

Technical Bulletin

NFTB240

FOAM CONCENTRATE STORAGE and PRESERVATION PROCEDURE

Recommended Storage, Handling and Inspection

National Foam concentrates are designed to provide years of service and reliability when properly stored and maintained. Properly stored National Foam concentrates have been tested and shown no significant loss of firefighting performance, even after 10 years.

Original Shipping Containers

Foam concentrates are ideally stored in the original shipping containers or in tanks or other containers which have been designed for such foam storage. Storage containers should be maintained within the recommended storage temperature range for the foam concentrate. Excessive temperature fluctuations above or below the recommended storage temperature range may cause deterioration of the foam concentrate. Refer to individual product data sheets and labels for storage temperature information.

Original shipping containers (pails, drums and IBC tote containers) should be stored in a cool, dry, well-ventilated location and under cover. Do not store containers in direct sunlight. Containers should remain tightly closed and sealed when not in use.

Storage Tanks

Secondary storage tanks should be designed for foam concentrate storage. Recommended materials of construction are noted on the individual product data sheets for each foam concentrate. Refer also to the National Foam O&M Manual for Foam Concentrate Storage Tanks for further information.

- The foam concentrate level of storage tanks with expansion domes must be maintained at the midpoint of the expansion dome.

Fluorinated Foam Concentrates (C6)

- Foam concentrates are subject to evaporation which accelerates when the product is exposed to air. Foam sealer oil must be added to the surface of most National Foam concentrates stored in atmospheric storage tanks without a dome. A ¼-inch (6.35 mm) layer of sealer oil shall be added immediately after the foam concentrate is placed in the tank. Seal oil serves as a sealing barrier between the foam concentrate and air and reduces the effects of evaporation and concentrate deterioration. Refer to the individual foam concentrate data sheets and the National Foam O&M Manual for Foam Concentrate Storage Tanks for further information.
- Consult product data sheet for individual foam concentrate for further storage recommendations.
- If appropriate, circulate foam concentrate pump and foam concentrate every 30 days.
- Storage tanks must be fitted with a pressure vacuum vent. Pressure vacuum vents prevent free exchange of air and reduce condensation and evaporation which are harmful to the foam concentrate. Pressure vacuum vents require periodic inspection and cleaning. Refer to the National Foam O&M Manual for Foam Concentrate Storage Tanks for further information.

Fluorine Free Foam Concentrates (Synthetic)

- To minimize evaporation, the foam concentrate tank should be sealed and fitted with a pressure vacuum vent. Pressure vacuum vents prevent free exchange of air and reduce condensation and evaporation which are harmful to the foam concentrate. Pressure vacuum vents require periodic inspection and cleaning.

Refer to the National Foam O&M Manual for Foam Concentrate Storage Tanks for further information.

- Evaporation of F3 or Synthetic foam concentrates should be minimized by keeping the foam concentrate tank full. Ullages of 5 – 10% of the tank volume (i.e. expansion dome) should be maintained to allow for differences of thermal expansion coefficients between the tank construction materials and the foam concentrate. Avoid ullages greater than 10%.
- Alternatively, two (2) layers of 1-1/2 inch polypropylene Foam Seal Spheres (hollow plastic spheres) may be floated on the surface of the concentrate to reduce evaporation. Consult individual product data sheets for further storage recommendations.

Tank Cleaning

- National Foam recommends that the foam concentrate storage tank be cleaned and flushed prior to initial filling with foam concentrate. Also, cleaning and flushing of the foam concentrate storage tank is recommended any time the foam concentrate supply has been depleted or at a change of type of foam concentrate. Refer to the National Foam O&M Manual for Foam Concentrate Storage Tanks for further information.

General Recommendations

- Avoid long-term storage at temperatures above the maximum recommended storage temperature. The recommended storage environment shall be within the UL listed temperature range for the product to be stored. Consult individual foam concentrate product data sheets for further information.

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- Never mix different foam concentrates in common storage tanks.
- Avoid dilution of foam concentrates with water.
- Avoid contamination with foreign ingredients, chemicals or oils.
- Valves, couplings or piping that will be in continual contact with foam concentrate shall be constructed of materials compatible with the foam concentrate being stored. Refer to National Foam Technical Bulletin NFTB100 for further details on Materials of Construction.

Shelf Life, Inspection, and Testing

The shelf life of any foam concentrate is maximized by proper storage conditions and maintenance. Factors affecting shelf life are wide temperature changes, extreme high or low temperatures, evaporation, dilution, and contamination by foreign materials. Properly stored National Foam foam concentrates have been tested and shown no significant loss of firefighting performance, even after 10 years.

Annual testing of all firefighting foams is recommended by the National Fire Protection Association (NFPA). National Foam provides a Technical Service Program to conduct such tests. Refer to National Foam product data sheet NFC960 for further details on Technical Service Program.

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