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ABSTRACT

**DECOMPOSING NITROUS OXIDE USING A RUTHENIUM
OXIDE ON ALUMINA CATALYST**

This invention describes a highly efficient catalytic approach in converting nitrous oxide into gaseous oxygen and nitrogen. Using low-content ruthenium oxide catalysts, the nitrous oxide in nitrous oxide containing gas, for example the stack gas of adipic acid manufacturing, can be decomposed at low cost. Moreover, background gases commonly contained in such cases, such as oxygen, carbon dioxide/monoxide, and water vapour, give essentially no deterioration to the nitrous oxide decomposition. The catalytic process comprises fabricating highly active alumina supported Ru-catalysts with a ruthenium content of 0.01 to 10 wt%, activating as-prepared catalysts in appropriate gas streams, and decomposing the nitrous oxide containing stack gas in a fixed bed reactor under conditions sufficient to decompose nitrous oxide with different concentrations and background gases.

Figure 1 is to be published.



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