

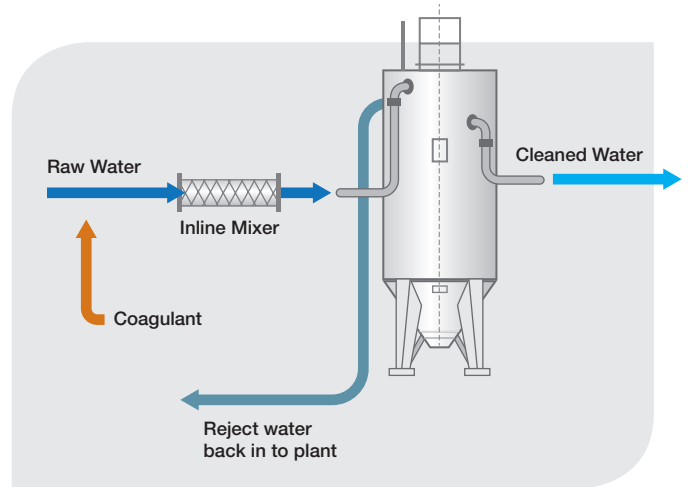
# DynaSand® Filter Phosphorus Removal

The figure below shows a plant where the DynaSand filter is reducing suspended solids and eliminating phosphorus from biologically treated wastewater. Phosphorus reduction is being achieved using continuous contact filtration and direct precipitation, with the addition of coagulant.

In this case an alum dosage of 70-80 ppm was added. The suspended solids content in the wastewater was reduced from 40-60 ppm in the influent to 0-3 ppm in the filtrate after precipitation. In general, the suspended solids reduction achieved by the DynaSand filter was 97-98%.

Excellent results were also being obtained in phosphorus reduction. The total phosphorus concentration in the filtrate was between 0.05 – 0.3 ppm, which represents a 90-99% removal.

A large number of plants are in operation using the above method. The plants are all recording similar results even though influent suspended solids concentrations can sometimes be as high as 100 mg/l.



The following table shows data from a plant where biologically treated municipal wastewater is subjected to direct precipitation with the addition of PACL for phosphorus reduction. Values from the months of June, September, October and December are given as an example. Based on the annual load and flow, the following treatment results were produced:

<b>COD<sub>CR</sub></b> 89.9%	<b>Tot-N</b> 22.6%
<b>BOD<sub>7</sub></b> 97.7%	<b>Tot-P</b> 98.4%
<b>NH<sub>4</sub>-N</b> 59.3%	

Date	Incoming water to the plant			To DynaSand filters		Outlet from the plant	
	Flow (MGD)	Tot-P (mg/l)	BOD (mg/l)	Tot-P (mg/l)	Tot-P (mg/l)	BOD (mg/l)	SS (mg/l)
June 2	4.85	6.2	320	1.30	0.103	3	5.5
June 8	5.39	5.1	180	0.66	0.050	3.9	2.8
June 17	7.79	3.4	63	0.48	0.052	3	-
June 22	6.45	5.1	110	0.31	0.071	3	1.3
Sept. 2	5.95	5.9	170	0.66	0.089	3	2.4
Sept. 6	5.50	5.0	140	0.69	0.046	3	3.5
Sept. 30	6.03	4.8	180	0.45	0.054	3	1.8
Oct. 5	5.69	4.5	160	0.46	0.082	3	2.5
Oct. 12	7.08	4.0	140	0.40	0.057	3	3.5
Oct. 21	8.44	5.1	180	0.25	0.063	3	2.0
Oct. 27	10.90	4.0	140	0.35	0.027	3	2.0
Dec. 2	6.64	5.6	180	0.49	0.060	3	3.5
Dec. 7	6.01	6.1	190	0.48	0.073	3	3.3
Dec. 15	9.70	3.7	210	0.20	0.043	3	2.5
Dec. 21	7.93	3.9	170	0.51	0.056	3	3.5
Dec. 28	9.61	3.5	190	0.27	0.078	4.1	0.8
<b>Average</b>	<b>7.12</b>	<b>4.7</b>	<b>170</b>	<b>0.50</b>	<b>0.063</b>	<b>3.1</b>	<b>2.8</b>



Fort Lauderdale  
Chicago  
Kansas City  
Denver  
Dubai

1.888.PARKSON  
technology@parkson.com  
www.parkson.com

