
Electrolytic Decalcifying Solution (Formic Acid Method)

Cat. No.: E1525467 | Pack size: 500 mL | Storage: Room temperature

Overview

When certain tissues contain bone substance or calcified lesions during tissue sectioning, calcium-containing tissues cannot be directly embedded in paraffin for sectioning. This is attributed to the density difference between calcium and paraffin, which makes it difficult to obtain intact sections. For calcium-containing tissues, decalcification is preferably performed after fixation, or fixation and decalcification may be carried out simultaneously, followed by subsequent procedures including dehydration, clearing, wax impregnation, embedding and sectioning.

A variety of decalcifying reagents are available, including organic acids, inorganic acids, ethylenediaminetetraacetic acid (EDTA) and electrolytic decalcification methods. Among organic acids, formic acid and acetic acid are suitable for decalcification of bone marrow tissues.

Electrolytic Decalcifying Solution is mainly composed of formic acid and dilute acid. Advantages: ① Rapid decalcification speed; ② Applicable to decalcification of most types of tissues.

Disadvantages: ① It may cause certain damage to tissues; ② Alkali treatment with sodium sulfate solution is required after decalcification. This reagent is intended solely for scientific research and shall not be used for clinical diagnosis or other purposes.

Materials to be Prepared by User:

1. PBS;
2. Distilled water;
3. Thermostatic water bath;
4. 5% Sodium Sulfate Solution.

Operating Procedures (For Reference Only):

1. When decalcifying bone tissues, the sampled tissue should not be too thick, with a recommended thickness of approximately 5 mm.
2. After tissue fixation, rinse the sample with PBS 3 times, 20 minutes each time.
3. Rinse the tissue with distilled water 3 times, 20 minutes each time.
4. Assemble the electrolytic device: Take a platinum wire, wrap one end of the wire around the specimen and place it on one side of the container bottom, then connect the other end of the platinum wire to the positive electrode of the power supply. On the opposite side of the container, insert the lower end of a steel sheet or carbon rod into the solution, and connect its upper part to

the negative electrode of the power supply. Place an insulated organic glass plate between the positive and negative electrodes to prevent electrical conduction caused by electrode contact.

5. Add 150~200 mL Electrolytic Decalcification Solution and place the container in a thermostatic water bath at 37~45 °C. A 6 V direct current power supply is generally used; the voltage can be adjusted to 8~10 V if a rectifier is equipped. Electrolysis normally lasts 10 minutes to 3 hours, and the duration can be extended to 6~8 hours for compact bone.

6. Rinse the sample with running tap water for several hours.

7. Perform alkali treatment by immersing the sample in 5% Sodium Sulfate Solution.

8. Conduct routine dehydration and embedding.

Precautions:

1. For bone tissue blocks with a thickness of 5 mm, the decalcification period is generally 10 min to 3 h.
2. Complete decalcification is required to avoid insufficient or excessive decalcification. The decalcification degree shall be controlled to ensure no adverse impact on tissue sectioning while minimizing decalcification duration, so as to prevent tissue damage caused by overlong decalcification.
3. Bone tissue shall be fixed prior to decalcification, or fixation and decalcification shall be conducted concurrently. Decalcification before fixation is prohibited to reduce tissue damage.
4. Check the decalcification progress at regular intervals. Excessive decalcification will aggravate tissue damage and compromise staining results.
5. Wear a lab coat and disposable gloves during operation for personal safety and health.

Specifications

Item	Information
Specifications & Purity	BioReagent
Stability And Storage	Store at room temperature long term (12 months).
Storage	Room temperature
Shipped In	Normal

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Whether you have a technical question, need help with a quotation, or want to inquire about an order, our regional teams are ready to assist. Please contact the office for your region; for general inquiries, the North American office is the corporate primary.

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