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## Instructions & Supplemental Information

### *Cleaning Procedures for Pleated Filter Elements & Cartridges*

#### **Overview**

Pneumatic Conveying offers this advice as an aid to operations personnel who may be faced with periodic upset conditions. Pneu-Con's 100% Spunbond Polyester Pleated Filter Elements (PFE) filters and Cartridges can be successfully cleaned 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.

PCI 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). The procedures provided herein are 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 material. Check all Federal, State and local environmental regulations that pertain to the contaminant prior to washing the 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 disposal 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 filter element, with open end up, in a wash down area. Direct a hot, 140-149°F (60-65°C) water spray, from inside of the element through the media to dislodge residue adhering to external surfaces 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 disperse debris from every pleat – from top to bottom. Keep the spray head a distance of at least 12-inches (30cm) from the surface of the filter element. Be careful not to use too much pressure and not get too close, as not to force fine particulate into the pore structure of the filter media.

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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°F water. Examples:

Pluronic L-62

BASF Corporation  
3000 Continental Drive-North  
Mount Olive, NJ 07828-1234  
800-443-6460  
[http://www2.basf.us/performancechemical/pdfs/Pluronic\\_L62.pdf](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](http://www.sigmaaldrich.com/catalog/ProductDetail.do?N4=542334|ALDRICH&N5=SEARCH_CONCAT_PNO|BRAND_KEY&F=SPEC&lang=en_US)

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

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 filter 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 handheld compressed air wand (30-40psi) 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 media) 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.

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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 40psi water, unassisted by any nozzle of 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 from the end cap.
2. Using an emery cloth, roughen the surface of the end cap where the gasket attaches.
3. Clean the gasket and end cap with isopropyl alcohol to remove residue.
4. Apply liquid silicone adhesive (GE RTV-118) to the end cap and attach the gasket.
5. Apply a small bead of silicone (GE IS808) to inside and outside edges (ID/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 cumulative negative effect on spunbond polyester media. The layers of calendared (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 washings. Always test wash one, or a limited number of filter elements, before attempting to clean all filters in your collector and/or system.

Contact Pneu-Con if you have any questions regarding the cleaning of your filter elements or cartridges.