



FILTERAID APPLICATION PROCEDURES FOR ROTARY VACUUM PRECOAT FILTERS

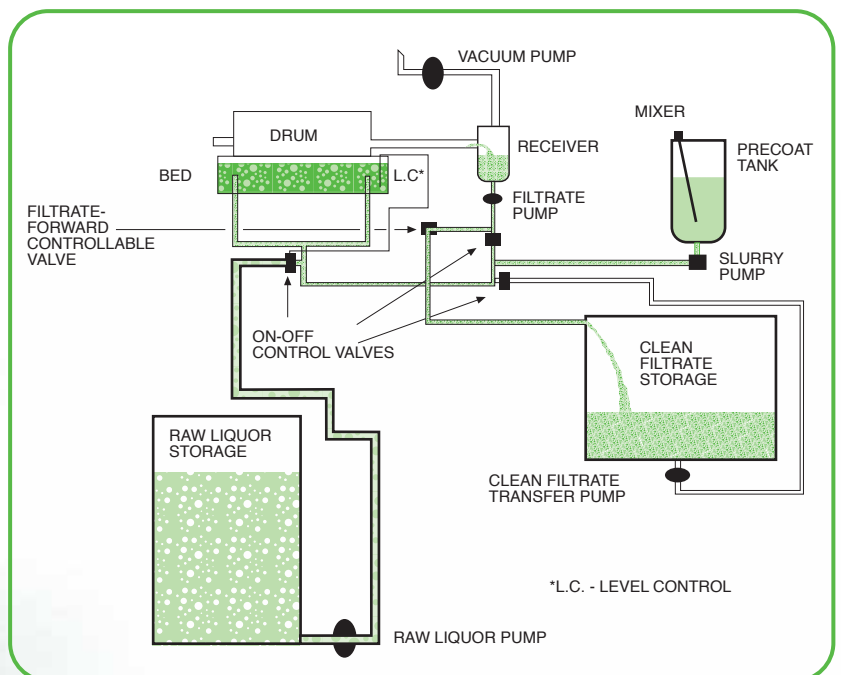
To establish the quantity of Filtraflo® to mix as precoat slurry, use a volume equal to the volume of competitive filteraid previously used (approximately bag for bag versus diatomites).

If a diatomite has previously been used, determine proper Filtraflo® precoat batch weight by multiplying the known precoat batch weight of the competitive diatomite material by the weight usage factor in the density characteristics table in the Filtraflo® brochure. This calculation will determine the weight of Filtraflo® which will provide an equal volume of disposable filter medium to replace the competitive diatomite.

Consistency in the rate of precoat application is of paramount importance in rotary vacuum filter precoating. Consistency in rate of precoat growth maximizes precoat uniformity.

When the following conditions are allowed to vary the precoat application rate will vary: (1) concentration of filteraid solids in the filterbed slurry; (2) submergence level of drum in filterbed slurry; (3) speed of drum rotation in filterbed slurry; (4) vacuum airflow volume in use.

Best results in applying Filtraflo® to a rotary vacuum precoat filter are achieved when using 2-4% filteraid solids concentration by weight of slurry, well-agitated precoat slurry tank, constant precoat slurry liquid level in filterbed (preferably submerging drum to approximately 10% of drum diameter), drum rotation speed at approximately 1 RPM and constant vacuum airflow volume at 20 m³/hour per m² of filterdrum surface.



TO PRECOAT: Fill bed to within five centimetres of drum using clean filtrate or clean water. Next, start slurry pump to bed until bed level is 30 centimetres upon drum end wall. Continue running pump at constant rate and begin 1 RPM (max) drum rotation and FULL vacuum. Start filtrate pump to recirculate filtrate back to bed, Maintain bed level at 30 centimetres up on drum end wall, using auto or manual operator adjustments to the filtrate forward valve. Slurry pump speed, or slurry flow rate control valve controls rate of precoat growth. Maintaining constant pump speed or valve position results in uniform, crack-free precoat. High concentrations of filteraid may be used in the precoat tank (10-15% or more by weight of slurry). But slurry pump speed should not exceed a rate which produces more than 2,5 centimetres of cake growth in ten minutes. Cakes formed more rapidly may be excessively permeable. With precoating completed, the raw liquor pump may be started, the bed level raised, drum speed slowed, and filtrate put forward. The precoat should be allowed to seal over with liquor solids before the knife is advanced.



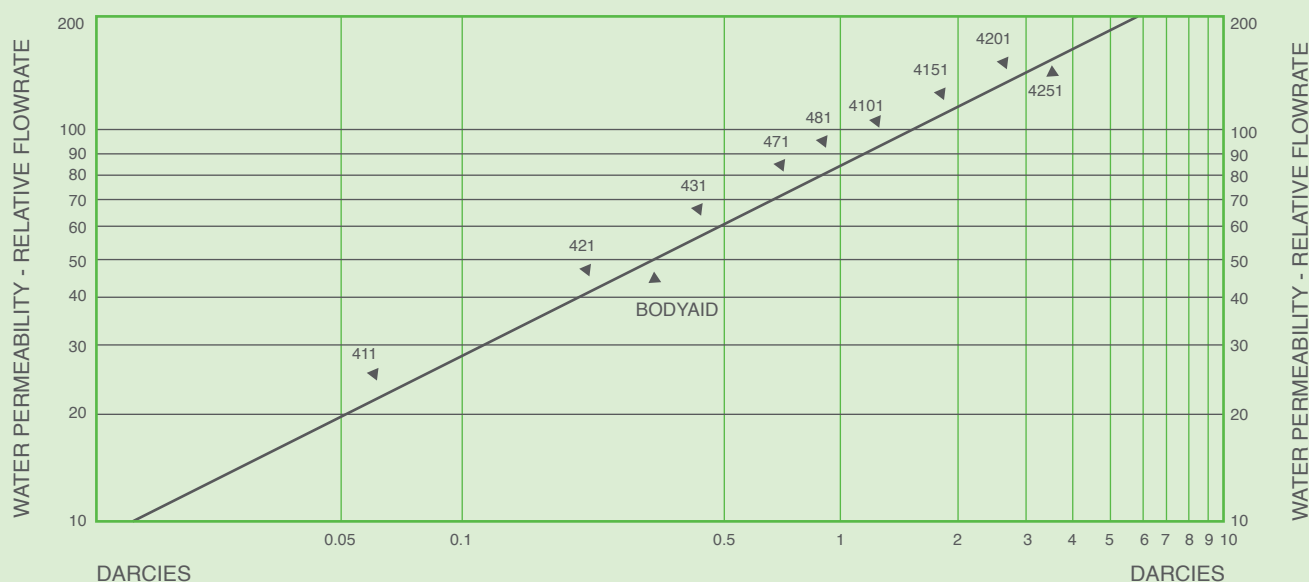
Every effort should be made to ensure that the value of each of the above parameters is held constant. Varying any factor will change the deposition rate of the surface layers of the precoat. Dissimilarity in deposition rate causes dissimilarity in the thickness and hence the firmness of adjacent layers within the precoat.

Variations in thickness and firmness between adjacent layers of the precoat cause variations in resistance to vacuum force, variable permeabilities to liquid flow, and unequal resistances to precoat cake compression forces. This unequal resistance effect can be characterized as layering, or soft-hard variations by strata. When excessive, it can cause cracking in any precoat. When desired precoat thickness has been achieved, maximum precoat firmness is assured by allowing filtered liquor solids to deposit on the precoat surface, compressing the precoat fully before advancing the knife to begin cutting.

With the filter on-stream, filter throughput may usually be increased by increasing drum rotation rate, increasing drum submergence level, or increasing cutting rate. Conversely, precoat life and filter cycle length are usually prolonged by decreasing drum rotation rate, using drum submergence, and decreasing cutting rate as much as possible. As in precoating, on-stream filter operations are enhanced by consistency in drum speed, drum submergence, and knife rate.

With all filteraids, the watchword for optimum rotary vacuum precoat filter performance is uniformity in precoating.

RELATIVE PERMEABILITY OF FILTRAFLO[®] GRADES (Water at 30°C)



Filtraflo [®] Grade	Relative Flowrate	Permeability Darcies	Max Filter Cake Density kg/m ³	Particle Size of Solids Removed (µm)	Mean Particle Diameter (µm)	Max Floats %v
411	15 - 33	0,026 - 0,109	350	0,1	15,0	NIL
421	27 - 53	0,109 - 0,314	290	0,3	20,0	1
BodyAid	37 - 58	0,205 - 0,390	280	0,4	22,0	2
431	47 - 68	0,314 - 0,541	260	0,55	24,0	2
471	62 - 88	0,541 - 0,944	240	0,60	30,0	4
481	72 - 98	0,728 - 1,189	240	0,70	34,0	5
4101	77 - 108	0,944 - 1,463	240	0,80	41,0	5
4151	102 - 133	1,463 - 2,277	220	0,90	47,0	10
4201	127 - 153	2,277 - 3,064	210	1,10	50,0	12
4251	147 - 175	3,064 - 3,971	210	1,20	58,0	15