

During fire in warehouses and shops smoke and chemicals from fire extinguishers often cause great damage to both unpacked and packed products. Even products stored at a considerable distance from the centre of the fire can be severely damaged by the smoke. Our study was undertaken in order to get a better understanding of the ability of different materials to withstand penetration of smoke and to classify packaging materials with respect to their protective properties.

By this analysis guidelines may be given as to when products can be saved and when they have to be discarded. The penetration of smoke from a fire through different packaging materials was studied by subjecting one side of the material to a model mixture of gases typical for smoke from a fire. The composition of the atmosphere on the other side of the material was continuously tested and the time for penetration of smoke, i. e. the breakthrough time was recorded.

Packaging materials such as thin film (PE and PVC), uncoated board, paper even when coated with PE - do not serve as barriers against smoke from a fire. There is a significant difference in protective properties between laminates of three or four plies and packaging materials of one or two plies.

Ethylvinylalcohol, aluminium and metallisation in multiply laminates contribute the most to making packaging materials smoke resistant.