

Table 1

Chemical analysis and surface area characterization of Al/Fe dispersed in porous granular ceramics.

Chemical analysis of Al/Fe dispersed in porous granular ceramics (oxides)							
Composition (wt.%)	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	MnO	pH <sub>zpc</sub>
	49.78	17.70	19.20	2.36	4.70	0.24	6.5±0.1
Surface area and pore volume analysis of Al/Fe dispersed in porous granular ceramics							
	BET surface area (m <sup>2</sup> /g)	Langmuir surface area (m <sup>2</sup> /g)	T-plot surface area (m <sup>2</sup> /g)	Pore volume (cm <sup>3</sup> /g)			
Granular ceramics	50.69	39.89	35.12	0.1108			

Table 2

Langmuir and Freundlich isotherm parameters for the adsorption of fluoride on Al/Fe dispersed in porous granular ceramics.

Langmuir isotherm		Freundlich isotherm	
$q_{\max}$ (mg/g)	1.788	$1/n$	0.468
$b$ (L/mg)	0.313	$K_F$ (mg/g)	0.386
$R^2$	0.995	$R^2$	0.976

Table 3

Kinetics parameters for adsorption of fluoride onto Al/Fe dispersed in porous granular ceramics.

Initial F <sup>-</sup> conc. (mg/L)	Pseudo-first order			Pseudo-second order			Intra-particle diffusion	
	$k_1$ (min <sup>-1</sup> )	$q_e$ (mg g <sup>-1</sup> )	$R^2$	$k_2$ (g(mg <sup>-1</sup> min <sup>-1</sup> ))	$q_e$ (mg g <sup>-1</sup> )	$R^2$	$k_i$ (mg g <sup>-1</sup> min <sup>1/2</sup> )	$R^2$
10.00	0.055	0.231	0.975	0.371	0.483	0.995	0.034	0.987