAFETY RULES



To start up;

This guide is a welcome document for new personnel/student who undertakes activity in the laboratories of the Food Engineering Department of Gaziantep University. It provides a simple summary of the basic health and safety standards to be followed in the laboratory.

Safety is the number one priority in all laboratories of Food Engineering Department of Gaziantep University. All personnel/students are required to know and comply with the regulations indicated in this guide. Read all of the following items carefully.

If you have any questions do not hesitate to ask your instructor for clarifications.

GENERAL SAFETY PRINCIPLES

All personnel/students are required to know and comply with good laboratory practices and safety norms; ***otherwise they will be asked to leave the laboratory***. Make sure you understand all of the safety precautions before starting your experiments, ***otherwise ask your instructor***. The following are some general guidelines that should always be followed:

Safety elements and laboratory evacuation ways

Before starting to work in a laboratory, it is necessary to get acquainted with the available safety elements. All the exits, normal and emergency ones, should be located for possible evacuation in case of fire or any incident. It is necessary to know the exact location of fire extinguishers, safety showers and eye washers.

One should never work alone in the laboratory.

How is required to be dressed in the laboratory

Lab Coat (Thigh Length): Wear your laboratory coat(preferently cotton) at all times in laboratories, it is mandatory, (including lab presentations or examinations) to prevent incidental and unexpected chemical exposures to your skin and clothing. The lab coat better to be wrist-fitted. Keep the lab coat buttoned at all times.

Foot wear: Shoes must be worn at all times while in the laboratory, regardless of the experiment or curricular activity. Shoes must totally cover your feet up to the ankles, no skin should be shown. Socks do not constitute a cover replacement for shoes. Sandals, backless and open toed shoes are unacceptable.

Clothing: Clothing like shirt, blouse, etc. must be worn which completely covers the torso from the waist to the neck. Shoulders must be completely covered and sleeves must be worn that cover the arm from the shoulder to at halfway to the elbow. Tank tops, halters, shorts, cutoffs, etc. are not acceptable.

Do not wear wide sleeves, bracelets, chains or other hanging objects to avoid hooking with the instruments.

Hair: If hair is long it must be tied back.

Eye Protection: The use of safety goggles is always required when working in the laboratory. Wearing contact lenses in the lab should be avoided since in case of accident, the chemical products spilled on the eyes or its vapors could be introduced behind the lenses and provoke eye damages before removing them. In these cases as alternative it is recommended the use of graduated glasses or safety goggles.

If there is a spill of a chemical product on your eyes, use at once the eye washer, washing the affected eye continuously for 15 minutes. Act urgently, in less than 10 seconds. Do not direct a high pressure stream directly on the eye to

avoid damage it. Notify the incident to your instructor or laboratory technician or person in charge and ask for medical assistance if necessary.

Accidents: report all accidents including minor incidents to your instructor immediately.

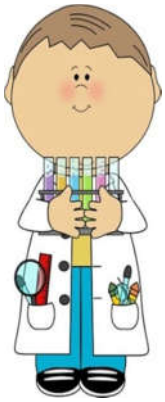
Work space

The working space should be always clean and in order without books, coats, bags, spilled chemicals, excess of chemical product containers, unnecessary equipment and other unused items. All the spills of chemicals should be immediately cleaned up.

Working spaces must be kept neat at all times and cleaned up before leaving. Equipment must be returned to its proper place. Likewise, after finishing your work, make sure of disconnecting instrumentation, water and gases supply and etc.

Use of instrumentation

Never use any instrument without perfectly knowing its operation. In case of doubt ask always the person in charge. Before initiating an experiment it is necessary to secure that all the assemblies and instruments are in good condition. Never use glass material with a any minimum fault or which had previously received a serious knock, although no break or defect were apparent.Never use domestic fridges if there have not been modified to prevent the spark risks.



*Pressure gas cylinders:*The gas cylinders will be always manipulated carefully, avoiding crashes, heat sources (flames, heating baths, solar radiation and etc.).
During transportation keep the protection cap on and after being secured into the appropriated support install the pressure gauge with taps closed and orienting away from the operator face.Then the tap should be opened by controlling pressure gauge regulation; when the operation is completed the closing process will be the same waiting till the pressure decreases to zero in the pressure gauge.

When in doubt, check with your instructor or ask the person in charge before taking action.

Open flames: open flames of any kind are prohibited in the laboratory, unless specific permission is granted to use them during an experiment.

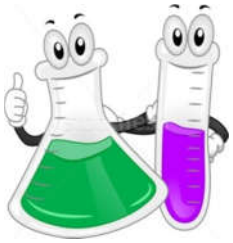
Emergency equipment: know the location and use of all safety equipmentand exits.

Safety Googles

Labcoat

Gloves

Manipulation of chemicals



Chemical products can be dangerous due to its toxic, corrosive, inflammable or explosive property. All chemicals should be handled with extreme care. Use always minimum amount of reagents.

Check the correct labeling of flasks and containers. Label clearly the solutions prepared in the laboratory, i.e., preparation date, use by date, full name of chemicals, prepared by whom and etc. To prevent any disappearance of label information due to being wet, writing on a piece of paper and sticking it with tape can be a measure. Do not use containers for other products without removing the original label. Do not overlap the labels. Do not remove reagent bottles from their location; cap the reagent bottles after use. Never pour unused chemicals back into the reagent bottles or laboratory sinks.

Fire is the greatest danger in the laboratory. Most of the organic chemicals burn in the presence of flame, especially the solvents, which are highly inflammable. When working with inflammable substances only use and store minimum required amounts. It is necessary to prevent flame instruments in the laboratory. If you need to use Bunsen burner, make sure the absence of solvents or inflammable products in its proximity.

Do not inhale the vapors of chemical products and work whenever possible in fume cupboards, especially when you were manipulating toxic irritant, corrosive or tear products.

If you spill chemicals in your hands or body, immediately flush the affected area liberally with water. Get further directions from your instructor.

Change your gloves regularly to prevent permeation of chemicals into your hands.

Heating liquids: when heating liquids orient the recipient apening away from the operator or other persons nearby.

Residues elemination/waste disposal

Throw broken glassware in the special recipients prepared to collect it. Paper and other residueswill be thrown in the paper baskets. Chemical products will be collected in special containers. Chemicals and used materials must be discarded in designated containers. Keep the container closed when not in use. When in doubt, check with your instructor.

Do not pour directly in the lab sink products which react with water (sodium, hydrates, amides, acid chlorides) or inflammable (solvents) or with bad smells (sulfur derivatives) or lachrymators (benzyl halides, haloketones) or difficult biodegradable products (polyhalogenated: chloroform).

Do not pour in the lab sinks solid products or residues which can block up them.

Hygienic rules

Never eat or drink in the laboratory since it is possible that food or beverages could be contaminated by chemical products.

Wash always your hands after carrying out an experiment and before leaving the labaratory.

Do not keep food or beverages in the labaratory fridges.

Smoking in the laboratory is prohibited by hygienic and safety reasons.

Do not inhale, taste or smell chemical products if you are not duly informed.

Pipetting liquids: Always use a special device for pipetting liquids. Never do it directly with your mouth.

FIRST AIDS: REQUIREMENT IN CASE OF ACCIDENT

Lab fire

Notify to the colleagues avoiding panicking and maintaining always self-control. Evacuate the laboratory even if the fire is small.

Small fires

If the fire is small and quite located, extinguish it by covering with afireproofblanket or one duct/mantle with appropriate size to suffocate it, or select suitable fire extinguisher and use it correctly. Remove all inflammable chemicals nearby the fire. ***Never use water to extinguish a fire originated by a solvent inflammation.***

Big fires

Isolate the fire, connect the fire alarm and call the emergency extension. Evacuate under control the zone. When leaving close the doors.

Fire on the body

If your clothes take fire ask immediately for help. Throw onto the floor and roll on yourself to extinguishing the flames. Do not run and try to reach the safety shower, if it is not very near. If body is burning, cover him with afireproof mantle, takehim to the safety shower if it is close or make him roll himself on the floor.***Never use fire extinguisher on a person.*** After extinguishing the fire, maintain the lying to provide getting cool and ask for medical help immediately.

Burns

Small burns produced by hot material, heating baths, plates or blankets and etc. will be treated by washing the affected zone with cool water during 10-15 minutes. The more serious burns require immediate medical assistance.***Never use grease creams on serious burns.***

Cuts

Cuts originated by glassware material breakage are very common risk in laboratory. These cuts should be washed with abundant water at least during 10 minutes. If they are small and soon stop bleeding, wash them with water and soap and cover them with appropriate bandage or dressing. If they are big and bleeding is not stopping, immediate medical assistance is required.

Spilling of chemical products on the skin

All chemical product spilled on the skin should be immediately washed with abundant running water, at least during 15 minutes. The safety showers located in the laboratories will be used in these casesin which the affected body zone is big and it is not sufficient with washing in the sink. If it is necessary remove all contaminated clotting from the affected person while under the shower. Remember that speed in washing is very important to reduce the seriousness and the extension of injury. Make available medical assistance to the affected person.

Actions in case of skin corrosion

By acids: Cut and remove as soon as possible the acid soaked clotting. Wash the affected zone abundant washing water. Neutralize the acid with sodium bicarbonate during 15-20 minutes.

By alkali: Wash the affected zone abundant washing water, and rinse it with a 1% solution of acetic acid.

Actions in case of eyes corrosion

In this case timing is crucial, the sooner the eye is washed, the less serious damage is happened. If you do not have eyewasher bottle, wash both eyes with abundant water at least for 15 minutes in the eyewasher. The eye should be open aiding with the fingers to facilitate the washing under eyelids. ***Medical assistance is always required even if the damage appears to be light.***

Actions in case of chemical products ingestions

Before taking any concrete action ask for medical assistance. If the patient is unconscious leave him in the tilted position with the head bended sideways and pull the tongue outside. If he is conscious maintain him leaned and covered with the blanket to prevent him to get cold. Be ready to carry out the mouth to mouth artificial breathing. ***Medical assistance is always required.*** Do not leave him alone. Do not hurry to give alcoholic drinks without knowing the nature of the ingested product. In most cases, the alcohol favors the absorption of toxic products. Do not provoke vomiting if the ingested chemical is corrosive.

Actions in case of chemical products inhalation

Take immediately the affected person to a fresh air space. Ask for medical assistance as soon as possible.

When the first symptom of respiration difficulty appears, start the mouth to mouth artificial breathing. Oxygen only should be given by trained personnel. Continue the artificial breathing according to the medical advice.

Try to identify the toxic product. If it is gas, use appropriate gas mask all the time during the rescue of injured person. If the available mask is not appropriate one, try to refrain your breathing while in contact with the toxic vapors.

Remember

- Get used to safety elements of your laboratory
- Protect your eyes with safety.
- Wear your lab coat and gloves appropriate to each operation.
- Wash your hand before leaving the laboratory.
- Before initiating an experiment read carefully the instructions and protocols.
- Make sure that all material is in right conditions for using and is correctly assembled.
- Chemical products should be manipulated very carefully. Use the fume cupboards to manipulate giving off toxic or corrosive vapors.
- Maintain your work space clean and in order.
- Leave the material clean and in order after being used.

- Immediately clean the product spills.
- Do not eat or drink in the laboratory.
- Do not smoke in the laboratory.
- In case you have any doubt, consult with the person in charge.

Personnel/Student Laboratory Agreement Form

Read all of the following items and initial in the blank next to each statement to indicate that you understand and agree to abide by it. If you have questions about the items, please ask your instructor for clarification. Once you read all items, complete the information at the bottom of the sheet.

_____ 1. I have received a copy of the Laboratory Safety Rules, Procedures and Practices. They have been explained to me by the laboratory instructor. I understand these rules and recognize it as my responsibility to follow at all times.

_____ 2. I recognized that my instructor may give me additional safety instructions, either verbally or in writing, during the laboratory period. I agree to follow these additional instructions and accept this as my responsibility.

_____ 3. I accept the authority of the laboratory instructor, the laboratory coordinator, Safety coordinator, laboratory manager, stockroom personnel or any other official of the University of Gaziantep (Faculty or Staff). I understand that failure to follow the safety rules, procedures and practices presented to me may result in dismissal from the laboratory session or, for repeated offences, dismissal from teaching laboratories with the consent of the Department of Food Engineering.

_____ 4. Check-in Day: I have inspected the equipment provided in the Food Engineering Department Laboratories assigned to me and my group and I acknowledge that all equipment is in good condition. I consulted with my instructor to replace damaged equipment, if any.

Name-Surname :_____

University ID Number: _____

Course/Labaratory Name: _____

Lab Schedule (Day/time): _____/_____ Date: _____/_____/_____

Signature: _____