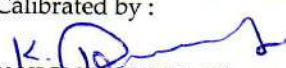
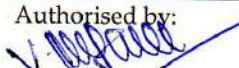


## CALIBRATION CERTIFICATE

EQN/FT-7.8-01		Page 1 of 2	
ULR	: CC276021000002340F	Date of Issue	: 10-Apr-21
Certificate No.	: 2021-22/EQN/210419-02	Recom. Due Date	: 08-Apr-22
Date of Calibration	: 09-Apr-21	Customer Details	: CRF No. : 210419
Customer Details : M/s. Rainbow Laboratories, No. 106-B, Gilgal Complex, Opp. VOC Ground, Arasan Bakery 1st Floor, Palayamkottai - 2.		Calibrated at	: Lab
		Date of Receipt	: 09-Apr-21
		Cond. On Receipt	: Satisfactory
Details of Test Instrument:			
Description	: Micropipette	Model No.	: --
Range	: 10µl to 100µl	Serial No.	: --
Least Count	: 1µl	Id. No.	: RL/0004
Make	: Dragon	Accuracy	: As per Manual
Location	: --		
Details of Standard Used			
Name	: Electronic Semi-Micro balance	Certificate No.	: 2020-21/EQN/MASTER-02
		Valid upto	: 13-May-21
		Traceability	: EQN, Chennai.
CP No:	: EQN/CP/MS-03		
Environmental Details	: Temperature : 25±2°C	Relative Humidity : 50±10 % RH	
<b>MECHANICAL CALIBRATION</b>			
(Volume)			
<b>Calibration Results</b>			
<b>1. Lower Volume :</b>	<b>10 µl</b>	<b>No. of Measurements :</b>	<b>10</b>
<input type="text" value="10.00"/>	<input type="text" value="10.13"/>	<input type="text" value="10.00"/>	<input type="text" value="9.97"/>
<input type="text" value="10.01"/>	<input type="text" value="9.97"/>	<input type="text" value="10.01"/>	<input type="text" value="10.00"/>
<input type="text" value="10.01"/>	<input type="text" value="9.94"/>		
Mean Value :	<input type="text" value="10.01"/> µl		
<b>Error Limits(±)</b>			
Systematic Error :	<input type="text" value="0.01"/> µl	<input type="text" value="0.12"/> µl	
Systematic Error :	<input type="text" value="0.06"/> %	<input type="text" value="1.20"/> %	
Random Error :	<input type="text" value="0.05"/> µl	<input type="text" value="0.08"/> µl	
Random Error :	<input type="text" value="0.50"/> %	<input type="text" value="0.80"/> %	
Measurement Uncertainty :	<input type="text" value="± 0.36"/> µl		

Calibrated by :  
  
 K.VIGNESHWARAN  
 (CALIBRATION ENGINEER)



Authorised by:  
  
 V.RAJKARTHICK  
 QUALITY MANAGER

## CALIBRATION CERTIFICATE

ULR : CC276021000002340F  
 Certificate No. : 2021-22/EQN/210419-02

### MECHANICAL CALIBRATION

(Volume)

#### Calibration Results

2. Middle Volume : 50  $\mu$ l No. of Measurements : 10

49.99	50.00	49.94	49.96
50.00	49.95	49.93	50.23
50.08	50.15		

Mean Value : 50.02  $\mu$ l

#### Error Limits( $\pm$ )

Systematic Error :	0.02	$\mu$ l	0.50	$\mu$ l
Systematic Error :	0.05	%	1.00	%
Random Error :	0.10	$\mu$ l	0.20	$\mu$ l
Random Error :	0.20	%	0.40	%

Measurement Uncertainty :  $\pm$  0.36  $\mu$ l

3. Nominal Volume : 100  $\mu$ l No. of Measurements : 10

99.73	99.74	99.76	99.69
99.74	99.68	100.03	99.80
99.84	99.58		

Mean Value : 99.76  $\mu$ l

#### Error Limits( $\pm$ )

Systematic Error :	-0.24	$\mu$ l	0.80	$\mu$ l
Systematic Error :	-0.24	%	0.80	%
Random Error :	0.12	$\mu$ l	0.30	$\mu$ l
Random Error :	0.12	%	0.30	%


Measurement Uncertainty :  $\pm$  0.36  $\mu$ l

#### Remarks

1. The reported Expanded Uncertainty is calculated at 95.45 % C.L with coverage factor  $k=2$
2. The above Micropipette was within the error limits

\* End of Certificate \*

Calibrated by :

  
 K.VIGNESHWARAN  
 (CALIBRATION ENGINEER)



Authorised by:

  
 V.RAJKARTHICK  
 QUALITY MANAGER