

DIETHYL PYROCARBONATE HAZARD

Diethyl pyrocarbonate (DEPC) is an RNAase inhibitor commonly used in molecular biology laboratories at the NCI-Frederick. Several sources have reported that bottles of this material may develop pressure and explode. DEPC hydrolyzes to carbon dioxide and ethanol upon exposure to water. Bottles, which have been opened and re-capped, may absorb sufficient moisture from the air to cause hazardous pressure buildup.

DEPC reacts with ammonia to form urethane, a potent animal carcinogen and suspected human carcinogen. Avoid mixing DEPC with solutions containing ammonia or ammonium salts.

The following measures will enhance the safe use of DEPC:

- Buy DEPC in the smallest size and amount available, and use as quickly as possible to avoid accumulating moisture. If possible, use the entire DEPC bottle at one time.
- Date all bottles upon receipt and after opening, and store at refrigerator temperature, 0° to 5°C. Use the oldest bottles first.
- Store new bottles with fresh desiccant in their original shipping container. Ensure that bottle caps are tightly sealed and wrapped with Parafilm or its equivalent.
- Before opening, allow bottles to equilibrate to room temperature. Carefully open bottles behind a shield and inside a chemical fume hood.
- Proper protective clothing includes safety glasses, gloves, and a laboratory coat.
- Call Waste Management on x5718 to dispose of old or surplus bottles of DEPC.