

Catalytic Liquid-phase Oxidation of Phenol under Mild Condition over Pt/CeO₂–ZrO₂–SnO₂/SBA-16: Loading Optimization and Kinetic Analysis

Abdul Rohman Supandi^{1,2*}, Naoyoshi Nunotani², Nobuhito Imanaka^{2,†}

¹Division of Inorganic and Physical Chemistry, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Jl. Ganesha No. 10, Bandung 40132, Indonesia

²Department of Applied Chemistry, Faculty of Engineering, Osaka University, Osaka, Japan
2-1 Yamadaoka, Suita, Osaka 565-0871 Japan

[†]Present: Professor Emeritus, Osaka University, Osaka, Japan

*E-mail: abdulrohman.s@itb.ac.id

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Supplementary File

Table S1

Table S1 The feed composition of oxygen promoters for CZSn_a16SBA, prepared by impregnation method

Catalyst	Mass of SBA-16 (g)	Volume of solution (mL)		mass of SnC ₂ O ₄ (g)
		Ce(NO ₃) ₃ (1.0 M)	ZrO(NO ₃) ₂ (0.1 M)	
16 wt% Ce _{0.76} Zr _{0.19} Sn _{0.05} O ₂ /SBA-16	1.0	0.90	2.24	0.0122
16 wt% Ce _{0.72} Zr _{0.18} Sn _{0.10} O ₂ /SBA-16	1.0	0.85	2.13	0.0244
16 wt% Ce _{0.68} Zr _{0.17} Sn _{0.15} O ₂ /SBA-16	1.055	0.85	2.13	0.0388
16 wt% Ce _{0.64} Zr _{0.16} Sn _{0.20} O ₂ /SBA-16	1.0	0.76	1.90	0.0492
16 wt% Ce _{0.60} Zr _{0.15} Sn _{0.25} O ₂ /SBA-16	1.0	0.72	1.79	0.0617

Table S2 The feed composition of oxygen promoters for CZSn_{0.15x}SBA, prepared by impregnation method

Catalyst	Mass of SBA-16 (g)	Volume of solution (mL)		mass of SnC ₂ O ₄ (g)
		Ce(NO ₃) ₃ (1.0 M)	ZrO(NO ₃) ₂ (0.1 M)	
10wt% Ce _{0.68} Zr _{0.17} Sn _{0.15} O ₂ /SBA-16	1.055	0.53	1.33	0.0242
16wt% Ce _{0.68} Zr _{0.17} Sn _{0.15} O ₂ /SBA-16		0.85	2.13	0.0388
20wt% Ce _{0.68} Zr _{0.17} Sn _{0.15} O ₂ /SBA-16		1.12	2.79	0.0508
25wt% Ce _{0.68} Zr _{0.17} Sn _{0.15} O ₂ /SBA-16		1.49	3.72	0.0678
Ce _{0.68} Zr _{0.17} Sn _{0.15} O ₂ /SBA-16				