## Installation Qualification for Avantor H33s Sr.No :Bc23012078

| | |
|---|---|
| Customer Name | : SHRI GULAB SINGH HOSPITAL |
| **Customer Address** | **: Phaphund Rd Auraiya Uttar Pradesh 206122** |
| Contact Person | : **Dr. RAMKUMAR** |
| Instrument Model | : AVANTOR H33S |
| Serial No. | : BC-23012078 |
| Date Of installation | : **01-03-2021** |

The instrument was installed And was found to be working satisfactory. Preliminary Customer Training was provided And standardization of the parameters Were done. The results were found to be within the expected range and system found to be working satisfactorily.

**Customer**: Shri Gulab Singh Hospital Phaphund Rd Auraiya Uttar Pradesh 206122

**MRIN,Technical Services Department**

| | | | |
|---|---|---|---|
| **Name** | **: Kali** | **Contact Person** | **: Varun K Sharma** |
| **Designation** | **: Sr. Service Engineer** | **Designation** | **: Asst. Application Manager** |
| **Signature** | : | | |

## Installation Certificate For H33s Sr.No :TH23012078

This is to certify that the instrument H33s Sr.No :BC23012078 is successfully installed and comminssioned at : Shri Gulab Singh Hospital Phaphund Rd Auraiya Uttar Pradesh 206122, : and theInstallation Protocol/ checklist has been Successfullycompletedfor the above Instrument.

**Date of Installation : 01/03/2021**

**MRIN, Technical Services Department**

**Name : Kali**

**Designation : Sr. Service Engineer**

## Installation Qualification for Avantor H33s Sr.No :Bc23012078

Customer Name : Shri Gulab Singh Hospital Phaphund Rd Auraiya Uttar Pradesh 206122

Instrument Name : **H33**

Serial No : **BC23012078**

**Initial Inspection of the unit carried out and the details are as follows:**

**System Condition Report:**

Found the system to have been delivered in satisfactory condition and no external physical damaged observed on the same,Package was kept in good Condition as per the directional indicators like not tilt, indicating the system has not been subjected to mechanical shocks or stored in any manner, so as to cause any damage to the same.

**Found all the required accessories as required.**

**Intallation Procedure And Checklist Attached for the records.**

**External Requirement for Installation:**

1. **Input voltage of 220V-240V/50Hz or 60 Hz.**
2. **Recommended operating Temperature is 15-30 degree Celsius, with in Relative Humidity 30-85% and Atmospheric pressure 70-106kPa.**

# Installation Qualification for Avantor H33s Sr.No :BC23012078

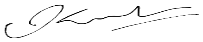
**Carried out all the installation procedures as per the installation procedure and checklists.**

**Carried out all the necessary checks and alignments.**

**Carried out all the necessary system checks and tests.**

**Handover the Instrument for operatos Training And Qualifications**

**For MRIN, Technical Services Department**

**Name** : **Kali** 

**Designation** : **Sr. Service Engineer**

# Performance Qualification for H33s Sr.No :BC23012078

**Calibration Parameters**

**Checked and found all the control [parameters to be with in the acceptable CV limits and in range.**

**Checked and found all controls to be within The acceptable SD.**

**System Certification:**

**Study data has determined that the system described in this document either meets thenecessary criteria outlined inthis Performance Qualification Protocol, or exceptional conditions have been identified and documentation included.**

**The system is ready for Specific Usage.**

**Protocol Performed By:**

**Name : Varun Kumar Sharma**

**Designation :Asst. Application Manager**

**PERFORMANCE QUALIFICATION DONE BY**

**Name : Varun Kumar Shrama**

**Designation : Asst. Appplication Manager**

## Operation Qualification for H33s Sr.No :BC23012078

**System Certfication:**

Study data has determeined that the system described in this document either meets all criteria outlined in this Operational Protocol, or exceptional conditions have been identified and documentation included.

Exceptional Conditions, If any Have been Addressed.

**The Syatem is ready for specific usage.**

Protocol Performed by : MRIN, Ahmedabad

Name: Kali

Designation: Sr. Service Engineer

Customer Authorization : Shri Gulab Singh Hospital Phaphund Rd Auraiya Uttar Pradesh 206122

**Name: Dr. RAMKUMAR**

Designation : **Lab Owner**

| Company Representative Name And Sign | Customer Name And Sign |
|---|---|
| **Mr. Kali** | **Dr. RAMKUMAR** |
| **Date: 01/03/2021** | **Date: 01/03/2021** |

## Operation Qualification for H33s Sr.No :BC23012078

1. Verified all the Mechanical Movements : Done
2. Verifeied Hydraulics : Done
3. Verified Electrical Systems : Done
4. Verified the all reagents Systems : Done

**MRIN, Technical Services Department**

**Name** **: Kali**

**Designation** **: Sr. Service Engineer**

**Date** **: 01/03/2021**

## Instrument Setup

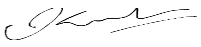
1. Assembled the instrument accessories.
2. Removed the shipping Clamps.
3. Connected the LYSE REAGENT .
4. Connected the DILUENT REAGENT.
5. Connected the Waste Tubing
6. Connected the Power cord and connection cord.
7. Initialise the machine and follow the installation procedure.

## Operational Instection

1. Checked and found Mechanical Movements OK.
2. Checked and found Hydraulics OK.
3. Checked and found Electricals OK.
4. Checked with Controls And Samples, Results Are found OK.

**MRIN, Technical Services Dpartment**

**Name : Kali**



**Designation : Sr. Service Engineer**

# BC30

# HEMATOLOGY ANALYSER

## CALIBRATION CERTIFICATE

## FOR

: SHRI GULAB SINGH HOSPITAL

## BY

## AVANTOR PERFORMANCE MATERIALS INDIA LIMITED

# CERTIFICATE OF QUALITY CONTROLS

INSTRUMENT NAME : BC30

SERIAL NUMBER : BC23012078

CUSTOMER NAME : SHRI GULAB SINGH HOSPITAL

.

ADDRESS : Phaphund Rd Auraiya Uttar Pradesh 206122

**THE UNDERSIGNED PERFORMERS CERTIFY THAT THE INSTALLATION QUALIFICATION PROTOCOL HAS BEEN SUCCESSFULLY COMPLETED FOR THE INSTRUMENT STATED ABOVE.**

**ENGINEER**

Signature : 

Name : Jinesh Vadera

Designation : Regional Service Manager

Company : AVANTOR PERFORMANCE MATERIALS INDIA LIMITED

**LABORATORY**

Signature : 

Name : Varun K Sharma

# PQ BEFOR CALIBRATION

## PQ Protocol: -

1. Background check

2. Reproducibility Check

3. Carry over check

## BACKGROUND CHECK:

**Serial No.** BC23012078
**Mode** WB
**Substance** Blood sample
**Number of Summaries** 5

| Mode | WB | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Select | Date/Time | Operator | WBC | RBC | HGB | HCT | PLT |
| 5 | Yes | 18-12-2023 12:17 | service | 0 | 0 | 0 | 0 | 0 |
| 4 | Yes | 18-12-2023 12:16 | service | 0 | 0 | 0 | 0 | 0 |
| 3 | Yes | 18-12-2023 12:15 | service | 0 | 0 | 0 | 0 | 0 |
| 2 | Yes | 18-12-2023 12:14 | service | 0 | 0 | 0 | 0 | 0 |
| 1 | Yes | 18-12-2023 12:12 | service | 0 | 0 | 0 | 0 | 0 |
| Limit | | | | 0.2 | 0.02 | 0.1 | 0.5 | 5 |
| Result | | | | Pass | Pass | Pass | Pass | Pass |
| Number of Summaries | 5 | | | | | | | |

**Jinesh Vadera**
**Regional Service Manager**

# REPRODUCIBILITY CHECK:

Serial No. BC23012078
Mode WB
Substance Blood
sample Number of Summaries 5
Lot No. patient sample

| | Select | Date/Time | Operator | WBC | RBC | HGB | MCV | PLT | Lymph% | Mid% | Gran% | RDW-CV | RDW-SD | MPV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | Yes | 18-12-2023 15:42 | service | 11.7 | 5.57 | 14.3 | 88.6 | 367 | 32 | 16.1 | 51.9 | 15.7 | 49.5 | 10.2 |
| 19 | Yes | 18-12-2023 15:41 | service | 11.1 | 5.44 | 14.4 | 88.9 | 360 | 34.3 | 15.5 | 50.2 | 15.9 | 50.6 | 10.5 |
| 18 | Yes | 18-12-2023 15:40 | service | 11.1 | 5.6 | 14.3 | 88.8 | 388 | 32.6 | 15.1 | 52.3 | 15.6 | 49.6 | 10.4 |
| 17 | Yes | 18-12-2023 15:39 | service | 10.9 | 5.74 | 14.4 | 88.9 | 390 | 32.8 | 16.3 | 50.9 | 15.9 | 50.5 | 10.4 |
| 16 | Yes | 18-12-2023 15:38 | service | 11.3 | 5.69 | 14.3 | 88.7 | 392 | 34.3 | 15.8 | 49.9 | 15.9 | 50.3 | 10.4 |
| 15 | Yes | 18-12-2023 15:37 | service | 11.3 | 5.72 | 14.4 | 88.9 | 398 | 35.3 | 15.3 | 49.4 | 15.8 | 50.1 | 10.4 |
| 14 | Yes | 18-12-2023 15:36 | service | 11.2 | 5.71 | 14.3 | 89 | 392 | 32.6 | 16.1 | 51.3 | 15.9 | 50.4 | 10.2 |
| 13 | Yes | 18-12-2023 15:05 | service | 11.2 | 5.61 | 14.4 | 88.9 | 383 | 33.1 | 15.6 | 51.3 | 15.8 | 50 | 10.3 |
| 12 | Yes | 18-12-2023 14:59 | service | 11.1 | 5.21 | 14.3 | 89.2 | 370 | 32.5 | 15.4 | 52.1 | 15.6 | 49.7 | 10.4 |
| 11 | Yes | 18-12-2023 14:57 | service | 11 | 5.5 | 14.3 | 88.9 | 388 | 33.2 | 15.5 | 51.3 | 15.9 | 50.3 | 10.3 |
| 10 | Yes | 18-12-2023 14:55 | service | 11 | 5.58 | 14.2 | 88.9 | 392 | 31.9 | 16.5 | 51.6 | 15.7 | 49.9 | 10.4 |
| 9 | Yes | 18-12-2023 14:54 | service | 11 | 5.57 | 14.2 | 89 | 382 | 35.1 | 15.2 | 49.7 | 15.9 | 50.5 | 10.3 |
| 8 | Yes | 18-12-2023 14:51 | service | 11.1 | 5.52 | 14.2 | 88.9 | 388 | 34 | 15.7 | 50.3 | 15.7 | 49.7 | 10.3 |
| 7 | Yes | 18-12-2023 14:48 | service | 10.9 | 5.49 | 14.2 | 88.8 | 393 | 35.6 | 14.9 | 49.5 | 15.8 | 50.1 | 10.5 |
| 6 | Yes | 18-12-2023 14:45 | service | 11.1 | 5.57 | 14.2 | 89 | 388 | 34.5 | 15.8 | 49.7 | 16 | 50.6 | 10.4 |
| 5 | Yes | 18-12-2023 14:42 | service | 11.1 | 5.57 | 14.2 | 89 | 388 | 34.5 | 15.8 | 49.7 | 16 | 50.6 | 10.4 |
| 4 | Yes | 18-12-2023 14:39 | service | 11.3 | 5.73 | 14.1 | 88.9 | 416 | 33 | 16.4 | 50.6 | 15.8 | 50 | 10.4 |
| 3 | Yes | 18-12-2023 14:35 | service | 11.1 | 5.68 | 14.2 | 89.1 | 404 | 36.1 | 15.7 | 48.2 | 15.9 | 50.6 | 10.4 |
| 2 | Yes | 18-12-2023 14:31 | service | 11.5 | 5.51 | 14.4 | 89.1 | 397 | 33.9 | 16.1 | 50 | 15.7 | 50.1 | 10.3 |
| 1 | Yes | 18-12-2023 14:26 | service | 11.2 | 5.54 | 14.2 | 88.9 | 373 | 34.7 | 15.7 | 49.6 | 15.7 | 49.9 | 10.4 |
| Mean | | | | 11 | 5.58 | 14.2 | 88.9 | 392 | 34.3 | 15.78 | 49.89 | 15.82 | 50.20 | 10.38 |
| SD | | | | 0.170 | 0.075 | 0.074 | 0.097 | 11 | 1.225 | 0.487 | 0.51 | 0.123 | 0.343 | 0.06 |
| Min | | | | 11.7 | 5.65 | 14.2 | 88 | 373 | 32 | 16.1 | 50.1 | 15.7 | 49.5 | 10.2 |
| Max | | | | 10.9 | 5.76 | 14.4 | 89 | 390 | 36 | 16.5 | 51.2 | 16 | 50.6 | 10.3 |
| R | | | | 0.3 | 0.11 | 0.4 | 0.1 | 14 | 1.2 | 1.6 | 1.1 | 0.3 | 1 | 0.2 |
| d(Min) | | | | 0 | 0.01 | 0 | 0 | 1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0 |
| d(Max) | | | | 0.2 | 0.07 | 0.3 | 0.1 | 10 | 0.6 | 1 | 0.6 | 0.2 | 0.6 | 0.1 |
| CV % | | | | 1.530 | 1.348 | 0.519 | 0.109 | 3.1 | 3.2 | 3.087 | 1 | 0.77 | 0.684 | 0.609 |
| Limit(%) | | | | 2.5 | 1.5 | 1.5 | 0.5 | 4 | 12 | 25 | 12 | 3.5 | 3.5 | 4 |
| Result | | | | Pass | Pass | Pass | Pass | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

**Jinesh Vadera**
**Regional Service Manager**

# CARRYOVER

3 consecutive analyses of a patient sample with high analyte concentration (H1, H2, and H3) were followed by 3 consecutive analyses of a patient sample with low analyte concentration (L1, L2, and L3). Carryover (%) was calculated from the formula: 100 *(L1–L3)/(H3–L3).

Serial No. BC23012078
Mode WB
Substance QC-Mindray

| Mode | WB | | | | | |
|---|---|---|---|---|---|---|
| | Date/Time | Operator | WBC | RBC | HGB | PLT |
| High-Level 1 | 18-12-2023 12:25 | Service | 21.3 | 5.69 | 17.4 | 632 |
| High-Level 2 | 18-12-2023 12:26 | Service | 21.5 | 5.66 | 17.7 | 637 |
| High-Level 3 | 18-12-2023 12:27 | Service | 21.5 | 5.66 | 17.5 | 644 |
| Low-Level 1 | 18-12-2023 12:28 | Service | 2.0 | 2.27 | 6.3 | 66 |
| Low-Level 2 | 18-12-2023 12:29 | Service | 2.1 | 2.24 | 6.2 | 65 |
| Low-Level 3 | 18-12-2023 12:31 | Service | 2.1 | 2.22 | 6.2 | 66 |
| Carryover% | | | 0.00% | 1.80% | 1.10% | 0.40% |
| Limit% | | | 0.50% | 0.50% | 0.50% | 1.00% |

**Jinesh Vadera**
**Regional Service Manager**

# QC Before Calibration

## LOW CONTROL

| File No. | Lot No. | Expiration Date | QC Test Panel | Level |
|---|---|---|---|---|
| 1 | B1123 | 05-02-2024 | WB | Low |

| No. | Target | Limit(#) | 8 |
|---|---|---|---|
| Date | / | / | 18-12-2023 |
| Time | / | / | 12:31 |
| WBC(10^9/L) | 3.5 | 1.5 – 2.5 | 2 |
| Lymph#(10^9/L) | 1.3 | 1.0 – 1.6 | 1.3 |
| Mid#(10^9/L) | 0.1 | 0.0 – 0.2 | 0.1 |
| Gran#(10^9/L) | 0.2 | 0.4 – 0.8 | 0.6 |
| Lymph%(%) | 62 | 52.9 – 76.9 | 64.7 |
| Mid%(%) | 7.2 | 4.2-10.2 | 4.9 |
| Gran%(%) | 26.1 | 19.9 - 39.9 | 30.4 |
| RBC(10^12/L) | 2.52 | 4.25 – 4.73 | 2.28 |
| HGB(g/dL) | 6.2 | 5.5 – 6.3 | 6.3 |
| HCT(%) | 20.6 | 15.7 – 18.7 | 17.4 |
| MCV(fL) | 80.2 | 72.2 – 82.2 | 76.3 |
| MCH(pg) | 24.6 | 28 – 33 | 27.5 |
| MCHC(g/dL) | 30.7 | 32.1 – 38.1 | 36 |
| RDW-CV(%) | 15.6 | 13.2 – 19.2 | 17 |
| RDW-SD(fL) | 50.4 | 42.5 – 54.5 | 46 |
| PLT(10^9/L) | 54 | 40 – 80 | 66 |
| MPV(fL) | 8 | 6.4 – 12.4 | 10.1 |
| PDW( ) | | | 18.3 |
| PCT(mL/L) | | | 0.066 |
| P-LCC(10^9/L) | | | 20 |
| P-LCR(%) | | | 30.4 |

**Jinesh Vadera**
**Regional Service Manager**

# MEDIUM CONTROL

| File No. | Lot No. | Expiration Date | QC Test Panel | Level |
|---|---|---|---|---|
| 2 | B1123N | 05-02-2024 | WB | Normal |

| No. | Target | Limit(#) | 10 |
|---|---|---|---|
| Date | / | / | 18-12-2023 |
| Time | / | / | 12:23 |
| WBC(10^9/L) | 9.8 | 10.8 – 7.5 | 8.1 |
| Lymph#(10^9/L) | 5 | 4.7 – 2.3 | 2.7 |
| Mid#(10^9/L) | 1 | 1.7 – 0.3 | 0.7 |
| Gran#(10^9/L) | 3.8 | 5.4 – 3.4 | 4.7 |
| Lymph%(%) | 51.4 | 39.4 – 23.4 | 32.8 |
| Mid%(%) | 10.5 | 18.5 – 2.5 | 8.4 |
| Gran%(%) | 38.1 | 46.1 – 30.1 | 56.8 |
| RBC(10^12/L) | 4.65 | 4.9 – 4.4 | 4.62 |
| HGB(g/dL) | 12.5 | 13.0 – 12.0 | 13.8 |
| HCT(%) | 42.3 | 46.9 – 37.7 | 39.6 |
| MCV(fL) | 91 | 96 – 86 | 85.7 |
| MCH(pg) | 28 | 30.8 – 25.2 | 30 |
| MCHC(g/dL) | 30.7 | 35.5 – 25.9 | 35 |
| RDW-CV(%) | 14.2 | 17.2 – 11.2 | 15.5 |
| RDW-SD(fL) | 52.4 | 60.4 – 44.4 | 47.3 |
| PLT(10^9/L) | 244 | 284 - 204 | 284 |
| MPV(fL) | 8.1 | 11.1 – 5.1 | 9.3 |
| PDW( ) | | | 16.5 |
| PCT(mL/L) | | | 0.263 |
| P-LCC(10^9/L) | | | 67 |
| P-LCR(%) | | | 23.5 |

**Jinesh Vadera**
**Regional Service Manager**

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# HIGH CONTROL

| File No. | Lot No. | Expiration Date | QC Test Panel | Level |
|---|---|---|---|---|
| 3 | B1123H | 05-02-2024 | WB | High |

| No. | Target | Limit(#) | 1 |
|---|---|---|---|
| Date | / | / | 18-12-2023 |
| Time | / | / | 12:22 |
| WBC(10^9/L) | 21.2 | 23.7 – 18.7 | 22.4 |
| Lymph#(10^9/L) | 8.9 | 10.6 – 7.2 | 9.3 |
| Mid#(10^9/L) | 1.6 | 2.0 – 1.2 | 1.7 |
| Gran#(10^9/L) | 10.7 | 12.4 – 9.0 | 11.4 |
| Lymph%(%) | 41.8 | 45.8 – 37.8 | 41.6 |
| Mid%(%) | 7.6 | 11.6 – 3.6 | 7.5 |
| Gran%(%) | 50.6 | 58.6 – 42.6 | 50.9 |
| RBC(10^12/L) | 5.57 | 5.87 – 5.27 | 5.35 |
| HGB(g/dL) | 17 | 17.8 – 16.2 | L 15.8 |
| HCT(%) | 54.7 | 60.2 – 49.0 | 50.5 |
| MCV(fL) | 98.2 | 103.2 – 93.8 | 94.5 |
| MCH(pg) | 30.5 | 33.6 – 27.4 | 29.6 |
| MCHC(g/dL) | 31.1 | 35.9 – 27.0 | 31.3 |
| RDW-CV(%) | 14.3 | 17.3 – 11.3 | 15.2 |
| RDW-SD(fL) | 57 | 65 - 49 | 52.3 |
| PLT(10^9/L) | 495 | 555 - 435 | H 585 |
| MPV(fL) | 8.1 | 11.1 – 5.1 | 8.4 |
| PDW( ) | | | 14.9 |
| PCT(mL/L) | | | 4.92 |
| P-LCC(10^9/L) | | | 80 |
| P-LCR(%) | | | 13.7 |

**Jinesh Vadera**
**Regional Service Manager**

# CALIBRATION FACTOR DATA

The calibrator of below mentioned lot no. has been run Ten times and its MEAN and CV% is calculated automatically and the factors are automatically obtained by the instrument.

**Calibrator Lot No.** BC10923C-1
**Calibrator Exp.** 27/01/2024
**Instrument** BC30
**Sr. No.** BC23012078
**Calibration Date** **18-12-2023**

| | Select | WBC | RBC | HGB | MCV | PLT |
|---|---|---|---|---|---|---|
| | | 10^9/L | 10^12/L | g/dL | fL | 10^9/L |
| Target | | 8.3 | 4.11 | 13.5 | 96.4 | 244 |
| 1 | Yes | 8.5 | 4.16 | 13.9 | 96.3 | 244 |
| 2 | Yes | 8.5 | 4.11 | 13.8 | 96.1 | 245 |
| 3 | Yes | 8.6 | 4.12 | 13.8 | 96.1 | 243 |
| 4 | Yes | 8.6 | 4.11 | 13.7 | 96.2 | 240 |
| 5 | Yes | 8.5 | 4.17 | 13.8 | 96.1 | 240 |
| 6 | Yes | 8.5 | 4.16 | 13.7 | 96.1 | 244 |
| 7 | Yes | 8.6 | 4.15 | 13.9 | 96.1 | 246 |
| 8 | Yes | 8.5 | 4.13 | 13.7 | 98.8 | 243 |
| 9 | Yes | 8.5 | 4.14 | 13.7 | 97.9 | 243 |
| 10 | Yes | 8.6 | 4.14 | 13.6 | 96.1 | 240 |
| Mean | | 8.5 | 4.14 | 13.8 | 90.1 | 244 |
| CV (%) | | 0.6 | 1 | 0.7 | 0.2 | 3.2 |
| New Factor (%) | | 100.62 | 99.26 | 99.63 | 98.7 | 94.42 |
| Old Factor (%) | | 97 | 100 | 94 | 100 | 100 |

## CALIBRATION FACTOR: -

| Parameter | Calibration Factor (%) | Date |
|---|---|---|
| WBC | 100.62 | 18-12-2023 |
| RBC | 99.26 | 18-12-2023 |
| HCG | 99.63 | 18-12-2023 |
| MCV | 98.7 | 18-12-2023 |
| PLT | 94.42 | 18-12-2023 |

**Next Calibration Due Date 18-12-2024**

**For Avantor Performance Materials India Limited**

**Jinesh Vadera**
**Regional Service Manager**
**+91 9820442240**

# QC After Calibration

## LOW CONTROL

| File No. | Lot No. | Expiration Date | QC Test Panel | Level |
|---|---|---|---|---|
| 1 | B1123L | 05-02-2024 | WB | Low |

| No. | Target | Limit(#) | 1 |
|---|---|---|---|
| Date | / | / | 18-12-2023 |
| Time | / | / | 20:21 |
| WBC(10^9/L) | 3.5 | 4.0 – 3.0 | 4 |
| Lymph#(10^9/L) | 2.1 | 2.4 – 1.8 | 2.3 |
| Mid#(10^9/L) | 0.6 | 0.9 – 0.6 | 0.6 |
| Gran#(10^9/L) | 0.9 | 1.2 – 0.6 | 1.1 |
| Lymph%(%) | 57.6 | 48.6 – 66.6 | 58.4 |
| Mid%(%) | 16.3 | 25.3 – 7.3 | 15.8 |
| Gran%(%) | 26.1 | 35.1 – 17.1 | 25.8 |
| RBC(10^12/L) | 2.52 | 2.77 – 2.27 | 2.43 |
| HGB(g/dL) | 6.2 | 6.8 – 5.6 | 6.6 |
| HCT(%) | 20.6 | 23.9 – 17.3 | 19.2 |
| MCV(fL) | 80.2 | 85.2 – 75.2 | 79 |
| MCH(pg) | 24.6 | 29.5 – 19.7 | 27.3 |
| MCHC(g/dL) | 30.7 | 38.8 – 22.6 | 34.5 |
| RDW-CV(%) | 15.6 | 18.6 – 12.6 | 18.3 |
| RDW-SD(fL) | 50.4 | 58.4 – 42.4 | 53.3 |
| PLT(10^9/L) | 54 | 34 - 74 | 61 |
| MPV(fL) | 8 | 11 - 5 | 8.5 |
| PDW( ) | | | 15.3 |
| PCT(mL/L) | | | 0.52 |
| P-LCC(10^9/L) | | | 10 |
| P-LCR(%) | | | 15.5 |

**Jinesh Vadera**
**Regional Service Manager**

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# MEDIUM CONTROL

| File No. | Lot No. | Expiration Date | QC Test Panel | Level |
|---|---|---|---|---|
| 2 | B1123N | 05-02-2024 | B30 | Normal |

| No. | Target | Limit(#) | 1 |
|---|---|---|---|
| Date | / | / | 18-12-2023 |
| Time | / | / | 20:22 |
| WBC(10^9/L) | 9.8 | 10.8 – 8.8 | 10.6 |
| Lymph#(10^9/L) | 5 | 5.7 – 4.3 | 5.4 |
| Mid#(10^9/L) | 1 | 1.7 – 0.3 | 1.1 |
| Gran#(10^9/L) | 3.8 | 4.5 – 3.1 | 4.1 |
| Lymph%(%) | 51.4 | 59.4 – 43.4 | 50.9 |
| Mid%(%) | 10.5 | 18.5 – 2.5 | 10.3 |
| Gran%(%) | 38.1 | 46.1 – 30.1 | 38.8 |
| RBC(10^12/L) | 4.65 | 4.9 – 4.4 | 4.4 |
| HGB(g/dL) | 12.5 | 13.0 – 12.0 | 12.9 |
| HCT(%) | 42.3 | 46.9 – 37.7 | 38.3 |
| MCV(fL) | 91 | 96 – 86 | 87.1 |
| MCH(pg) | 28 | 30.8 – 25.2 | 29.4 |
| MCHC(g/dL) | 30.7 | 35.5 – 25.9 | 33.8 |
| RDW-CV(%) | 14.2 | 17.2 – 11.2 | 15.7 |
| RDW-SD(fL) | 52.4 | 60.4 – 44.4 | 50.4 |
| PLT(10^9/L) | 244 | 284 – 204 | 245 |
| MPV(fL) | 8.1 | 11.1 – 5.1 | 8.5 |
| PDW( ) | | | 15 |
| PCT(mL/L) | | | 2.07 |
| P-LCC(10^9/L) | | | 36 |
| P-LCR(%) | | | 14.7 |

**Jinesh Vadera**
**Regional Service Manager**

avantor™

# HIGH CONTROL

| File No. | Lot No. | Expiration Date | QC Test Panel | Level |
|---|---|---|---|---|
| 3 | B1123H | 05-02-2024 | B30 | High |

| No. | Target | Limit(#) | 2 |
|---|---|---|---|
| Date | / | / | 18-12-2023 |
| Time | / | / | 20:26 |
| WBC(10^9/L) | 21.2 | 23.7 – 18.7 | 22.9 |
| Lymph#(10^9/L) | 8.9 | 10.6 – 7.2 | 9.5 |
| Mid#(10^9/L) | 1.6 | 2.0 – 1.2 | 1.8 |
| Gran#(10^9/L) | 10.7 | 12.4 – 9.0 | 11.6 |
| Lymph%(%) | 41.8 | 45.8 – 37.8 | 41.5 |
| Mid%(%) | 7.6 | 11.6 – 3.6 | 7.9 |
| Gran%(%) | 50.6 | 58.6 – 42.6 | 50.6 |
| RBC(10^12/L) | 5.57 | 5.87 – 5.27 | 5.37 |
| HGB(g/dL) | 17 | 17.8 – 16.2 | 16.6 |
| HCT(%) | 54.7 | 60.2 – 49.0 | 51.7 |
| MCV(fL) | 98.2 | 103.2 – 93.8 | 96.2 |
| MCH(pg) | 30.5 | 33.6 – 27.4 | 31 |
| MCHC(g/dL) | 31.1 | 35.9 – 27.0 | 32.2 |
| RDW-CV(%) | 14.3 | 17.3 – 11.3 | 15 |
| RDW-SD(fL) | 57 | 65 - 49 | 51.4 |
| PLT(10^9/L) | 495 | 555 - 435 | 530 |
| MPV(fL) | 8.1 | 11.1 – 5.1 | 8.6 |
| PDW( ) | | | 15 |
| PCT(mL/L) | | | 4.54 |
| P-LCC(10^9/L) | | | 79 |
| P-LCR(%) | | | 14.9 |

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