

Carson Modified Millonig Formalin – Technical Memo

SOLUTION: Carson Modified Millonig Formalin	1 Gallon Part 12445A	20 Liter Cube Part 12445C
Carson Modified Millonig Formalin Vial	30 ml vial, 15 ml fill (100/cs) Part 12445E	

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

APPLICATION:

Newcomer Supply Carson Modified Millonig Formalin, is a formalin based ready-to-use fixative that is buffered with sodium monobasic phosphate and sodium hydroxide. Carson Modified Millonig Formalin promotes fixation with rapid tissue penetration, providing excellent cellular detail and ultrastructural preservation. This multi-purpose fixative has applications for both light microscopy (LM) and electron microscopy (EM) studies (including immunogold labeling) and can readily be used in place of standard 10% formalin fixatives.

METHOD:

Fixation:

- Small Biopsies: A minimum of 1-2 hours is recommended.
- Larger Specimens: A minimum of 4-6 hours is recommended.

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

FIXATION PROCEDURE:

1. Place fresh tissue specimen in Carson Modified Millonig Formalin as soon as possible after surgical excision.
 - a. See Procedure Notes #1 and #2.
2. Hold tissue specimens in Carson Modified Millonig Formalin until ready to process.
 - a. See Procedure Note #3.
3. Processing:
 - a. For light microscopy: place on tissue processor starting in a primary fixation step or primary alcohol step.
 - b. For electron microscopy: a secondary osmium tetroxide fixation is most often recommended. Refer to your laboratory protocol for electron microscopy processing.

PROCEDURE NOTES:

1. A specimen initially received in Formalin 10%, Phosphate Buffered (Part 1090) should be thoroughly rinsed in tap water prior to placing tissue in Carson Modified Millonig Formalin.
2. Tissues initially requested for electron microscopy studies should be fixed within 15 minutes after surgical excision and minced into 1 mm cubes for expedient fixative infiltration.
3. Tissue can remain in Carson Modified Millonig Formalin over an extended period of time, allowing electron microscopy samples to be retrieved and processed when requested at a later date.
4. Dispose of Carson Modified Millonig Formalin as a formalin product and/or according to local and state environmental regulations.

REFERENCES:

1. Bancroft, John D., and Marilyn Gamble. *Theory and Practice of Histological Techniques*. 6th ed. Oxford: Churchill Livingstone Elsevier, 2008. 68.
2. Carson, Freida L., and Christa Hladik. *Histotechnology: A Self-Instructional Text*. 3rd ed. Chicago, Ill.: American Society of Clinical Pathologists, 2009. 11-12, 335-336.
3. Carson, Freida L., and James Martin. "Formalin Fixation for Electron Microscopy." *The Journal of Histotechnology* 2.2 (1979): 58-60.
4. Sheehan, Dezna C., and Barbara B. Hrapchak. *Theory and Practice of Histotechnology*. 2nd ed. St. Louis: Mosby, 1980. 46.
5. Modifications developed by Newcomer Supply Laboratory.