

Product Information

DeltaCAL lite – Decalcifying reagent

Use:

For in vitro diagnostic use. **DeltaCAL lite** is designed to be a UNIVERSAL effective decalcifying agent. It is intended to be used for decalcification of routine, immunohistochemical, and bone marrow core specimens. **DeltaCAL lite** has been tailored to suit your specific lab routine. It works equally well with all types of specimens in an easy time frame.

How It Works:

The calcium found in bone (teeth, etc.) is mainly carbonate and phosphate salts which are only slightly soluble in water. **DeltaCAL lite** acts to release calcium from its combination with these anions and affects an ion exchange to give a soluble calcium salt. The calcium ions are effectively removed from the specimen and remain in the decalcifying solution.

DeltaCAL lite is unique in its ability to work well within a routine working day. Careful monitoring should be employed to avoid over decalcification which will lead to the potential loss of basophilic properties. **DeltaCAL lite**, when used as specified, will retain excellent nuclear staining, and provide superior immunohistochemical results.

Directions for Optimal Decalcifying:

1. **DeltaCAL lite** is corrosive on metal so all decalcifying must be performed in plastic (or glass) containers. The solution has a pale yellow color and a light brown sediment may appear on standing. The sediment does not change the effectiveness of the solution, but it can be filtered out without any noticeable loss of decalcifying effectiveness.

Do not over decalcify. The action of **DeltaCAL lite** is faster than most decal solutions, in most cases it occurs in about 6 hours or less. Overnight decalcifying should be encouraged (exceptions – bone marrow and extremely delicate bone can be decalcified sooner and should be monitored carefully). If specimen decalcification is incomplete at the end of the work day, remove from **DeltaCAL lite**, rinse in tap water to remove residual solution, and place in 10% NBF until which time the decalcification procedure is resumed.

2. For optimum sectioning, staining, and nuclear detail, specimens must be completely fixed prior to decalcification. Avoid the combination of formalin and **DeltaCAL lite** by washing specimens briefly in tap water prior to decalcification. (**Note:** the liquid combination of formalin and an HCl acid solution will form bis-chloromethyl ether, a very potent carcinogen). Proper fixation has proven to be the most important step in the processing of tissue specimens. Due to the introduction of antigen retrieval and other unmasking procedures, longer (adequate) fixation and decalcification times should not interfere with IHC techniques.

3. Most mature bone sections of 1 cm size will decalcify in 6-8 hours; smaller cancellous bone only requires 4-6 hours; bone biopsies will decalcify in 20-60 minutes. Avoid over decalcification on all specimens as it will harden the tissue creating poor cellular detail and difficulty in determining the correct endpoint. **DeltaCAL lite** is a very *universal* decalcifier. If a specimen is over decalcified, the nuclear staining can be improved by longer times in the hematoxylin or by neutralizing the tissue section with lithium carbonate or 4% sodium bicarbonate before staining in hematoxylin. The morphology of the tissue starts to be destroyed as soon as the specimens are completely decalcified and left in the acid solution. This product minimizes those effects.

Due to the addition of polymers in paraffins, there is better support to aid in the sectioning of decalcified bone specimens, so as to reduce the need to reach the "ideal" endpoint for a specimen for decalcification. In fact, specimen blocks which fail to section because of incomplete decalcification may be placed in our fast decal solution for a short period of time, rinsed, and sectioned more easily.

4. Use a volume of **DeltaCAL lite** to tissue in a 20:1 ratio or better. Frequent mild agitation or swirling of the specimen in solution will enhance even penetration and decrease exposure time in solution. This will also minimize over decalcification of the outer tissue or bone before sufficient core decalcification is achieved. Small biopsies and bone samples will not require agitation.

5. To avoid over decalcification, check the specimen at regular intervals for endpoint* via whichever method the institution follows (x-ray, flexibility, chemical analysis).

6. When decalcification has been determined to be complete, briefly rinse the specimen prior to processing to ensure excellent quality in nuclear detail.

***A Chemical Test to Determine the Endpoint of Decalcification**

Take 5 ml of **DeltaCAL lite** from the bottom of the specimen container. To this solution add 5 ml of 5% ammonium oxalate. Add 5 ml of 5% ammonium hydroxide. Let this solution set for 10 minutes. If a precipitate forms in this solution, decalcification is NOT complete and the specimen should remain in the **DeltaCAL lite**.

*It is not recommended to reuse **DeltaCAL lite** to achieve optimum decalcification and standardization of procedures. The nature of a decalcifying agent is to release calcium ions from the bone into the acid solution. As the solution becomes saturated with calcium ions, the decalcification process will slow substantially.*

Storage and Disposal

Some change of color or an increase in precipitate may occur after long periods of storage. **DeltaCAL lite** may be filtered if desired without altering its effectiveness. **DeltaCAL lite** is biodegradable as received and may be disposed down regular city sewer systems with a water flush according to federal, state and local regulations. **DeltaCAL lite** will discolor and corrode most metals. Avoid exposure to metal cassettes, countertops and slide racks. Flush **DeltaCAL lite** with water to prevent damage to chrome plated plumbing fixtures. Store at room temperature. Keep container closed. **DeltaCAL lite** has a five-year shelf life. Lot number and expiration date are on the label.

Precautions

Under normal conditions **DeltaCAL lite** should not be considered hazardous. As with most acid solutions, there is the recommendation to avoid extensive or repeated contact. If eye or skin contact occurs, flush affected area with soap and water.
