

模型箱試験による難燃処理木材の燃焼性評価

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Combustion Properties of Fire Retardant Treated Wood in a Model Box Test

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The evaluation of burning characteristics of interior lining materials used in rooms should be made taking into account the condition of space. This paper describes results of model box experiments in a 840 mm height, 840 mm width, 1,640 mm length compartment. Interior wall surfaces including the ceiling were covered with 15 mm thick woods to simulate a room fire and ignited using the crib source located at a corner. Temperature in the box measured at the location of 63 cm above and on the floor. The heat release of materials was measured using the cone calorimeter. The relation between the heat release of materials and the temperature in a model box test was examined.

- 1) In the case of untreated specimen, the temperature increased rapidly after ignition, and it resulted in the flashover which a flame spouts out opening.
- 2) In the case of fire retardant specimens which contained 200 ~ 250 kg/m³ chemicals, the temperature in a box was the same as that of nonflammable material.
- 3) The maximum box temperatures increased with the increase of total heat release of specimen, flashover may be caused if the total heat release becomes 7 MJ/m².

Key words: model box test, fire retardant, heat release, cone calorimeter, flashover
模型箱試験, 難燃剤, 発熱性, コーンカロリー計, フラッシュオーバー

内装材料の燃焼性は、室内空間条件を考慮して評価する必要がある。本研究では、発熱性試験から得られる材料の発熱量と室内空間を想定した模型箱試験における箱内温度との関連を検討し、以下の結論を得た。

- 1) 無処理木材の場合、箱内温度は急上昇し、加熱開始後4分程度で開口部から火炎が噴出するフラッシュオーバーに至った。
- 2) 含量が200 ~ 250kg/m³の難燃処理木材の場合、箱内温度は不燃材料と同程度であった。
- 3) 発熱性試験による総発熱量が増加するにつれて最大箱内温度は高くなり、総発熱量7MJ/m²以上でフラッシュオーバーに至る可能性が示された。

抄録

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