



STANDARD OPERATING PROCEDURE

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Title: Safety Guidelines for QC Department	Effective Date:
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1.0 OBJECTIVE:

To provide guidelines to ensure that safe practices are followed in QC Department

2.0 SCOPE:

This SOP is applicable to safety procedures to be followed in the Quality Control Department (Chemical/Instrument and Microbiology Section).

3.0 RESPONSIBILITY:

All personnel – Quality control department

Head – Quality Control

4.0 PROCEDURE:

4.1 Chemical Hazard:

4.1.1 Following are the hazards, which may occur due to chemicals/reagents and Solvents in quality control Laboratory.

- Some Chemicals are poisonous and carcinogenic by intake, by odour and by touch.
- Some solvents are highly inflammable that can produce fire if they come in contact of little heat or somewhat higher pressure.
- Some chemicals are radioactive which generate radiations.
- Some chemicals and reagents require specific storage such as low temperature and humidity. Some of them are highly sensitive to storage.
- Some chemicals require special storage conditions such as Sodium metal.
- Some chemicals/ reagents behave differently with different reagents/ chemicals and/OR different conditions. For example Sodium metal is stored in kerosene.
- Some chemicals react with highly exothermic reactions. For example Phosphorous pentoxide oxidizes with heat generation.
- Certain reactions are such as polymerization evolves heat.

Some solvents are volatile at even room temperature also. Such types of solvents create pressure inside the bottle and releases immediately at the time of opening. For example



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Ammonia, Diethyl amine and Triethyl amine.

- 4.1.2 Refer and follow MSDS while handling of any chemical/reagent first time in lab. Always follow MSDS while handling of hazardous chemicals.
- 4.1.3 Identify the probable hazardous and safety measures (if MSDS not available) for the use of material and follow at the time of use.
- 4.1.4 Ensure Storage condition, labeling with proper details of expiry of reagents/ chemicals and solvents before use.
- 4.1.5 List of Hazardous chemicals with probable hazardous and keep separately in lock and key. Ensure always availability of MSDS at the time of use.
- 4.1.6 Use acid proof hand gloves, safety goggles, nose masks wherever required while handling of these chemicals.
- 4.1.7 Solution preparations of hazardous chemicals shall be done in fuming hood only.
- 4.1.8 Use suction bulb while pipetting of chemicals
- 4.1.9 While preparing dilute acid solutions special care to be taken. Always add acid to water with constant stirring. Never follow the vice-versa procedure.
- 4.1.10 Ensure all the reagent bottles recapped after each use & placed on a designated place.
- 4.1.11 Always open liquid reagent bottles away from mouth even if goggles & safety measure taken.
- 4.1.12 Before opening of liquid reagent bottles i.e. Ammonia, Diethylamine and Triethylamine etc. keep 2° to 8°C for more than 2 hours.
- 4.1.13 In case of burns due to acid/chemical, body shower shall be used for washing of burnt skin. In case of any eye irritation due to chemical effect, the eye shower shall be used.
- 4.1.14 Handle Hazardous reagent and reagents evolving irritating fumes in the fuming hood only.
- 4.1.15 On spillage, all the persons in the laboratory are to be made aware about spillage and how to take necessary precautions. Ensure that they do not walk over the spillage area and analyst should be near spillage area to inform others.
- 4.1.16 Instruct the lab attendant to put on the goggles, gloves and mask while cleaning. He shall take all the necessary safety precautions during cleaning under the guidance of supervisor.
- 4.1.17 In case of water spillage mopping with dry cloth shall be done.
- 4.1.18 In case of spillage of liquids (like acids), it should be diluted with water and mopped with cloth.



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Any stain retained shall be removed by applying detergent.

4.1.19 In case of spillage of solids they should be removed, collected in a LDPE bag and discarded in drain after making slurry in water. Clean the area with water.

4.1.20 In case of spillage of organic solvents mop with wet cloth followed by dry cloth. Follow MSDS instruction while cleaning if required.

4.2 Instrument operation related Hazards:

4.2.1 During analytical activities and operation of instruments/Equipments hazards may occur if taken casually. Analyst shall Always pay 100% attention while operating instruments/equipment in any section of quality control laboratory.

4.2.2 Analyst shall follow Standard Operating Procedure and manufacturer instruction of each instrument while handling of instrument.

4.2.3 Analyst shall be more alert while handling following:

- Handling of gases in GC analysis & TOC (Total Organic Carbon) analysis
- LPG, air & nitrogen gas in fuming hood
- Hot plate, heating mental, water bath
- Operation and cleaning of instruments like dissolution, hot air oven, vacuum oven, muffle furnace, filtration pump assembly and sonicator centrifuge.
- Always be careful during calibration of hardness tester while handling bullion weights.
- Handling of IR pellets press die machine.
- Always ensure that electric cables are at safe distance during mental and dismantle of heat producing equipment like hot plate, heating mental, burner etc.
- Always check & release vacuum before opening the door of vacuum oven.
- Use safely measures like safety hand gloves & goggles during handling of hot plate, heating mental, muffle furnace & vacuum oven etc.

4.3 Glassware

4.3.1 Do not use broken glassware.

4.3.2 Label the reagent bottle appropriately.

4.3.3 Pour liquid in a direction away from label to avoid spillage on label. If any liquid spills on outer body of bottles, wipe it with clean duster before returning it to shelf.



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4.3.4 Ensure that no chemicals or grease or dirt stick on the glass bottle.

4.4 Environmental Safety:

4.4.1 Dilute the Concentrated acids and alkali with water before draining and sufficient water should be flushed after pouring.

4.4.2 Any work involving fumes and harmful gas shall be carried out in fuming cupboard.

4.4.3 Apron, safety goggles, nose mask and cap shall be worn at all times for protection of body and clothes.

4.4.4 Fire extinguishers shall be checked time to time for the validity and condition.

4.4.5 Follow standard operating procedure and safety procedures while Disposal of leftover sample after analysis.

4.5 First Aid Measure:

4.5.1 Ensure all drugs with valid shelf life are available in first aid box.

4.5.2 Appropriate first aid shall be given in case of injuries like burn and cuts. The person should then be taken to a medical center for further treatment.

4.5.3 In case of electric shock, turn 'OFF' the main switch of the area concerned and give appropriate first aid to the person.

5.0 ANNEXURE (S):

Nil

6.0 REFERENCE (S):

SOP: Preparation, Approval, Distribution control, revision and Destruction of Standard operating Procedure (SOP).

7.0 ABBREVIATION (S)/DEFINITION (S):

MSDS: Material Safety Data Sheet

LPG : Liquid Petroleum Gas

LDPE : Low Density Poly Ethylene

GC : Gas Chromatography



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REVISION CARD

S.No.	REVISION No.	REVISION DATE	DETAILS OF REVISION	REASON (S) FOR REVISION	REFERENCE CHANGE CONTROL No.
1	00	---	---	New SOP	---