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**Size distribution of spray droplets at different temperature ILDOO**

KIM, HYUNG JU LEE, HO JIN CHOI, KI-YOUNG HWANG, Agency for Defense Development, AIR-BREATHING ENGINE DIVISION TEAM — Atomization of a liquid jet through an injection nozzle is not only of fundamental interests but also crucial to many real-life applications like engines, ink-jet printers, flow cytometry. Because of practical importance, there have been many studies on the atomization mechanism such as its dependence on the nozzle shape, ambient air pressure and etc. In this study, we investigate the atomization characteristics focused on its dependence on fluid temperature. We varied the temperature of the fluid from  $-30$  °C to  $300$  °C, and it is injected through a nozzle pneumatically. Such cold or hot jet of fluid is atomized in the flow-controlled chamber, and the size distribution of the spray droplets was measured by optical technique.

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