

PAC Services

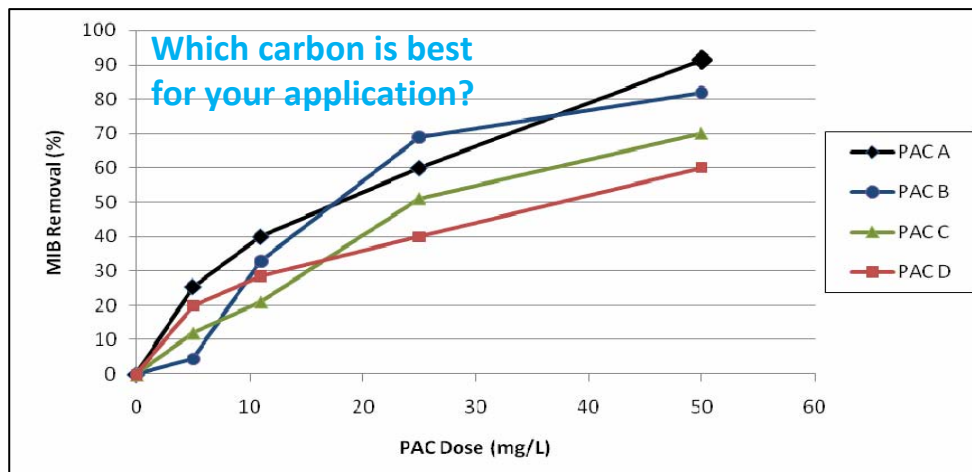
PAC services EPS provides:

- PAC profiling and performance based testing
- Dose removal curves for target contaminants of interest (e.g., MIB, Geosmin, TOC, color)
- Pore volume
- Pore size distribution
- BET surface area
- Carbon specifications:
 - Iodine number
 - Phenol value
 - Tannin value

What is performance based testing?

EPS will develop multi-point dose removal curves using several PACs for a contaminant of concern. This data allows clients to choose the optimum PAC for their application based on price and performance as well as predict doses needed to meet treatment objectives. As the figures below demonstrate, excessive amounts of money can be spent on treatment chemicals that were chosen based on price, without considering performance.

PAC Dose Removal Curve



Performance Factor Example

PAC	Dose (mg/L) Required to Achieve 60% MIB Removal ¹	Performance Factor	\$/Ton	Adjusted \$/Ton
A	25	1.1	1300	1430
B	22	1.0	1360	1360
C	37	1.7	1450	2465
D	50	2.3	1160	2668

¹60 percent MIB removal was chosen for demonstration purposes only

A Performance Factor gives a “weighted ranking” for the treatment chemical being tested. The optimal chemical is scored as a 1.0, and the less efficient chemicals are scored in relationship to the best performer (always receiving a higher factor). Multiplying the Performance Factor by the treatment chemical cost provides a weighted cost that incorporates both performance and economics. Without performance factors, utilities might purchase Carbon D at \$1160/ton, which appears to be a value, but because of its poor performance, actually costs much more (**\$2668/ton**) to achieve the same results as Carbon B at **\$1360/ton**. That’s almost half the cost!

EPS believes that performance-based testing is the optimum method for determining which activated carbon is best for the particular application. Therefore, EPS performs all performance-based tests with the customer’s carbons and water in order to best mimic the conditions of the full-scale facility. Proper performance-based testing can alleviate overspending on treatment chemicals and help ensure all treatment goals are met.