

## Zinc Formalin Fixative - Technical Memo

<b>SOLUTION:</b>	<b>1 Liter</b>	<b>1 Gallon</b>	<b>20 Liter Cube</b>
Zinc Formalin Fixative	Part 1482A	Part 1482B	Part 1482C

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

### APPLICATION:

Newcomer Supply Zinc Formalin Fixative (ZFF) is a ready-to-use unbuffered zinc sulfate solution, recommended as an all-purpose tissue fixative for demonstration of crisp nuclear detail, superior cellular morphology, enhanced hematoxylin and eosin (H&E) staining, special staining and immunohistochemical (IHC) studies. This zinc sulfate fixative presents minimal safety hazards and is non-corrosive.

Zinc Formalin Fixative can also be used as a substitute for Zinc Formalin Sensitizer in the Steiner-Chapman Modified Silver Stain Kit (9172).

### METHOD:

#### **Fixation:**

Small biopsies: Minimum of 2-6 hours

Larger specimens: Minimum of 6-8 hours

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

### FIXATION PROCEDURE:

- Place fresh tissue specimen in Zinc Formalin Fixative as soon as possible after surgical excision.
  - See Procedure Note #1.
- Hold tissue in Zinc Formalin Fixative until ready to process.
  - See Procedure Note #2.
- Tissue Processor Fixation with Zinc Formalin Fixative:**
  - Refer to manufacturer specifications for any restrictions on the use of zinc sulfate fixative stations on their tissue processor instrumentation.
  - A 70% or lower alcohol percentage is recommended in the processor's first dehydration station to deter formation of zinc precipitate in tissue specimens and processor solutions.
- Post-Fixation Formalin 10%, Phosphate Buffered:**
  - Wash Zinc Formalin Fixative fixed tissue thoroughly in distilled water for a minimum of 10 minutes to remove residual zinc and deter formation of formalin pigment.
  - Place on tissue processor in Formalin 10%, Phosphate Buffered fixation step.

### PROCEDURE NOTES:

- A specimen initially received in Formalin 10%, Phosphate Buffered should be thoroughly rinsed in tap water prior to placing in Zinc Formalin Fixative as a post-fixative.
  - Failure to rinse tissue may increase the possibility of zinc precipitate formation in tissue specimens.
- Extended storage of tissue in Zinc Formalin Fixative will not affect antigenicity or excessively harden tissue.
- Discard Zinc Formalin Fixative accounting to local and state environmental regulations.
- Zinc Formalin Fixative can be neutralized with magnesium hydroxide/oxide, sodium carbonate or sodium bicarbonate to precipitate zinc at pH 7.0-8.0.
  - Approximately 100 grams of sodium bicarbonate will precipitate zinc from 1 liter of Zinc Formalin Fixative.
  - Separate solids from liquid and dispose of according to local and state environmental regulations.

### REFERENCES:

- Carson, Freida L., and Christa Hladik Cappellano. *Histotechnology: A Self-instructional Text*. 4th ed. Chicago: ASCP Press, 2015. 22-23, 266-267.
- Dapson, Janet Crookham, and Richard Dapson. *Hazardous Materials in the Histopathology Laboratory: Regulations, Risks, Handling, and Disposal*. 4th ed. Battle Creek, MI: Anatech, 2005. 148, 279.
- L'Hoste, Robert J., and Mary Ann Tourres. "Using Zinc Formalin as a Routine Fixative in the Histology Laboratory." *Laboratory Medicine* 26.3 (1995): 210-214.
- Modifications developed by Newcomer Supply Laboratory.