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SUPPLEMENTARY INFORMATION

Effect of Preparation Conditions on the Structural and Acid Catalytic Properties of Protonated Titanate Nanotubes

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Supplementary Results

Table S1: Ion exchange capacity of various titanium oxide materials.

Catalyst	Ion exchange capacity [mmol g^{-1}]	
	Titration method[a]	ICP
TiO_2 (anatase)	1.0	0.9
HT-Ti-323	1.3	1.1
HT-Ti-423	2.9	2.6
HT-Ti-473	4.4	4.2

[a]Ion exchange capacities of the samples were estimated from the exchange of Na^+ in aqueous 0.05 M NaOH solutions (pH = 12.7) by titration method.

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Table S2: Surface area of Na^+-exchanged titanate nanotubes.

Catalyst	Ammount of NaOH added [mmol g^{-1}]	S_{BET} [m^2 g^{-1}]
Titanate nanotube	0	350
Na^+-Titanate nanotube (30%)	0.06	352
Na^+-Titanate nanotube (50%)	0.11	348
Na^+-Titanate nanotube (70%)	0.15	337
Na^+-Titanate nanotube (100%)	0.21	339

Numbers in parentheses show the Na^+ ion-exchange ratio of the titanate nanotubes. 100% means that all Brønsted acid sites are replaced by Na^+ ions.

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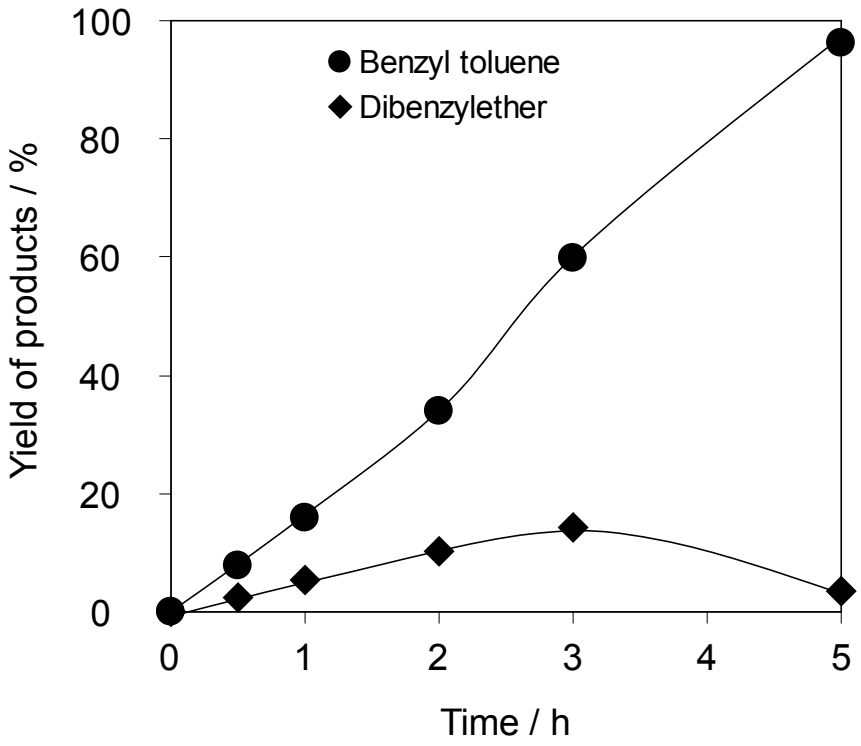

Figure S1 Time courses of Friedel-Crafts alkylation of anisole with benzyl alcohol over HT-Ti-423. Reaction conditions: catalyst (0.2 g), anisole (0.1 mol), benzyl alcohol (0.01 mol), reaction temperature (373 K).