

## METHODIC APPROACH TO CALCULATIONS AND SELECTION OF PARAMETERS OF SPLASHING SYSTEM FOR PROPELLANT PREPARATION

One of the important problems is to provide the required parameters of propellant components, which are attained by the propellant preparation. This problem is resolved by facilities for spacecraft propellant filling. In practice splashing the propellant by gas is widely used to resolve the problem of dehydration of hydrogen-carbon fuel, gas saturation and degassing.

The research subject is to develop a generalized methodic approach to description of a physical pattern during the propellant preparation with splashing as well as determination of the design parameters of splashing collectors for levelling a technological balance of the process.

To define the splashing characteristics and the design parameters of splashing collectors, the mechanism of the gas flow in fluid through orifice is examined.

In accordance with the research results the design procedure of the determining parameters for splashing during the propellant preparation is developed including: determination of the limiting conditions for splashing; critical radii of bubbles resulting in crushing, diameters of stable bubbles as well as calculations of a specific interface surface represented by the relation of an overall surface of gas bubbles and a fluid volume; determination of variations in the gas content in propellant layer for a horizontally-located capacity depending on gas intensity of the splashed gas.

Recommendations are made for the design of splashing collectors of propellant preparation facilities.

*Keywords: propellant preparation, splashing, parameters of splashing collectors, gas content.*

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