



# **Directorate of Public Health and Preventive Medicine**

**Quality Management System (QMS) Training for**

**Lab Technicians of PHCs**

**Module II**

**01-02-2021 to 17-02-2021**

**Conducted by**

**State Public Health Laboratory**



# **Directorate of Public Health and Preventive Medicine**

## **State Public Health Laboratory**

### **General Guidelines – EQAS & IQC**

# General Guidelines - EQAS

- 3 times / Year ( EQAS samples )
- 4 vials will be send in each batch
- 1 Vial / Month
- Results should be uploaded before 20<sup>th</sup> of every month
- EQAS – IQC should be done before EQAS
- EQAS values generated from the SAA should be maintained in Separate EQAS file
- If print out not working, Photo should be taken and same should be maintained in EQAS file

# General Guidelines - IQC

- 3 times / Year ( Samples for IQC )
- 2 Vials will be send in each batch
- 1 vial / 2 months
- IQC – 3 times / week – Monday ,  
Tuesday & Thursday
- After running IQC – Values should be  
plotted in LJ Chart

- The EQAS Samples in their place of working using the available Semiautoanalyzer
- The EQAS value should be countersigned by concern Medical officer every month before uploading the results in CMC-EQAS portal
- Lab technician should ensure the results are verified by the concerned Medical Officers/Microbiologists.

# EQAS & IQC file – SPHL



# DOCUMENTS TO BE MAINTAINED IN EQAS FILE

CMC Guidelines for IQC



DEPARTMENT OF CLINICAL BIOCHEMISTRY  
CHRISTIAN MEDICAL COLLEGE, VELLORE – 4  
CMC EXTERNAL QUALITY ASSESSMENT SCHEME (EQAS) – 2020

DPH&PM Guidelines



**Directorate of Public Health and Preventive Medicine**

CMC - Vellore – Biochemistry EQAS Program - 2021

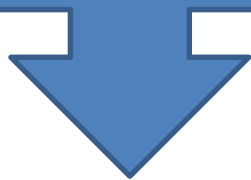
EQAS & IQC General Guidelines

- SemiAutoAnalyser Print out of the Results

T. PROTEIN.		TRIGLYCEPIDE	
Test Name:T_PRO		Test Name:T-TOTAL	
Blk Reat 0.1168		Factor: 23.0000	
1 Std Res 0.3328			
Factor: 10.8224			
PID 1 10C		PID 1 10C	
ABS 0.3370		ABS 0.0751	
Res: 6.0753 w/dl		Res: 1.7275 w/dl	
PID 1 CHE-2		PID 1 CHE-2	
ABS 0.3135		ABS 0.0660	
Res: 3.4527 w/dl		Res: 1.9700 w/dl	
PID 1 CHE-3		PID 1 CHE-3	
ABS 0.3034		ABS 0.1294	
Res: 3.4717 w/dl		Res: 2.9700 w/dl	
URIC ACID		ALBUMIN.	
11/01/21	17:21:01	Test Name:ALBUMIN	
TEST NAME:URIC-AC		Blk Reat 0.0764	
Using Stored Value		1 Std Res 0.4265	
Blk Res: 0.013		Factor: 0.4402	
Using Stored Value		PID 1 10C	
Std Res: 0.376		ABS 0.4096	
Factor: 21.744		Res: 3.4558 w/dl	
PID 10C		PID 1 CHE-2	
ABS 0.216		ABS 0.4172	
Res: 4.6704 w/dl		Res: 3.5212 w/dl	
PID 1 CHE-2		PID 1 CHE-3	
ABS 0.223		ABS 0.3052	
Res: 4.8422 w/dl		Res: 2.5707 w/dl	
PID 1 CHE-3			
ABS 0.225			
Res: 4.9146 w/dl			



- Print out of the Results Uploaded to the CMC Portal



NEW LAB RESULTS

Lab Name STATE PUBLIC HEALTH LABORATORY

Lab No 12500

Constituent Group Chemistry III

Results Successfully Added

Sl.No	Constituent Name	Method / Principle Name	Instrument / Analyzer Name	Result	Unit
1	GLUCOSE III	GOD-POD III	Robonik   Semi automatic / Fully Automatic	142.30	mg/dl
2	UREA III	Urease UV / GLDH III	Robonik   Semi automatic / Fully Automatic	29.90	mg/dl
3	CREATININE III	Jaffes Kinetic - Alkaline Picrate III	Robonik   Semi automatic / Fully Automatic	1.25	mg/dl
4	T.BILIRUBIN III	Diazonium Salt ( Colorimetric ) / Jendrassik III	Robonik   Semi automatic / Fully Automatic	2.97	mg/dl
5	T.PROTEIN III	Biuret - Colorimetric III	Robonik   Semi automatic / Fully Automatic	5.47	g/dl
6	ALBUMIN III	BCG - Colorimetric III	Robonik   Semi automatic / Fully Automatic	2.52	g/dl
7	URIC ACID III	Enzymatic / Uricase Colorimetric III	Robonik   Semi automatic / Fully Automatic	4.98	mg/dl
8	CHOLESTROL III	CHOD-PAP III	Robonik   Semi automatic / Fully Automatic	87.40	mg/dl
9	TRIGLYCERIDE III	GPO-PAP / Enzymatic Colorimetric / End Point III	Robonik   Semi automatic / Fully Automatic	-	mg/dl

Edit Result

NEW LAB RESULTS

Lab Name STATE PUBLIC HEALTH LABORATORY

Lab No 8925

Constituent Group Chemistry II

Results Successfully Added

Sl.No	Constituent Name	Method / Principle Name	Instrument / Analyzer Name	Result	Unit
1	GLUCOSE II	GOD-POD II	Robonik   Semi automatic / Fully Automatic	120.20	mg/dl
2	UREA II	Urease UV / GLDH II	Robonik   Semi automatic / Fully Automatic	31.10	mg/dl
3	CREATININE II	Jaffes Kinetic - Alkaline Picrate II	Robonik   Semi automatic / Fully Automatic	1.51	mg/dl
4	T.BILIRUBIN II	Diazonium Salt ( Colorimetric ) / Jendrassik II	Robonik   Semi automatic / Fully Automatic	1.97	mg/dl
5	T.PROTEIN II	Biuret - Colorimetric II	Robonik   Semi automatic / Fully Automatic	5.65	g/dl
6	ALBUMIN II	BCG - Colorimetric II	Robonik   Semi automatic / Fully Automatic	3.52	g/dl
7	URIC ACID II	Enzymatic / Uricase Colorimetric II	Robonik   Semi automatic / Fully Automatic	4.84	mg/dl
8	CHOLESTROL II	CHOD-PAP II	Robonik   Semi automatic / Fully Automatic	94.10	mg/dl
9	TRIGLYCERIDE II	GPO-PAP / Enzymatic Colorimetric / End Point II	Robonik   Semi automatic / Fully Automatic	-	mg/dl

Edit Result

# Results of CMC Vellore Analysis

**LAB MONTHLY SUMMARY**

Lab Name STATE PUBLIC HEALTH LABORATORY Lab No 12000  
 Month January Year 2020  
 Constituent Chemistry III Group  
 Date of Result Entered : 29/01/2020  
 Date of Report Published : 11/02/2020

Sl.No	Analyte	Method / Principle Name	Analyzer Name	No of Participants	DV	Participants		Your Value	SDI	U
						CV	SD			
1	GLUCOSE II	GOD-POD	Robonik ( Semi automatic / Fully Automatic )	1730	112.72	8.33	9.39	111 mg/dl	-0.18	0.45
2	UREA II	UREASE UV / GLDH	Robonik ( Semi automatic / Fully Automatic )	23	39.01	7.58	2.96	41 mg/dl	0.67	1.23
3	CREATININE II	ENZYMATIC COLORIMETRIC	Robonik ( Semi automatic / Fully Automatic )	78	1.64	14.62	0.24	1.8 mg/dl	0.67	0.05
4	CHOLESTROL II	CHOD-PAP	Robonik ( Semi automatic / Fully Automatic )	1620	112.10	9.50	10.65	107 mg/dl	-0.48	0.53

SDI Range	Interpretation
Within -1.0 to +1.0	Excellent.
Between ±1.0 to ±2.0	Good.
Between ±2.0 to ±3.0	Accept with caution. Warning Signal.
Beyond ±3.0	Unacceptable performance. Action Signal.

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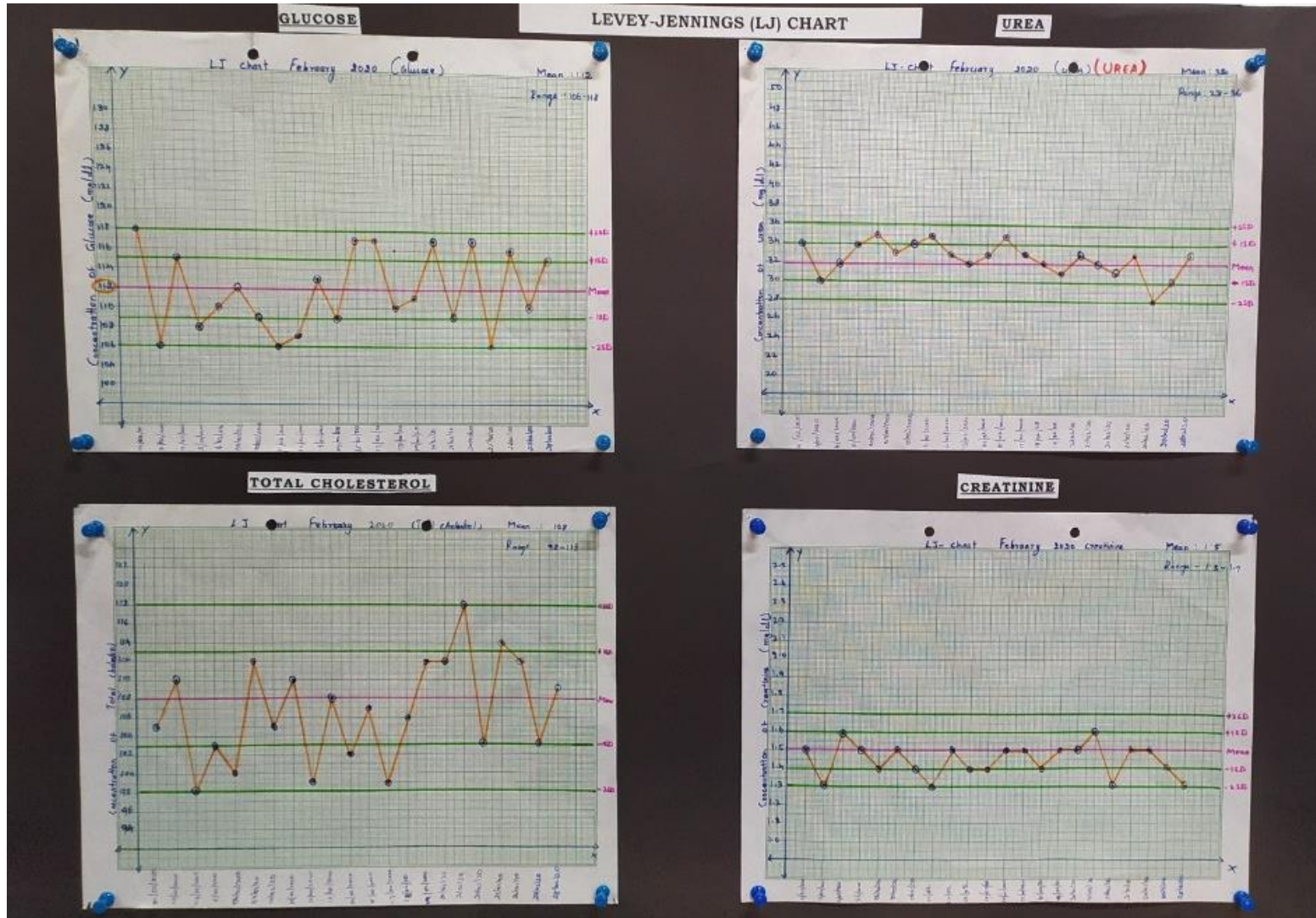
Homogeneity and Stability of the sample is passed.

*Pamela Christudoss*  
 Dr. Pamela Christudoss  
 CMC EQAS Co-Ordinator  
 Christian Medical College, Vellore

\*\*\*\*\* End of Report \*\*\*\*\*

*SPM*  
11/2/2020

# LJ-Chart display in SPHL





# **Directorate of Public Health and Preventive Medicine**

## **State Public Health Laboratory**

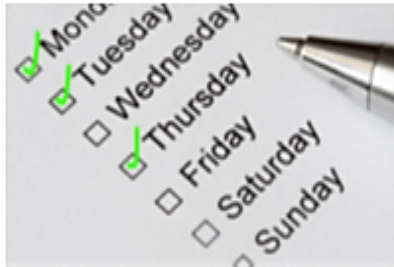
**CMC - Vellore – Biochemistry**

**IQC Aliquot Preparation & Protocol**

# Requirements

- Micro Pipette (200  $\mu$ l - 1000  $\mu$ l)
- Tips (200  $\mu$ l - 1000  $\mu$ l)
- Deionized Water (Injection Water 5 ml or 10 ml)
- Eppendorf Tube / Microcentrifuge Tube (1.5 mL)
- Label / CD Marker
- Parafilm

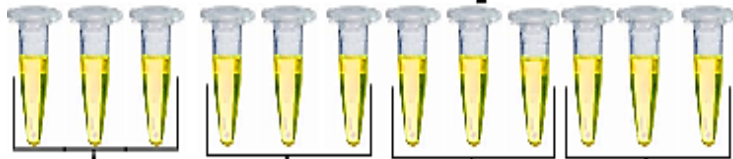
# IQC Aliquot Preparation & Protocol



Reconstitute with 5 ml of Deionized Water

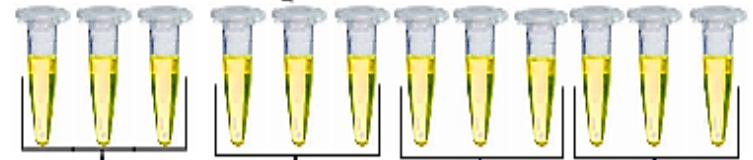
N=33 Vials

1<sup>st</sup> Month 12 Vials  
Each aliquot Contain 150  $\mu$ l

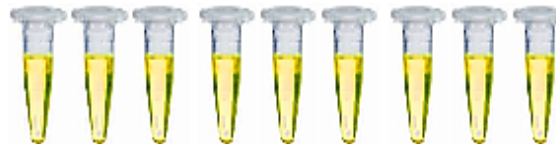


1<sup>st</sup> Week 3 Days (Monday, Tuesday, Thursday)  
2<sup>nd</sup> Week 3 Days (Monday, Tuesday, Thursday)  
3<sup>rd</sup> Week 3 Days (Monday, Tuesday, Thursday)  
4<sup>th</sup> Week 3 Days (Monday, Tuesday, Thursday)

2<sup>nd</sup> Month 12 Vials  
Each Vials Contain 150  $\mu$ l



1<sup>st</sup> Week 3 Days (Monday, Tuesday, Thursday)  
2<sup>nd</sup> Week 3 Days (Monday, Tuesday, Thursday)  
3<sup>rd</sup> Week 3 Days (Monday, Tuesday, Thursday)  
4<sup>th</sup> Week 3 Days (Monday, Tuesday, Thursday)



Stand by IQC

# IQC Aliquot Preparation & Protocol

- In each year, 3 sets of IQC samples will be sent by CMC, Vellore
- Each set contains 2 vials of lyophilized/powdered analytes. Each vial will be used for a period of 2 months.
- Each vial should be reconstituted with 5 ml of deionized water as per the procedure given above, aliquots prepared and stored in the Deep Freezer (-20°C) compartment of the Refrigerator and strictly be used for 2 months only.
- The Laboratory Technician working in Rural and Urban PHCs should strictly run IQC sample on **Monday, Tuesday and Thursday** before processing the clinical samples.

# **IQC Aliquot Preparation & Protocol**

- The IQC sample should be mandatory for Glucose, Cholesterol and Creatinine tests. Hence, all the Laboratory Technicians should strictly follow IQC run on the designated days.
- The values of the IQC should be plotted on a LJ Chart in a Graph paper and displayed in the PHC.
- A Thermocoal based Display Board with Black Chart or File Pouches to be readily available in the PHC laboratory to display the LJ Chart.
- LJ chart should preferably be drawn using Graph paper and Colour pens.





# **Directorate of Public Health and Preventive Medicine**

## **State Public Health Laboratory**

**CMC - Vellore – Biochemistry**

**External Quality Assurance Scheme (EQAS)**

# Requirements

- Micro Pipette (200  $\mu$ l - 1000  $\mu$ l)
- Tips (200  $\mu$ l - 1000  $\mu$ l)
- Deionized Water (Injection Water 5 ml or 10 ml)
- Eppendorf Tube / Microcentrifuge Tube (1.5 mL)
- Label / CD Marker
- Parafilm

# External Quality Assurance Scheme (EQAS)

## EQAS PROTOCOL



**Jan Feb Mar Apr**



**May Jun Jul Aug**



**Sep Oct Nov Dec**

**3 Sets of Samples / Year**



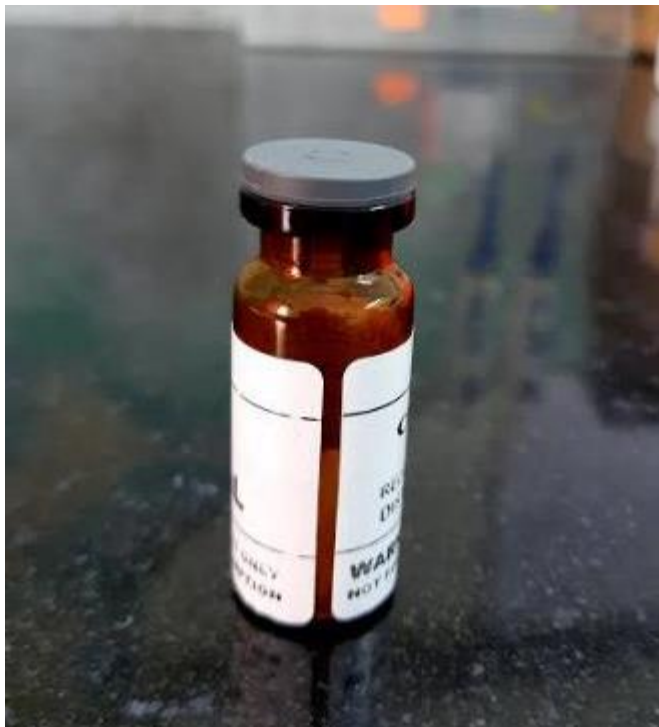
**Reconstitute:**

Add 2 ml of Distilled Water and Wait for 30 mins

**Each Vial / Month**

# Current Month Lyophilized / Powdered Analytes Vial was Taken

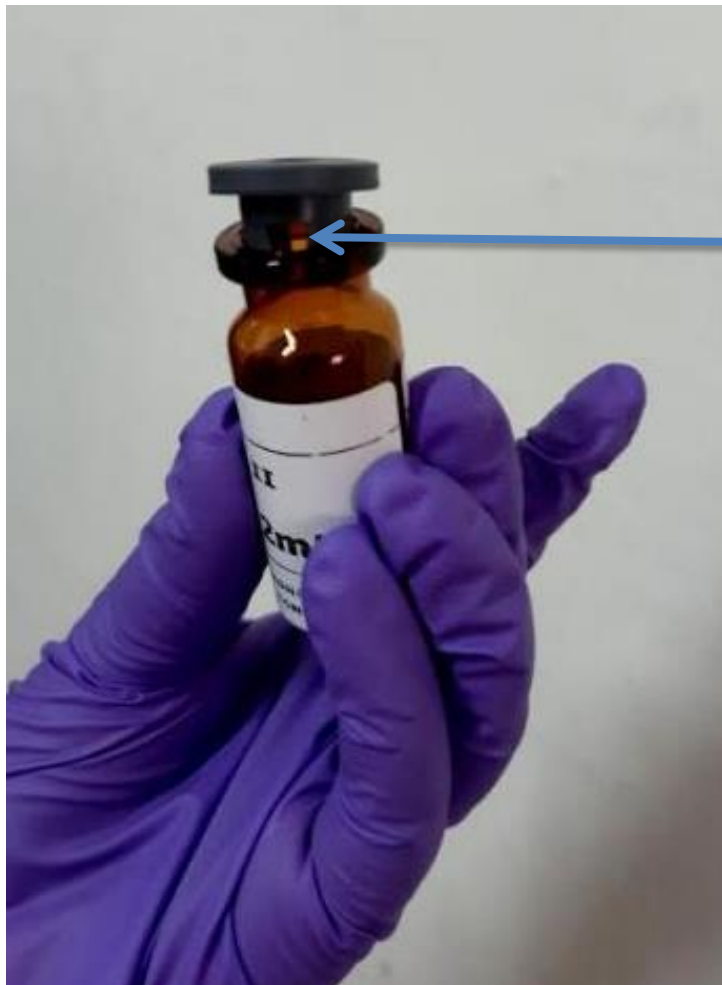
## Current Month – Vial



## Deionized Water



## Step - 1



**Carefully Open the Vial  
(Only Half Open)**

# Step - 2



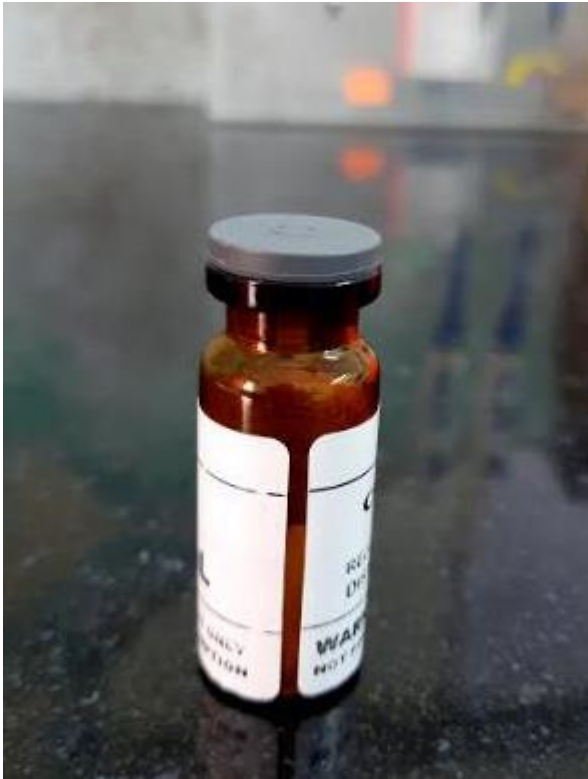
**Add 2 ml Deionized Water**

## Step - 3



**Carefully add 2 ml  
Deionized Water (half  
open tubes)**

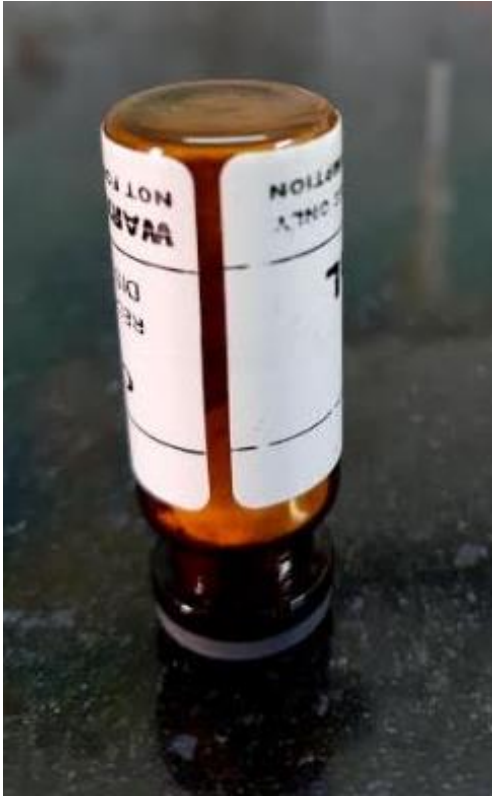
## Step - 4



- **Do not shake the vial**
- **Leave it aside for 10 mins**



## Step - 5



- **Gently invert the vial and place it in an inverted position for another 10 mins**
- **Content of the vial is mixed by gently tilting the vial up and down.**
- **Continue for 10 minutes.**
- **Avoid foam formation during mixing.**
- **Leave it again for 10 mins**
- **The vial is ready for analysis**

# FORMAT FOR QUERIES

- Name of the LT:
- Name of the PHC:
- Name of the Block:
- Name of the HUD:
- Question 1:
- Question 2:
- **Whatsapp No.: 7358216646**

*Thank You*