

McFarland Standard Calibration Kit

Introduction

McFarland Latex Standards are used as a reference standard to approximate the number of microbial cells in a liquid suspension. McFarland Standards consist of uniform polystyrene microparticles, which allow longer shelf life and comparable absorbance values to the original BaSO₄ standards. These standards are prepared by suspending different concentrations of latex particles in a buffer solution that are adjusted to an acceptable transmission range using a spectrophotometer at a wavelength of 600nm.

Principle:

McFarland Latex Standards are tested Spectrophotometrically and adjusting bacterial suspension turbidity to these standards, produces bacterial suspension in expected density range.

McFarland Standard	Theoretical optical density at 600 nm	Approximate cells count density
0.5	0.064	1.5 x 10 ⁸ cells/mL
1.0	0.120	3.0 x 10 ⁸ cells/mL
2.0	0.244	6.0 x 10 ⁸ cells/mL
3.0	0.331	9.0 x 10 ⁸ cells/mL
4.0	0.430	12.0 x 10 ⁸ cells/mL

Contents:

McFarland Latex Standard Kit contains:

McFarland Standard 0.5
 McFarland Standard 1.0
 McFarland Standard 2.0
 McFarland Standard 3.0
 McFarland Standard 4.0
 Sterile Normal Saline
 BLANK

Storage and Stability:

McFarland standard solutions should be stored at 2-8° C, away from light after each use. Do not freeze or overheat or incubate. If stored under mentioned conditions, the standards remain stable until the expiration dates mentioned on the label.

NOTE: The shelf life will decrease after opening the bottle, depending on contamination and storage conditions.

Calibration Procedure:

1. Before using the standards, gently mix the standard tubes by inverting the bottles several times to assure uniformity of the suspension of latex particles. Keep aside for some time.
2. Simultaneously connect the **McFarland Reader V.2** unit to the external power supply to the electric circuit and Switch on the unit by pressing the **ON/OFF** button.
3. Insert the BLANK bottle into the reading chamber and press **BLANK** button. Display shows the 0.0 indication.
4. At a time, insert the McFarland calibration standard bottles provided (McFarland Standards- 0.5, 1.0,2.0,3.0,4.0) from lower to higher calibration values and press **READ** button. Display indicates the respective standard values.
5. Press **READ** button every time a McFarland Standard is to be read.
6. After completion of Calibration with the McFarland Standards provided, perform blanking of the unit again and proceed for sample preparation.

NOTE: The McFarland Reader V.2 is pre-calibrated at the factory for operation with glass vial bottles 14 mm±0.2 in external diameter at temperature range from +15°C to +35°C and saves calibration data even after being switched off.

Safety and Precautions:

1. Do not use the product beyond its expiration date.
2. The same size tube should be used in preparing bacterial suspension as the McFarland Standard tubes. For reliability we recommend using Microxpress® Sterile Normal Saline bottles provided with the kit for suspension preparation.
3. The McFarland Standard tubes should be always tightly closed.
4. Discard tubes if any volume is lost.
5. Before each use, gently mix the standards by inverting the bottles several times to assure uniformity of the latex particles in the solution.
6. Ensure that the McFarland Standard tubes are dust free and clear of fingerprints outside.
7. Calibration should be performed by expert personnel only.
8. Use of coloured media in McFarland Standards preparation will provide incorrect densities.
9. Care should be taken when handling clinical microbiological samples.
10. Bacterial suspensions of older cultures may not give expected bacterial counts.
11. Always calibrate the equipment before use.
12. Perform repair and maintenance from time to time if required.
13. Avoid multiple pressing of buttons while reading on the machine.

References:

1. Performance Standards for Antimicrobial Disk Susceptibility Tests, M-100, CLSI 34th Edition, February 2024.
2. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product	Pack Size
209132330003	McFarland Standard Calibration Kit	26x3mL

Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.
