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Combustion of Toluene over Titanium(IV) Oxide Catalyst

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Combustion catalysts free from precious metals, such as platinum, for removal of volatile organic compounds were investigated. Common metal oxides (titanium(IV) oxide (TiO₂), alumina and silica) were selected as candidates for a catalyst for combustion of toluene at low concentrations. Complete conversion of toluene was not achieved even at 500°C without catalysts, although the ignition point of toluene is 480°C. TiO₂ exhibited the highest activity for combustion of toluene among representative metal oxides. Toluene was almost quantitatively converted to carbon dioxide (>99% yield) over TiO₂ under the condition of appropriate contact time at 500°C.

Keywords: [Combustion catalyst](#), [Titanium oxide catalyst](#), [Volatile organic compounds](#), [Toluene](#)

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