

4717.3050 DIATOMACEOUS EARTH FILTERS.

Subpart 1. **Area.** The filter area for a diatomaceous earth filter must meet the design pump capacity as required by this part. Where fabric is used, the filter area is determined by the surfaces created by septum supports with no allowance for areas of impaired filtration such as broad supports, folds, or portions which may bridge.

Subp. 2. **Rate of filtration.** The rate of filtration must not be greater than two gallons per minute per square foot of filter area without continuous body feed and no greater than 2.5 gallons per minute per square foot with continuous body feed.

Subp. 3. **Use of body feeder.** If a body feeder is used, it must be accurate within ten percent and capable of continually feeding within a calibrated range adjustable from two to six parts per million at the capacity of the recirculation pump. The feeding of diatomaceous earth through skimmers is prohibited.

Subp. 4. **Filter and components.** The filter and all component parts must withstand normal continuous use without significant deformation, deterioration, corrosion, or wear which adversely affects filter operation. The filter design, construction, or other provision must preclude introduction of filter aid into the pool during precoating operations.

A. Where dissimilar metals which may set up galvanic electric currents are used in the filters, provision must be made to resist electrolytic corrosion.

B. The filter and surrounding space must permit removal, replacement of any part, and maintenance.

C. The filter must be cleaned by backwashing, air pump assist backwashing, mechanical or manual spray wash, or agitation.

Subp. 5. **Filter tank.** The tank containing the filter elements must be constructed of steel, plastic, or another material resistant to corrosion, with or without coating.

A. Pressure filters must be designed for a minimum working pressure of 50 pounds per square inch with a four-to-one safety factor.

B. Vacuum filters must withstand the pressure developed by the weight of the water contained therein with a safety factor of 1.5.

C. Closed vacuum filters must withstand crushing pressure developed under a vacuum of 25 inches of mercury with a safety factor of 1.5.

D. The septa or elements which support the filter-aid must be corrosion-resistant. The septa must resist rupture under conditions of maximum differential pressure between influent and effluent developed by the circulating pump, and resist stress developed by cleaning.

Subp. 6. **Filter plant.** The filter plant must have pressure, vacuum, or compound gauges to indicate the condition of the filter. In vacuum filters where the circulating pump is two horsepower or higher, an adjustable high vacuum automatic shutoff must be provided to prevent damage to the pump by cavitation.

Subp. 7. **Complete draining of filter.** The filter must provide for complete drainage.

Statutory Authority: *MS s 144.05; 144.12; 144.123; 145A.02; 157.01*

History: *19 SR 1419; 19 SR 1637*

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