

Cleaning Procedures for Spunbond Polyester Pleated Filter Elements and Cartridges

Overview

iFIL offers this advice as an aid to operations personnel who may be faced with periodic upset conditions. 100% spunbond polyester pleated filter elements and cartridges can be successfully washed in many instances. The following procedures will not work with wet-laid cellulose (paper) media or polyester/cellulose blends. Wet laid media that will disintegrate when wet. iFIL assumes no responsibility for any damage resulting from washing PFEs or cartridges. These cleaning procedures are intended for filter media in good condition (where physical and mechanical strength properties have not been severely altered or compromised). This procedure is only useful for materials that are water soluble or that can be removed by washing. Oily (hydrocarbon based) materials may not be removable by washing procedures.

Never attempt to wash media that is contaminated with dangerous or otherwise hazardous materials. Check all federal, state, and local environmental regulations that pertain to the contaminant prior to washing any filter elements. Some chemicals/materials will react with moisture that can release fumes or heat that may cause a safety/fire hazard. Refer to the Material Safety Data Sheet or any other recognized authority for possible hazards associated with this process. Follow all state and federal regulations with regard to disposed of sludge produced during this cleaning process.

Cleaning Procedures for PFEs and Cartridges WITHOUT ePTFE Membrane

Remove as much loose material as possible using a soft, dry brush. Avoid using an abrasive brush which can damage the filter media. Vacuuming is preferred where airborne contamination must be controlled.

For water soluble particulate, simple water washing of the filter may be adequate. Place the filter element open end up in a wash down area. Direct hot, 140 - 149° F (60 - 65° C), water spray from inside of the filter through the media to dislodge residue adhering to external surface of the filter media. For material that is packed in the pleats and not easy to dislodge, use the spray jet from a water hose on the outside of the filter to spray out every pleat from top to bottom. Keep the spray head a distance of at least twelve inches (30 cm) from the surface of the filter element. Be careful not to use too much pressure and not get too close, so as not to force fine particulate into the pore structure of the filter media.

For more stubborn material, after dry brushing and preliminary rinsing is accomplished, soak the cartridges for 30 minutes in a 0.05% solution of a non-ionic detergent and 120 - 140° water. Examples:

Pluronic L-62

BASF Corporation
3000 Continental Drive-North
Mount Olive, New Jersey 07828-1234
800-443-6460
http://www2.basf.us/performancechemical/pdfs/Pluronic_L62.pdf

IGEPAL® I CO-630

Sigma Aldrich, Co.
http://www.sigmaaldrich.com/catalog/ProductDetail.do?N4=542334|ALDRICH&N5=SEARCH_CONCAT_PNO|BRAND_KEY&F=SPEC&lang=en_US

Rinse (twice) with water to remove all traces of the detergent. The cartridge should be rinsed in segments, slowly from top to bottom, with the nozzle approximately 12 inches (30 cm) away from the element. Allow the cartridges to completely dry before placing them back into service.

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Drying the filter elements - Allow the filter to drain for a minimum of 15 minutes. Dry the filter using the following methods:

- Overnight air dry (some moisture may be retained depending on ambient air conditions)
- Forced Air Oven (40 CFM):
 - 150° F (65° C) for 90 minutes
 - 100°F (38° C) for 135 minutes

Cleaning Procedures for PFEs and Cartridges WITH ePTFE Membrane

Procedures for cleaning filters with ePTFE membrane will be much the same as conventional spunbond media with a couple of exceptions.

Since the ePTFE membrane surface is extremely fragile and easy to abrade, the removal of excess dust by brushing or vacuuming must be done with great care or avoided altogether. If the setup allows, back-flushing the PFE or cartridge from the inside out with a hand-held compressed air wand (30-40 psi) is acceptable for the ePTFE membrane. But this can create nuisance dust issues in the cleaning area. If residue remains on the outside (ePTFE membrane side) of the PFE or cartridge, the pleats may be air-lanced with the compressed air wand, *but care must be taken not to damage the membrane.*

Since the ePTFE membrane is impermeable to water, water washing and rinsing has to be done from the outside of the filter, not from the inside. Water washing and rinsing with a high pressure water jet or stream is not recommended, it must be accomplished with no greater than 40 psi water, unassisted by any nozzle or jet acceleration. A water force similar to a garden spray attachment is appropriate.

Procedures for drying of the PFEs or cartridges would be the same as described above.

Gasket Repair or Replacement (Cartridges)

Gaskets may become loose over time and should be repaired or replaced as follows:

1. Remove the gasket completely. Excess adhesive should be removed from the end cap.
2. Roughen the surface of the end cap where the gasket attaches with an emery cloth.
3. Clean the gasket and end cap with isopropyl alcohol to remove residue.
4. Apply liquid silicone (GE RTV-118) to the end cap and attach the gasket.
5. Apply a small bead of silicone (GE IS808) to ID and OD of the gasket.
6. Allow the silicone adhesive to cure a minimum of 24 hours before using the filter.

Cumulative Effects of Cleaning

Repeated washing and drying cycles do have a cumulative negative effect on spunbond polyester media. The layers of calendered (pressed) polyester fibers will eventually start to “balloon”, opening up the pore structure of the media. Once the filters are returned to service, fine particulate will more easily penetrate into the depth of the media, become increasingly difficult to dislodge, and will cause a faster rise in pressure drop, reducing the time between filter washings. Always test wash one, or a limited number of filter elements, before attempting to clean all of the filters in a collector.

Contact iFIL if you have any questions regarding the cleaning of your pleated filter elements or cartridges.