

Product Information

DeltaFORM – Decalcifying reagent

Use:

For in vitro diagnostic use. ***DeltaFORM*** is designed to be a SLOW, MILD, but effective decalcifying agent. It is intended to be used for the decalcification of routine, bone marrow core and immunohistochemical specimens. ***DeltaFORM*** has been tailored to suit your specific lab routine. It works equally well with all types of specimens in an easy to handle time frame because of its gentle decalcifying properties and extended endpoint window.

How It Works:

The calcium found in bone (teeth, etc.) is mainly carbonate and phosphate salts which are only slightly soluble in water. ***DeltaFORM*** 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.

DeltaFORM is a universally used decal and will fit into any laboratory routine. Careful monitoring should not be required to avoid concern over decalcification which will lead to the potential loss of basophilic properties. Very slow ***DeltaFORM*** when used as specified, will retain excellent nuclear staining, and most all immunohistochemical results.

Directions for Optimal Decalcifying:

1. ***DeltaFORM***, because it is a mild acid, is corrosive on metal so all decalcifying must be performed in plastic or glass containers. The solution is clear and can be confused with other solutions used in the laboratory so concise labeling is essential.

Do not over decalcify. The action of ***DeltaFORM*** is generally completed in 10-15 hours. Overnight decalcifying should be considered for most specimens. If specimen decalcification is incomplete at the end of the work day, remove from ***DeltaFORM***, rinse in tap water to remove residual solution, and place in 10% NBF until which time the decaling procedure is resumed. Most tissue can remain in the decal for extended periods with no harm.

2. For optimum sectioning, staining, and nuclear detail, specimens must be completely fixed prior to decaling. 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 times should not interfere with IHC techniques.

3. Most mature bone sections of 1 cm size will decalcify in 10-15 hours; smaller, less dense cancellous bone only requires 6-8 hours; bone biopsies will decalcify in 2-3 hours. Avoid over decalcification on all specimens, as it will harden the tissue creating poor cellular detail and difficulty in determining the endpoint. ***DeltaFORM*** is a *universal mild 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 decal minimizes this condition.

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 that fail to section because of incomplete decalcification may be placed in our more rapid decal solution for a short period of time, rinsed, and then sectioned easily.

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

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

6. When decalcification has been determined to be complete, thoroughly 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 **DeltaFORM** from the bottom of the specimen container. To this solution add 5 ml of 5% ammonium oxylate. Add 5 ml of 5% ammonium hydroxide. Let this solution set for 10 minutes. If precipitate forms in this solution, decalcification is NOT complete and the tested specimen should remain in the **DeltaFORM**.

*It is not recommended to reuse any used **DeltaFORM** 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

DeltaFORM should be treated as an acid and disposed of in accordance to federal, state and local regulations. **DeltaFORM** will corrode most metal surfaces. Avoid exposure to metal cassettes, countertops and slide racks. Flush **DeltaFORM** with water to prevent damage to chrome plated plumbing fixtures. Store at room temperature. Keep container closed in lab. **DeltaFORM** has a five-year shelf life. Lot number and expiration date are on the bottle.

Precautions

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