

Carolina™ Solution Sheets

Methyl Cellulose

Learn how to make methyl cellulose solution and use it to slow protozoa.

Materials

Distilled Water (item #878929)
Methyl Cellulose Powder (item #875163)
Potassium Phosphate (item #884298)
Stir Bar
Magnetic Stir Plate (item #701023)
Erlenmeyer Flask, 100-mL (item #731031)
Graduated Cylinder (item #721744)
Label
Boiling Chips (item #848280)

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Item Numbers
875185, 875183

Procedure

1. Heat 100 mL of water to 85° C.
2. To this hot (not boiling) water, add 10 g of methyl cellulose powder.
3. While rapidly stirring, cool this mixture in an ice bath to approximately 5° C.

Notes

- Some procedures suggest using 90 mL of water instead of 100 mL.
- The above procedure makes 10% methyl cellulose. Modify accordingly for different concentrations (i.e., 3% solution requires 3 g instead of 10 g).

Label Information

Methyl Cellulose

Date Prepared: _____
Initials of Preparer: _____
Health Risk: 0
Flammability: 0
Reactivity: 0

Applications

Methyl cellulose is a polymer of cellulose molecules that have methyl groups substituted for hydroxyl groups. It is widely used as an emulsifier in shampoos and toothpaste in order to make them consistently thick. It has the ability to prolong the degradation of gelatin membranes and bridge alumina surface. Methyl cellulose solution is also used to slow the motility of protozoa for better microscopic observation. A drop of methyl cellulose solution can be dropped onto a drop of protozoa culture on a microscope slide.

Reference

Brandwein, P. F., and E. Morholt. 1986. *A sourcebook for the biological sciences*, 3rd ed. Orlando, FL: Harcourt Brace Jovanovich, 1986, p. 744.

Chang, Kuo-Chi, Tzu-Piao Tang, Chung-King Hsu, Hung-Sheng Soung, and Mao-Hsien Wang. 2012. Methyl cellulose enhance gelatin membrane as guidance channels for peripheral nerve regeneration. *Biomedical Engineering: Applications, Basis and Communications* 24 (1):85–98. DOI:10.1142/S1016237212002974.

Yilmaz, Huseyin, Kimiyasu Sato, Katsuya Sato, Yuji Hotta, and Koji Watari. 2010. Methyl cellulose bridging between alumina surfaces. *Journal of the Ceramic Society of Japan* 118 (1376):314–7.