PRO-LAB DIAGNOSTICS

MCFARLAND STANDARDS

PRODUCT CODE SD2350, SD2300, SD2301, SD2302, SD2303, SD2304

INTENDED USE

The McFarland Equivalence Standards are intended to be part of a quality control program for adjusting densities of bacterial suspensions that are used for identification and susceptibility testing. Each standard is made from different concentrations of latex beads mixed in a buffer liquid. The original McFarland Standards were made from the combination of Barium chloride and Sulfuric acid that result in a flocculate. Problems were encountered with this technique which included instability, storage, and reproducibility of the resulting suspension. These problems have been overcome by using latex particles in a buffer solution to make Colorimeter and McFarland Standards.

SUMMARY AND EXPLANATION

The McFarland Standard tubes contain latex particles suspended in a special buffer that are adjusted to an acceptable transmission range using a spectrophotometer at a wave length of either 600 or 625 nm. A bacterial suspension once adjusted to the same turbidity of a McFarland Standard produces expected bacterial plate counts and can be used in a variety of identification or susceptibility kits and methods.

PRINCIPLE OF THE PROCEDURE

The McFarland Equivalence Standards are used for adjusting densities of bacterial suspensions.

MATERIALS PROVIDED

Catalogue Number	Description
SD2350	McFarland Standard Set - Containing one of each 0.5, 1.0, 2.0, 3.0, 4.0
SD2300	McFarland Standard 0.5
SD2301	McFarland Standard 1.0
SD2302	McFarland Standard 2.0
SD2303	McFarland Standard 3.0
SD2304	McFarland Standard 4.0

STABILITY AND STORAGE

All components should be stored 15°-30°C. Do not freeze. Components stored under these conditions will be stable until the expiration date shown on the label.

PRECAUTIONS

1. Do not use product beyond the expiration date.
2. Directions should be carefully read prior to use.
3. The same size tube should be used in comparing bacterial suspensions to the McFarland Standards.

TEST PROTOCOL

1. Prior to use, gently invert the McFarland Equivalence Standard tube several times to assure uniformity of the suspension of latex particles.
2. Adjust the turbidity of the log growth of the bacterial suspension to that of a known McFarland Equivalence Standard.
3. Compare the turbidity by holding bacterial sample and McFarland Standard tubes up against the black and white bars printed on enclosed card.

QUALITY CONTROL

Each lot of McFarland Equivalence Standard Set is tested and results fall into a tight range of acceptability.

INTERPRETATION OF RESULTS

Equal disappearance or distortion of the black bar indicates a similar turbidity.

McFarland Standard	Approximate Cell Count Density ($x10^8$ cells)
0.5	1.5
1.0	3.0
2.0	6.0
3.0	9.0
4.0	12.0

LIMITATION OF THE PROCEDURE

1. Coloured media may not provide the proper contrast with McFarland Equivalence Standards. Incorrect results will occur.
2. Bacterial suspensions of older cultures may not compare to expected bacterial counts.
3. These standards have been adjusted by a spectrophotometer. Use of any other instrumentation may not give reliable results.

SAFETY

See MSDS for additional information.

REFERENCES

1. McFarland, J., J.Amer.Med.Assoc. **14:**1176, 1907.
2. NCCLS Document, Performance Standards for Antimicrobial Disk Susceptibility Tests. 4th ed. **10:**7, p 10, 1990.

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