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UPPER ATMOSPHERE CHEMICAL REACTION STUDIES.

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Corporate Author:

TEMPLE UNIV PHILADELPHIA PA RESEARCH INST

Personal Author(s):

Streng, Alex G

Murphy, William J

Stokes, Charles S

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Abstract:
Reaction of the trimethyl aluminum/triethyl aluminum (TMA/TEA) mixture (80% by weight of TMA plus 20% of TEA) at conditions simulating the upper atmosphere at the height of about 80,000 feet have been investigated. Experiments were performed in a 1500 cu. ft. vacuum tank. The amount of the GMA/TEA mixture released varied from 174 to 385 g. The mixture was released either alone or with simultaneous release of H₂O, O₂, or Cl₂ in amounts varying from 6.7 to 14.65% by weight relating to the amount of the TMA/TEA mixture used. The release time in all the experiments was 5 sec. The gaseous reaction products formed have been investigated and the luminosity and the temperature of the reaction were measured. The mechanism of the reactions proceeding at upper atmosphere is discussed. (Author)

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