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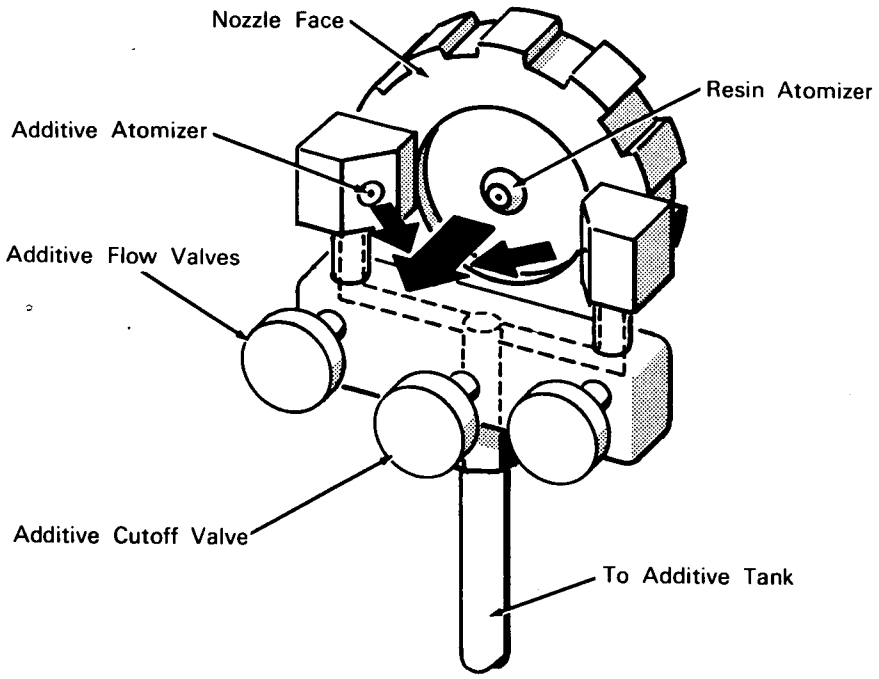
NASA TECH BRIEF

This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Quick-Hardening Problems Are Eliminated with Spray Gun Modification Which Mixes Resin and Accelerator Liquids During Application



The problem: Coating materials which consist of an admixture of plastic resins and certain additives (accelerators, catalysts, or hardening agents) are difficult to apply with conventional spray guns. When such a mixture is contained in the tank of a spray gun, it tends to harden prematurely and clog the spray nozzle.

The solution: A modified spray gun, with separate containers for resin and additive components and separate atomizers which mix the component liquids at the time of application approximately one-quarter of an inch in front of the nozzle face.

How it's done: An atomizer unit for the additive is attached to the nozzle of a spray gun. One end of the additive unit has a tube which extends into the additive container. The other end of this unit has two branching tubes which deliver the additive to apertures on each side of the main nozzle that sprays the resin. The device includes three needle valves, one valve for starting or stopping the flow of additive, and two valves for adjusting the proportion of additive (in each of the two branches) to be mixed with the resin.

In operation, an airstream carries the resin to the

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main atomizer and the additives to the two atomizers in front of the nozzle face, where the atomized liquids blend.

Notes:

1. The device can easily be adapted to mix sprays from three liquids.
2. It may advantageously be used for mixing colors in spray painting.

Patent status: NASA encourages the commercial use of this invention. It was invented by a NASA employee, and U.S. Patent No. 2,930,532 has been issued to him. Inquiries about license rights for its commercial development should be addressed to the inventor, Mr. Oce W. Johnson at Langley Research Center, Hampton, Virginia.

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