

On the change in the size of melamine-formaldehyde dust particles over time

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To create homogeneous and highly ordered dust structures, spherical particles of the same size are used in experiments. It is common practice today to use calibrated micron-sized melamine-formaldehyde particles.

An analysis of experimental work shows that such particles, while in plasma, change their size and their surface is modified. As a consequence, a change in the gas composition of the plasma occurs. These effects occur with varying intensities in RF or glow discharges. The speed of the processes depends significantly on the type of plasma-forming gas. The pace of processes does not depend linearly on time.

In the presented work, the rates of change in the size of melamine-formaldehyde dust particles under conditions of a stratified glow discharge in various inert gases are observed and analyzed. Experiments using dust particles ranging in size from 1 to 12 μm are described. The results are qualitatively interpreted and compared with available data on RF discharge conditions.

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