

Foam Concentrates and Solutions

**Flushing Procedure for Fixed
Foam Systems, Tanks, and
Proportioning Piping**

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The following is the recommended procedure for the cleaning of existing foam agent tank(s) and associated piping when changing from one type of foam agent to another type. This procedure is also recommended for C-8 to C-6 foam agent replacement.

Please note the following:

- This procedure is intended to cover a wide variety of foam agent tank types. **However, the foam tank and/or foam system specific operation and maintenance manual(s) must be reviewed and the manufacturer's instructions for removing the foam tank from service, draining, refilling, etc. must be followed.**
- Application rates and/or viscosities for some C-6 agents have changed from their C-8 predecessors. Prior to starting any tank and/or system cleaning, thoroughly review the system design to ensure tank sizes and proportioning devices are still appropriately sized for the hazard. Because of potential application rate changes, some systems may require modifications to the foam agent tank and/or proportioning devices prior to the introduction of a new, different foam agent. Should the viscosity of the C-6 foam agent be different than the C-8 foam agent being replaced, the proportioning device may need to be changed. Refer to your Johnson Controls sales and/or technical support representative for additional guidance.
- Local environmental regulatory authorities and/or the Authority Having Jurisdiction (AHJ) may require more stringent cleaning methods. Please consult appropriate agencies prior to any foam concentrate change-out concerning level of cleaning and for proper disposal of old foam concentrate and rinse water.

Procedure:

1. Isolate the foam agent tank from the firefighting system. Follow appropriate instructions and/or manuals related to the specific system.
2. Relieve pressure from any pressure vessel through the shell vent valve on the top of the tank.
3. Completely drain the water from the shell of any bladder tank in accordance with appropriate procedures.
4. Transfer the foam agent to be replaced from the tank into suitable storage containers. Use a transfer pump where applicable. Refer to the manufacturer's manual for specific draining procedures. Properly label temporary foam agent storage containers and dispose of the foam in accordance with local regulatory authority requirements for chemical labelling and disposal.
5. Rinse the foam agent tank with clean, fresh water and drain. Open all tank fill, tank return, and drain lines while rinsing to remove any accumulated surface residue and help prevent cross contamination. Be sure to collect and dispose of drained rinse water in accordance with applicable local regulations. Repeat this process with fresh water to ensure the internal tank surfaces are clear of any accumulated contaminants.
6. Close all valves to ensure the foam tank system is a closed circuit.
7. Fill the foam agent tank with clean, fresh water to a level that ensures all connecting pipework is flooded. For bladder tanks, be sure to use appropriate fill procedures so the bladder is not damaged.
8. Once all pipework is flooded, open and close all valves to allow valve seats to be rotated within the fresh-water. Systems involving foam pumps should be operated in a recirculating circuit to flush the entire tank, pump and return lines. Please note that some systems may have extensive foam agent pipe runs between the foam tank and proportioning device(s). Those systems may require partial- to full-firefighting system discharge to flush foam agent from the pipework. Follow applicable system instructions in those cases.

Procedure (Continued):

9. Drain the foam agent tank and associated piping and dispose of rinse water in accordance with local regulations.
10. Typically, a discharge of foam solution may result in foaming or bubbling of the rinse water solution. Repeat steps 7 through 9 as many times as needed until no evidence of foaming or bubbling is occurring in the rinse water or until the AHJ is satisfied.
11. For bladder tanks, perform a bladder integrity test following the procedures outlined in the bladder tank operation and maintenance manual.
12. Once the tank interior is cleaned, emptied and approved for use, refill the tank with the new foam agent in accordance with appropriate filling procedures.
13. Once the tank is full, place the system back into service using the guidelines outlined in the manufacturer's operation and maintenance manual.
14. Verify that all components of the system match the foam agent approved for use (i.e. proportioner orifice size, discharge devices, etc.).
15. Ensure appropriate labelling is added to the newly-filled tank to identify its contents. Add the correct safety datasheet (SDS) to the manifest at the system location or on the mobile apparatus.

Special Notes:

- Some tanks may be more difficult to thoroughly rinse including, but not limited to, those containing AR-AFFF and protein-based foam concentrates. It is recommended the top flange is removed while rinsing, as per step 5 above. This will facilitate the visual inspection of tanks containing a non-newtonian foam concentrate (most AR-AFFF products) or a foam concentrate with the potential for sedimentation (most protein-based products).
- Once the new agent is in service, testing of your system may be required to determine the equipment is performing as designed. Please consult your appropriate local regulatory authority regarding these requirements.
- Foam tanks should always limit free air exchange between the foam concentrate within the foam tank and the outside atmosphere to minimize and prevent evaporation and condensation during changing weather conditions as well as to help prevent contamination.
- Please contact your Johnson Controls sales and/or technical support representative if you have any questions on appropriate procedures and/or storage.