

*Chemical compound reduction on Norit Filtrix H2OK products with
Norit Activated Carbon – GAC 4070*

General

For the H2OK product line various tests have been performed in cooperation between Norit Filtrix and NORIT R&D. This project involves a Point of Use (POU) application which combines NORIT X-Flow UF membranes and NORIT GAC 4070. The testing program includes the removal of various types of compounds which could be present in the environment; Chlorine, 2,4-D, Atrazine and Ethynyl-Estradiol (EE2).

Used methods

The testing is focused on the performance of the Granular Activated Carbon (GAC) type Norit GAC 4070. The filter contains approximately 190 ml of GAC 4070, the flow during testing is 2 l/min. The target is a claim for 2000 liters of treated water. For testing purposes a performance safety of 200% was introduced, aiming at 4000 liters of treated water (according to NSF 53 section 5.2.3).

Compound	Application	Analytical location	Analytical technique
Chlorine	Disinfection	Norit Filtrix	DPD free chlorine (Dr. Lange)
2,4 - D	Herbicide	NORIT R&D	RaPID Assay Atrazine (SDI)
Atrazine	Herbicide	NORIT R&D	ELISA KIT (Japan EnviroChemicals, Ltd.)
Ethynyl-Estradiol (EE2)	Hormone disrupting compound	NEDLAB	GC-MS

Test results

Compound	Standard	Target influent	Target effluent	Reduction required	Reduction obtained	Complies
Chlorine	NSF 42, ABNT NBR 14908	2 mg/l	0.5 mg/l	≥75% for class 1	>93%	Yes
2,4 - D	NSF 53	210 µg/l	70 µg/l	≥66.7%	>82%	Yes
Atrazine	NSF 53	9 µg/l	3 µg/l	≥66.7%	>83%	Yes
Ethynyl-Estradiol (EE2)	model compound for medical residue class	3 µg/l	0.5 µg/l	≥83.3%	>90%	Yes

Note: The table above presents the results of various chemical reduction experiments. The NSF 42, 53 and ABNT NBR 14908 state minimum reduction levels to comply with the specified standard. As can be seen from the table the H2OK product line outfitted with Norit Activated carbon type GAC4070 performs according to the indicated standards.