

AZF (Acetic Zinc Formalin) Fixative - Technical Memo

SOLUTION:

AZF Fixative

1 Liter

Part 1009A

1 Gallon

Part 1009B

20 Liter Cube

Part 1009C

40 ml vial, 20 ml fill (100/cs)

AZF Fixative Vial

Part 10091D

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

APPLICATION:

Newcomer Supply AZF (Acetic Zinc Formalin) Fixative is a ready-to-use working solution recommended as a fixative for bone marrow clots and cores, lymph nodes, endoscopic biopsies, and immunohistochemical (IHC) studies.

METHOD:**Fixation:**

1. Bone Marrow: Recommended for bone marrow clot is a minimum of 2 hours, for bone marrow biopsy a minimum of 3 hours.
 - a. See Procedure Note #1.
2. Lymph Nodes and Small Biopsies: A minimum of 4 hours is recommended. Small nodes (5 mm or less) should be halved. If larger, cut in such a way that no piece is thicker than 3 mm. To facilitate cutting, the tissue can be placed in AZF Fixative for an hour to firm tissue; then cleanly trim to 2-3 mm.

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

FIXATION PROCEDURE:

1. Place fresh tissue specimen in AZF Fixative as soon as possible after surgical excision.
 - a. See Procedure Note #2.
2. Hold tissue specimens in AZF Fixative until ready to process or a maximum of 72 hours.
 - a. See Procedure Note #3.
3. Wash AZF fixed tissue thoroughly in tap water for a minimum of 10 minutes to remove residual zinc.
4. Place on tissue processor in Formalin 10%, Phosphate Buffered (Part 1090) fixation step.

PROCEDURE NOTES:

1. Nitric acid solutions are not recommended as a decalcification agent following AZF fixation. The presence of acetic acid in AZF Fixative may pre-start the decalcification process for bone marrow, decreasing overall decalcification time.
2. A specimen initially received in Formalin 10%, Phosphate Buffered should be thoroughly rinsed in tap water prior to placing tissue in AZF Fixative. Failure to rinse tissue may compromise fixative properties.
3. Extended storage of tissue in AZF Fixative is not recommended. After a maximum fixation time of 72 hours, wash tissue in running tap water for a minimum of 10 minutes; transfer AZF fixed wet tissue to Formalin 10%, Phosphate Buffered for long-term storage purposes.
4. Due to the corrosive nature of zinc chloride do not discard un-neutralized AZF Fixative solutions down the drain.
5. Neutralize AZF Fixative with magnesium hydroxide/oxide, sodium carbonate or sodium bicarbonate to precipitate zinc at pH 7.0-8.0. Separate solids from liquid and dispose of according to local and state environmental regulations.
 - a. Approximately 100 grams of sodium bicarbonate will neutralize/precipitate zinc from 1 liter of AZF Fixative.

REFERENCES:

1. Bonds, Lian A., Pat Barnes, Kathryn Foucar, and Cordelia E. Sever. "Acetic Acid-Zinc-Formalin: A Safe Alternative to B-5 Fixative." *American Journal of Clinical Pathology*, 124 (2005): 205-11.
2. 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.
3. Naresh, K N, I. Lampert, and R. Hasserjian. "Optimal Processing of Bone Marrow Trephine Biopsy: The Hammersmith Protocol." *Journal of Clinical Pathology* 59 (2006): 903-11.
4. Shapiro, Stanley, and Christine Norman. "Ultrasonic Acceleration of Glycol Methacrylate Processing of Small Biopsies." *Laboratory Medicine* 22, no. 2, 339-41.
5. Modifications developed by Newcomer Supply Laboratory.