is cumulative and the element's ability to amalgamate with a number of metals is well known. Following any accident involving mercury, the area should be checked thoroughly to ensure that there are no globules remaining. All mercury containers should be kept well stoppered.

- Never drink from a beaker. A beaker intended specifically for the use of drinking is a hazard in the laboratory. Do not taste chemicals to identify them. Smell chemicals only when necessary, and only by wafting a small amount of vapour towards the nose.
- Avoid using a Pipette with the mouth, particularly when using concentrated acids, alkalis or potentially bio-hazardous materials. Use mechanical means, such as a rubber bulb or an automatic dispenser.
- Do not fill the receptacle with any material other than that mentioned on the label. Label all containers before filling. Discard the contents of any unlabelled containers.
- To prevent breakage when clamping glassware, do not permit glass-to-metal contact, and do not use excessive force to tighten the clamps.
- Do not look down into a Test Tube being heated or containing chemicals, and do not point its open end at another person. A reaction could cause the contents to be ejected suddenly, resulting in injury.
- Splattering from acids, caustic materials and strong oxidising solutions on the skin or clothing should be washed off Immediately with large quantities of water.
- When working with chlorine, hydrogen sulphide, carbon monoxide, hydrogen cyanide and other highly toxic substances, always use a protective mask. Alternatively, perform these experiments under a fume hood in a well ventilated area.
- In working with volatile materials, please keep in mind that heat causes expansion and confinement of such expansion results in explosion. Also remember that this danger exists even if external heat is not applied.
- Perchloric acid is particularly dangerous as it explodes when brought in contact with organic materials. Do not use perchloric acid around wooden benches or tables.
- Keep perchloric acid bottles on glass or ceramic trays with capacity that is adequate to hold all the acid in case the bottle breaks.
- When using perchloric acid, always wear protective clothing.
- When using hot plates and other electrical equipment, always ensure that the wire and plugs are in good condition. Do not handle an electrical connection with damp hands.

Cleaning :

Cleaning of new glassware: New glassware is slightly alkaline in reaction. New glassware should be soaked for about 2 to 3 hours in acidic water (1 % solution of hydrochloric acid or nitric acid). Rinse with water and then soak the empty glassware in a basin / tub containing Suitable cleaning agent / solution for 20 to 30 minutes.

Follow the procedure of cleaning as given below.

- **Cleaning of regular glassware** : Remove the content of glassware before washing. Remove all markings / sticker labels from the glassware. Glassware should brought to ambient temperature before subjecting them for cleaning, if they are heated or cooled during analysis. Rinse with water and then soak the empty glassware in a basin / tub containing Suitable cleaning agent or any suitable detergent solution for about half an hour. Scrub all the parts of glassware thoroughly with brush impregnated with 0.1% Suitable cleaning agent. Brush should be selected as per the shape and size of the glassware. Brushes should always be in good condition to avoid any abrasion of the glassware. Do not use brushes with metallic bristles vigorously as it may form scratches on the surface. After applying cleaning agents thoroughly rinse glassware with tap water ensuring that containers are partly filled with water, shaken horizontally and vertically and emptied several times for effective cleaning. It is very important that all soap detergents and other cleaning fluids be removed from glassware before use. Finally rinse the glassware with purified water. Dry glassware in a drying oven at temperature at 60^{0}C and store in a designated place.
- Glassware used for sticky, waxy or greasy material should be rinse initially with acetone or hot water with detergent in which the material residue dissolves and then to be cleaned as per cleaning procedure.
- Glassware used for water immiscible solvents should be initially rinsed with acetone or suitable solvent.
- To remove precipitate materials or unduly clouded or coagulated organic matter from glassware apply hot nitric acid for effective cleaning.
- Strong alkali should not be used for cleaning of glassware. Also use of Chromic acid, sulphuric acid mixture is not recommended because of hazardous and toxic nature of the material.
- If glassware is exceptionally dirty, a cleaning powder with a mild abrasive action can be applied provided the surface is not scratched.
- Glassware required for total organic carbon (TOC) analysis should be scrupulously cleaned of organic residue. This can be achieved by rinsing glassware with hot nitric acid, followed by rinsing with purified water. Preferably such glassware should be maintained separately (away from organic solventsand materials) and to be dedicated for TOC determination analysis only.
- If the glassware is used for analysis of potent material such as steroids, harmones or cytotoxic, soak the glassware in suitable deactivating agent. After deactivation, clean as per cleaning procedure

glassware cleaning tips

Pipettes cleaning :

- Place Pipettes with their tips down, in a cylinder or tall jar of water, immediately after use. Do not drop them into the jar as this may break or chip the tips and render the Pipettes useless for taking accurate measurements. A pad of cotton or glass wool at the base of the jar will help to prevent breaking of the tips. Please ensure that the water level is high enough to immerse the greater portion of all or each of the Pipettes. Then drain the Pipettes and transfer them into a cylinder or jar containing any Suitable cleaning agent or any suitable detergent solution. Allow it to soak in a jar or cylinder for about half an hour. Drain the pipette and run tab water over and through them until all contents are removed. Soak the Pipettes in purified water for at least one hour. Remove them and dry the external surface with a cloth, shake out the water and dry in oven.
- In laboratories where a large number of Pipettes are used everday, it is convenient to use an automatic Pipette washer.
- After drying, place the Pipettes in a dust-free drawer. Wrap serological and bacteriological Pipettes in paper or place them in Pipette cans and sterilise them in the dry air steriliser at 160°C for two hours. A Pipette used for transferring infectious material should have a plug of cotton placed in its mouth end before sterilising.

Burettes cleaning

- Remove stopcock key and wash the burette with Suitable cleaning agent or any other suitable detergent solution
- Rinse with tap water until all the dirt is removed. Then rinse with purified water.
- Wash the stopcock key separately. Keep the cleaned burette in inverted position until dry. Open the stopcock and keep for drying. Before the stopcock key is replaced in the burette, lubricate the joint with a small amount of lubricant. Remember that burette stopcock keys are not interchangeable.
- Always cover tip of burettes with butter paper or aluminimum foil, when not in use.
- Please note glass stopcocks are not interchangeable.
- The glass key and burette bore should be marked properly to avoid mixup.

Culture Tubes

- Culture tubes which have been used previously must be sterilized before cleaning. The best general method for sterilising culture tubes is by autoclaving for 30 minutes at 121^{0}C (15 lb pressure). Media which solidify on cooling should be poured out while the tubes are hot. After the tubes are emptied, brush with Suitable cleaning agent. Rinse throughly with tap water, rinse with purified water, shake out the water and dry in oven.
- If tubes are to be filled with a medium which is sterilized by autoclaving, do not plug until the medium is added. Both medium and tubes are thus sterilized with one autoclaving.
- If the tubes are to be filled with a sterile medium or if they are to be sterilized by the fractional method sterilize the tubes in the autoclaves or dry air sterilizer before adding the medium.

Serological Tubes

- Serological Tubes should be chemically clean but need not be sterile. However, specimens of blood which are to be kept for some time at room temperature should be collected in a sterile container. It may be expedient to sterilize all tubes as routine.
- To clean and sterilize tubes containing blood, discard the clots in a waste container and place the tubes in a large basket. Put the basket with others, in a large bucket or boiler. Cover with water, add a fair quantity of soft soap or Suitable cleaning agent and boil for 30 minutes. Rinse the tubes and clean with brush, rinse and dry with the ususal precautions.
- It is imperative when washing serological glassware that all acid, alkali and detergent be completely removed. Both acid and alkali in small amounts destroy complement and in larger amounts produce hemolysis. Detergents interfere with serologic reactions.
- Serological tubes and glassware should be kept separate from all other glassware and used for nothing except serologic procedures.