

Karnovsky Fixatives - Technical Memo

SOLUTIONS:

Karnovsky Fixative
Karnovsky Fixative, Phosphate Buffered

1 Liter	1 Gallon
Part 1215A	Part 1215B
Part 12158A	

30 ml vial, 15 ml fill (50/cs)
Part 12151A

Karnovsky Fixative Vial

For storage requirements and expiration date refer to individual bottle labels.

APPLICATION:

Newcomer Supply Karnovsky Fixative and Karnovsky Fixative, Phosphate Buffered are ready-to-use electron microscopy (EM) fixative solutions that use a combination of paraformaldehyde and glutaraldehyde, referred to as formal-glutaraldehyde (F-G) fixative solutions. This formal-glutaraldehyde mixture achieves rapid tissue penetration and optimal preservation and stabilization of cellular proteins. Karnovsky fixatives are useful in both clinical and research applications and are especially good for nervous system specimens and when tissues are larger than normal for electron microscopy standards.

Karnovsky Fixative, Phosphate Buffered provides the added benefit of a fully buffered fixative solution.

METHOD:

Fixation:

Larger Biopsies: A minimum of 4 hours is recommended.

Small Biopsies: A minimum of 1 hour is recommended.

Solutions: All solutions are manufactured by Newcomer Supply, Inc.

FIXATION PROCEDURE:

- Place fresh tissue specimen in chilled Karnovsky Fixative of choice as soon as possible after surgical excision.
 - See Procedure Note #1.
- Hold tissue specimens in Karnovsky Fixative of choice at 4°C until ready to process.
 - See Procedure Note #2.
- Rinse Karnovsky fixed tissue thoroughly in Phosphate Buffered Saline 0.1M, pH 7.4 (133104) or preferred buffer solution for a minimum of 15 minutes prior to processing.
 - Three 15 minute buffer rinses are recommended to completely remove any residual Karnovsky Fixative.
- A secondary osmium tetroxide fixation is most often recommended.
- Refer to your laboratory protocol for further electron microscopy processing information.

PROCEDURE NOTES:

- Tissues for electron microscopy studies should be fixed within 15 minutes after surgical excision and minced into 1 mm cubes for expedient fixative infiltration.
- Tissue can be held in Karnovsky Fixative of choice in a well-sealed container at 4°C for a recommended maximum of 7 days. After 7 days or less replace old solution with fresh Karnovsky Fixative or rinse tissue well in Phosphate Buffered Saline 0.1M, pH 7.4 (133104) or preferred buffer solution and hold at 4°C.
- Dispose of Karnovsky Fixative and Karnovsky Fixative, Phosphate Buffered according to methods used for formalin solutions.

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- Hayat, M. A. *Basic Techniques for Transmission Electron Microscopy*. San Diego, CA: Academic Press, Inc., 1986. 25-26.
- Karnovsky, Morris. "A Formaldehyde-Glutaraldehyde Fixative of High Osmolality for Use in Electron Microscopy". *The Journal of Cell Biology* 27 (1965): 137-8A.
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- Modifications developed by Newcomer Supply Laboratory.