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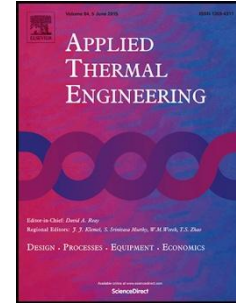
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1 *SPRAY CHARACTERISTICS AND LIQUID DISTRIBUTION OF*

2 *MULTI-HOLE EFFERVESCENT ATOMIZERS FOR*

3 *INDUSTRIAL BURNERS*

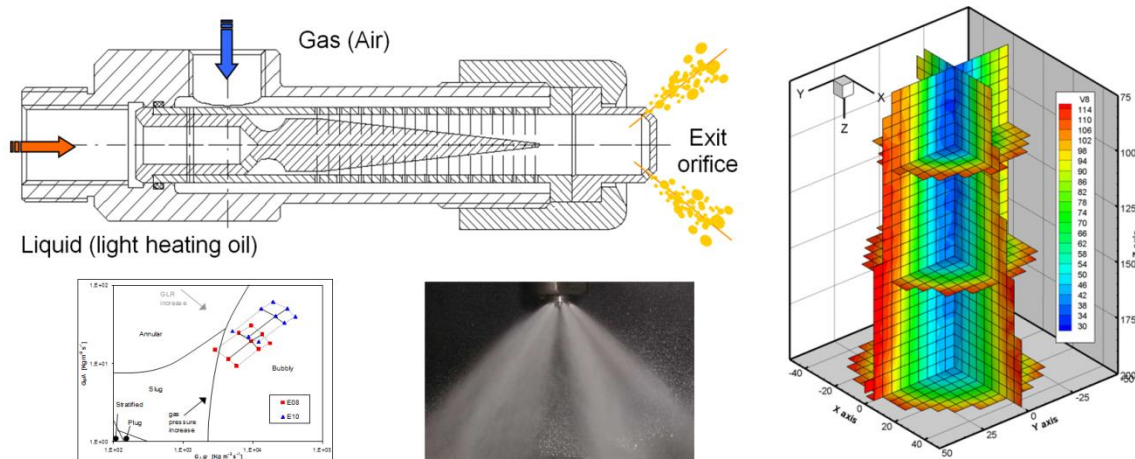
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9 10 **Highlights**

- 11 • The multi-hole (mh) spray morphology is very similar to that of single-hole nozzles.
- 12 • Unsteady spray was found at low pressure and low gas-to-liquid-ratio (GLR) values.
- 13 • Cone angle variation in mh spray with pressure and GLR depends on the exit nozzles angle.
- 14 • A liquid–gas gravitational separation in horizontal atomizer operation was observed.
- 15 • It causes up to 70% fuel supply variance into exit holes depending on design and regime.

16 **Graphical Abstract**



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Abbreviations: Gas-to-Liquid-Ratio (GLR), Light Heating Oil (LHO), Spray Cone Angle (SCA), Spray Cone Half-Angle (SCH), Phase-Doppler Anemometer (PDA), Root-Mean-Square (RMS)

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