

Common Questions About Foamfrax® Insulation

1. What is Foamfrax® Insulation?

“Foamfrax Insulation” is a registered trademark of the Unifrax Corporation. The Foamfrax Insulation process provides users of high-temperature industrial insulation with significant advantages. Foamfrax Insulation allows the repair of existing furnace linings or the installation of new linings in a fraction of the time required when using conventional blanket or module construction.

2. How does the process work?

Foamfrax Insulation is applied wet to the furnace surface. Through the use of a patented mixing chamber, high-temperature industrial fibers and proprietary binders are combined to form the Foamfrax Insulation system. This system is designed for maximum installation flexibility, ease of operation and control of airborne fiber levels.

3. How is Foamfrax Insulation different from “Sprayable Fiber” technologies?

The patented mixing chamber used in the Foamfrax Insulation system provides for complete coating of the fiber with the foaming binder solution, thereby effectively encapsulating the fibers within the foam matrix. Sprayable methods feed dry fiber and binder in separate streams which are partially combined once the product leaves the installation nozzle. Without the benefit of complete fiber wetting, fiber spray technologies result in potential rebound and release of dry airborne fiber.

4. What are the binders used in the Foamfrax Insulation system?

Foamfrax Insulation uses a proprietary two-part binder.

- 1) An inorganic binder (colloidal silica).
- 2) An organic binder, primarily consisting of polyvinyl alcohol.

The two-part binder is mixed under controlled conditions with water. The fiber and binders are then applied as a homogeneous foam-based mixture.

5. What happens to the binder after the furnace is brought up to operating temperature?

The organic portion of the binder is sacrificial and will burn out during the firing process. For this reason, initial furnace start up must be performed under well-ventilated conditions to avoid odor which may be caused from initial binder burn-off. After exposure to operating temperatures, the inorganic binder adds strength and integrity to the Foamfrax Insulation furnace lining.

6. What airborne fiber levels can I expect to see using the Foamfrax Insulation process?

Airborne fiber levels are dependent on a number of factors, including weather conditions, the size of the job, fiber type applied, the conditions of any existing furnace linings, etc. Monitoring data indicates that average real time exposures experienced during Foamfrax Insulation application are similar to or less than those experienced during installations using traditional methods.

7. If real time installation exposure to airborne fiber for Foamfrax Insulation is similar to that of traditional methods, how will Foamfrax Insulation reduce overall airborne fiber exposure?

Airborne fiber exposure is reduced three ways:

- 1) Foamfrax Insulation can be used to repair existing furnace linings that otherwise would require removal. The ability to repair damaged furnace linings eliminates any potential exposures resulting from the removal of the old insulation, which would be required using traditional lining replacement techniques.
- 2) Foamfrax Insulation installations are less labor intensive than traditional blanket or module installations, thereby presenting less employee exposure potential due to the reduced labor requirement.
- 3) Foamfrax Insulation takes significantly less time to install than traditional methods, thereby resulting in a lower eight-hour time weighted average (TWA) exposure for those individuals using this installation technique.

8. What safeguards has Unifrax engineered into the Foamfrax Insulation system to control airborne fiber release?

The installation equipment for Foamfrax Insulation has a number of operating features incorporated into the equipment design. These features are designed specifically to control the release of airborne fiber.

- 1) A dust collection hood is located on top of the fiber hopper to reduce airborne fiber release from the bulk fiber feedstock.
- 2) A vacuum is drawn on the fiber hopper hood, which keeps the bulk fiber chamber under negative pressure during operation and serves to reduce potential airborne fiber exposure.
- 3) Limit switches have been installed on the binder mixing chamber to prevent discharge of fiber prior to complete mixing with the foaming binder.
- 4) The foam matrix completely encapsulates the fiber in the patented mixing chamber. This foam encapsulation reduces airborne fiber levels by significantly limiting the fiber's ability to remain airborne and preventing dry fiber from being discharged.

9. What handling guidelines has Unifrax incorporated into the installation procedures for Foamfrax Insulation?

- 1) When applying Foamfrax Insulation over existing fiber linings, the old lining is first prepared by removing loose materials. When removing loose materials, the lining must first be saturated with water to minimize any airborne fiber potential. Then the surface of the existing lining is saturated with water again, before being covered with Foamfrax Insulation. This procedure further reduces the potential for the release of airborne particulate from the old lining.
- 2) Only one person is required to be in the furnace when Foamfrax Insulation is being applied. In many applications, a single nozzle operator can install a Foamfrax Insulation furnace lining. Traditional construction techniques would typically require a crew of installers.

- 3) Foamfrax Insulation takes significantly less time to install than traditional blanket or module furnace linings. This time savings is even greater when compared to repairing existing furnace linings that would otherwise need to be removed prior to a traditional installation.
- 4) The Foamfrax Insulation binder is colored blue to allow the nozzle operator the ability to visually monitor the mixing of the foaming binder with the fiber, thereby helping to insure complete wetting of the fiber.
- 5) The Foamfrax Insulation materials are provided as an installed lining system. Foamfrax high-temperature lining technology is available only through distributors or contractors licensed by Unifrax Corporation.

10. What types of fiber can be applied using the Foamfrax Insulation system?

- 1) Foamfrax Grade I Fiber – 2300°F (HP) RCF.
- 2) Foamfrax Grade II Fiber – 2600°F (AZS) RCF.
- 3) Isofrax® Fiber – (HT) MS "Soluble" Fiber.

11. Who can I call to get additional health and safety information on Foamfrax Insulation?

Call the Unifrax Product Stewardship Health Hotline at 1-800/322-2293.

