

消防活動・隊員の安全管理に 関する技術改良・検証

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6 まとめ

Study on Effective Water Discharge Methods to Prevent the Spread of Indoor Fires

—Water discharge methods to inhibit backflow—

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Abstract

Spraying water into a room that is burning at a high temperature can cause backflow—the generation of flames and high-temperature thermal currents. Backflow can lead to the risk of accidents resulting in injuries to fire fighters. However, there is only insufficient information about this phenomenon at present.

This study's goal was to enhance personnel safety when water is sprayed. We experimented by changing water discharge conditions when extinguishing fires to check the relationship between sprayed water and backflow, using a high-temperature fire we created in a room that was about thirteen square meters in size.

The result showed that personnel in front of the opening who discharge mist horizontally at 30° would be most affected by backflow with the room's thermal environment likely to be improved. In the meantime, when mist is sprayed at 90° with the entire opening to the fire-affected room covered, personnel would not be affected by heat backflow but the room's thermal environment would not improve.

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