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Title : Upper Atmospheric Chemical Release Techniques.

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Abstract : The goal of this work was to develop preliminary designs (in terms of composition, method of burning and size) of payload packages to release atomic Al and Fe vapors (emphasizing Al) in the upper atmosphere. The major effort was expended in demonstrating the feasibility of the Flashbulb technique for releasing significantly large amounts of atomic Al vapor. Feasibility has been demonstrated by showing experimentally that approximately 1% by weight of the Flashbulb composition (payload) is converted to Al vapor in small scale tests (i.e. a yield of 1%). Such a conversion efficiency is necessary to release a significantly large amount of Al vapor (approximately = 1 mole) from a full scale (approximately = 3 kg) payload. Specific amounts required for an actual release will, of course, be determined by the detection methods used and the purposes of the user.

Descriptors : *Atmospheric sounding, *Upper atmosphere, Payload, Sounding rockets, Combustion chambers, Metal vapors, Aluminum, Iron

Subject Categories : ATMOSPHERIC PHYSICS

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