

### Conversion of lignin using a model compound

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Although lignin is one of promising resources for petroleum-alternative fuels and chemicals, it has very complicated structures composed of several representative linkages, such as alpha-O-4, beta-O-4, 5-5, beta-5, and 4-O-5, which hampers the wide use of lignin in the chemical industry. Benzyl phenyl ether, containing alpha-O-4 linkage, was used as a model compound of lignin and converted to smaller fragments on the acidic catalysts such as alumina, silica, and silica-alumina under H<sub>2</sub> at 100-250 °C. Catalytic conversion of benzyl phenyl ether produced aryl compounds of 4-benzyl phenol, 2-benzyl phenol, phenol and toluene, which were analyzed using GC equipped with FID and GC-MS. Additionally, the prepared catalysts were characterized with ICP-AES, N<sub>2</sub>-physisorption, XPS, NH<sub>3</sub>-TPD and MAS-NMR (<sup>29</sup>Si- and <sup>27</sup>Al-), which elucidated the relations between catalytic activity and catalyst structure affecting on the conversion of lignin.