

# HIGH-TEMPERATURE HOMOGENEOUS PYROLYSIS OF ETHANE IN THE ADIABATIC COMPRESSION REACTOR

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**Abstract:** Thermal decomposition of ethane has been studied in a rapid compression machine over a range of temperatures 1073–1393 K (800–1120 °C). The main products (ethylene and hydrogen) and minor products (methane, acetylene, propylene, buta-1,3-diene, propane, *n*-butane, and but-1-ene) of reaction have been detected. Some of them like butyne-1, butyne-2, diacetylene, isoprene, etc. were identified for the first time. It is shown that the increase of the pyrolysis temperature along with the decrease of the residence time brings a little effect on the ethylene formation. Pathways to the minor products like *n*-hexane and isobutene have been suggested.

**Keywords:** ethane; ethylene; pyrolysis; rapid compression machine (RCM)

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