Calibration report

How to interpret?

Dr Sanjay Gupta

What we do with calibration report?

- Tell calibration company to calibrate
- Get calibration reports
- File it

- Most important thing for blood bank in calibration report is – Date and due date of calibration.

Calibration definition and standards

- **Aim of calibration –** To ensure proper functioning of equipment by finding error in blood bank equipment and rectify error if required

- **Definition –** Documented comparison of the measurement device to be calibrated against a traceable reference device

- **Standards for calibration –**
- Proper calibration (**Refer –** ISO/IEC 17025 standards for details of calibration and BIPM for international measurement systems)
- At defined frequencies
- Traceable to international system of units (SI)

AUSSIN SHUBH HOSPICA CALIBRATION LABORATORY

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AUSSIN SHUBH HOSPICA MED-CAL TECHNOLOGY

CERTIFICATE

Calibrator machine is calibrated under NABL Laboratory.

❖ DETAILS OF DEVICE UNDER CALLIBRATION

Customer Name:- APOLLO HOSPITAL INTERNATIONAL		Certificate / Id No	ASH-22357
Add: - BHAT, GANDHINAGAR, GUJARAT-382424.			
Name Of Instrument	PIPETTE	Date Of Issue	14-05-2022
Make	EPPENDROF	Date Of Calibration	13-05-2022
Model	RESEARCH	Next Calibration Date	12-11-2022
Serial No	2040065	Location	BLOOD GROPING & SEROLOGY
Asset No	NA	Temperature & RH	22 deg C & 45%

❖ TRACEABILITY

Sr. No	Use Of Calibrator	Make	Model	Sr. No	Due Date
1	DIGITAL WEIGHING SCALE	DIGITAL KART	ASHW01	NA	25/02/2023

❖ TEST REPORT

Sr. No	Test	Unit	Set Value	Observed Value	Error	Uncertainty	result
1	WEIGHT	µl	100	100.003	0.003	± 3 %	Pass
2			200	200.008	0.008	± 3 %	Pass
3			500	500.017	0.017	± 3 %	Pass
4			700	700.024	0.024	± 3 %	Pass
5			1000	999.993	-0.007	± 3 %	Pass

CALIBRATED/TESTED BY:
RAHUL PATEL

AUSSIN SHUBH HOSPICA Q.A. & CALIBRATION

AUTHORISED SIGNATORY

* Mean of Five readings
Note: The indicated Uncertainties are estimated expanded Uncertainties for Coverage factor 'k'=2 providing a level of confidence approx. = 95% for distribution

Review of Calibration certificate – Contents?

- Name and other details of calibration agency
- Title of document
- Accreditation symbol – like NABL
- Unique identification number of calibration report
- Page number on each page of calibration report and total number of pages
- Customer (Blood centre) information
- Details of equipment under calibration
- Details of calibration standard(s) used
- Environmental conditions during calibration
- Measurement result of calibration
- Traceability
- Calibration done by
- Notes by calibration agency

Review of Calibration certificate

- **Important Note: -** “Specifications” of calibration should be mentioned in Purchase order

- **Scope of accreditation of calibration agency –** for all parameters
- Resolution/Accuracy and range of standard should be more than equipment calibrated.
- Validity of calibration of Standard used
- Certificate should have all Parameters to be calibrated.
- **Calibration in working range of equipment**
- **Points at which equipment should be calibrated –** Always refer manufacturer instructions for points to be calibrated.
- **Measurement readings –** This is most important point to be seen while reviewing calibration report.
- **Acceptable error/Tolerance**
- **Uncertainty of Measurement**
- **Traceability**
- **Inhouse Calibration –** If blood centre staff is doing calibration, they should have proper training/experience/competence and standard operating procedure for calibration.

Example

- Of few calibration certificates

Refrigerated centrifuge

Parameter	Standard	UUC	Error
Speed (RPM)	1000	1010	+10
	2000	2020	+20
	5000	5050	+50
	10000	10100	+100

Refrigerated centrifuge

- Parameters to be calibrated (Temperature and Time)?
- Working range?
- Points at which equipment should be calibrated
- Proper calibration – Is value shown is attainable?
- Acceptable error/Tolerance
- Measurement of uncertainty

Blood bank refrigerator

Parameter	Standard	UUC	Error	Tolerance	Uncertainty
Temperature (degree C)	2	2.5	+0.5	+/- 0.5^{0}C	+/- 1^{0}C
	3	3.2	+0.2	+/- 0.5^{0}C	+/- 1^{0}C
	4	4.5	+0.5	+/- 0.5^{0}C	+/- 1^{0}C
	5	5.4	+0.4	+/- 0.5^{0}C	+/- 1^{0}C
	6	6.5	+0.5	+/- 0.5^{0}C	+/- 1^{0}C

Deep Freezer

Parameter	Standard	UUC	Error
Temperature (degree C)	-80	-74	+6
	-60	-63.3	+3.3
	-40	-40.2	+0.2
	-20	-20.1	+0.1
	0	0	+0