

# HOMOGENEOUS PYROLYSIS OF ISOPENTANE UNDER PULSED ADIABATIC COMPRESSION

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**Abstract:** Thermal decomposition of isopentane has been studied in a rapid compression machine over a range of temperature 600–1160 °C. The main products (ethylene, methane, propylene, hydrogen, isobutene, and acetylene) and minor products of reaction have been determined. Some of them like vinylacetylene, isoprene, butyne-1, butyne-2, and some other compounds were identified for the first time. Soot has not been found in products. It is shown that the increase of the pyrolysis temperature along with the decrease of the residence time brings to a growth of selectivity of the ethylene and propylene formation and to a fall of selectivity of methane and isobutene formation. A sharp increase of ethylene yields in isopentane pyrolysis compared to isobutane pyrolysis has been established.

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

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