

## Flame Propagation Behavior in Semi-closed Pipes with Bend

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### Abstracts

A lot of researches about gas detonation have been conducted. However, accidental gas explosion occur not only in closed pipes but also in semi-closed pipes like a flue. Therefore, in this study, flame propagation behavior during methane/air deflagration in semi-closed pipes were measured using visualized combustion pipes. Large and middle scale experiments were conducted by clear vinyl chloride pipes. The pipe length was 3, 4, 5 m and that diameter was 50, 100, 300 mm. Furthermore, the deflagration experiments in pipe including 90 degree bend were conducted. The bend was set at the various position.

It was shown that the flame propagation repeats acceleration and slowdown like as oscillation in the tube. Furthermore, it was shown that flame speed was accelerated after passing thorough a bend. And it was suggested that the internal pressure is mainly affected by the acceleration of the flame propagation.

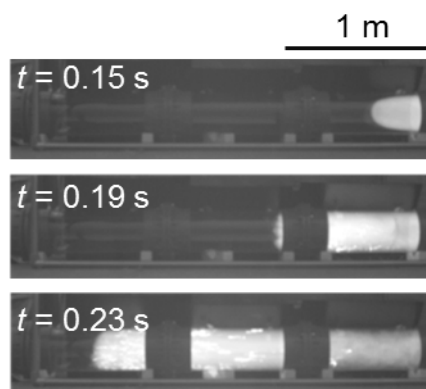


Fig. 1 Flame propagation behavior in 300 mm diameter tube. (second half of 5 m)