

Storage of Foam Concentrates

Recommended Storage, Handling and Inspection of Foam Concentrates

General Guidelines for the Storage and Handling of Foam Concentrates

The effective life of foam concentrates can be maximized through optimal storage conditions and correct handling. Johnson Controls foam concentrates have demonstrated effective firefighting performance with contents stored in the original package under correct conditions for more than 10 years. To optimize the effective life and performance of firefighting foams they should be stored in the following ways:

Do not expose to direct sunlight or any heat source. The product should be maintained within the recommended temperature range - refer to the specific foam concentrate product data sheet for recommended storage temperatures. The storage area should not be susceptible to flooding.

Johnson Controls recommends tracking of inventory batch numbers and rotating inventory to ensure older batches are used first. Foam color may differ from batch to batch, and foam color can also change during aging. Mixing firefighting foam concentrates (different types, brands, products) for long-term storage is not recommended. However, during an immediate incident response, it is appropriate to use other manufacturers comparable foam concentrates (different types, brands, products) side by side, as long as they are being applied using separate and distinct foam dispensing hardware.

Inspection

The foam concentrate should be inspected periodically in accordance with any of the following standards: NFPA 11, NFPA 25, EN 13565-2, or other relevant standard. A representative concentrate sample should be sent to Johnson Controls Foam Analytical Services or other qualified laboratory for quality analysis in accordance with the applicable standard. An annual inspection and sample analysis is typically sufficient. In case of any doubts, contact the manufacturer.

See below for more specific guidelines on the storage of foam concentrates.

Totes/Original Packing (Optimum Storage)

The following guidelines are recommended when storing foam concentrates in totes:

- Totes are best stored in an environmentally controlled, indoor warehouse.
- The storage area around the tote should be clean.
- The tote should be stored on the floor or on a rack system rated for the volume of foam concentrate being stored.
- Totes should be kept closed and sealed during storage.



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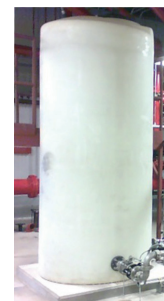
Fixed Atmospheric Tanks

The following guidelines are recommended when storing foam concentrates in fixed atmospheric tanks:

- The tank should be kept closed with minimal air space inside.
- High quality vacuums and vents should be used to prevent any air exchange into and out of the tank during storage.

Fixed Atmospheric Tanks (Continued)

- Clean equipment and clean hoses should be used when transferring the foam from the original packaging into the receiving tank.



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- The material compatibility of the tank should be checked in addition to any connected equipment in direct contact with the concentrated foam.
 - Valves, couplings or piping in continual contact with the foam liquid should be constructed of similar metals. The use of different metals may cause electrolytic corrosion.
- The receiving tank should be thoroughly cleaned. For metal tanks, even new ones, simple water cleaning might not be sufficient to remove weld cleaning chemical compounds.
- To maximize the usable life of non-fluorinated foam concentrates, Johnson Controls recommends that a thin layer of appropriate-grade mineral oil (up to 1/4 in. [6 mm] thick) be applied to the surface of the foam concentrate when stored in fixed atmospheric tanks.
 - When applying mineral oil to the tank, avoid submerging the mineral oil into the foam concentrate where possible.
 - For tanks containing mineral oil, special tools should be used during annual sampling exercise to make sure no oil is taken with the foam.

Moveable Tanks (i.e., Fire Trucks or Road Tankers)

The following guidelines are recommended when storing foam concentrates in moveable tanks:

- The tank should be kept closed with minimal air space inside.
- High quality vacuums and vents should be used to prevent any air exchange into and out of the tank during storage.
- The material compatibility of the tank should be checked in addition to any connected equipment in direct contact with the concentrated foam.
 - Valves, couplings or piping in continual contact with the foam liquid should be constructed of similar metals. The use of different metals may cause electrolytic corrosion.
- Clean equipment and clean hoses should be used when transferring the foam from the original packaging into the receiving tank.
- The receiving tank should be thoroughly cleaned. For metal tanks, even new ones, simple water cleaning might not be sufficient to remove weld cleaning chemical compounds.
- The use of mineral oil to prevent evaporation in moveable tanks should be avoided.



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