

A full scale fire test procedure for surface linings is being developed within ISO/TC92. The test is performed in a full size room having a normal size door opening and the product to be tested is lined on the walls and the ceiling. The ignition source is a propane gas burner located in a corner.

All the combustion gases leaving through the doorway are collected in a hood connected to an exhaust duct where measurements of volumetric flow rates, concentrations of gas species, such as oxygen, carbon monoxide and unburnt hydrocarbons, and production of light obscuring smoke are made.

By knowing the amount of oxygen consumed by the fire it is possible to calculate the heat release rate. Thus, the method gives quantitative measurements of heat release, as well as of smoke production and toxic gas production rates. A number of lining products has been tested by the National Testing Institute in Sweden. Apart from heat release, smoke and gas production rates, also the thermal conditions in the test room have been carefully mapped.

The results show that the test method is a very useful classification and research tool. A comparison with the NBS-cone calorimeter shows that a simple mathematical model can predict full scale results from the small scale data.

The products tested in full scale have also been tested according to European classification methods. The results indicate that the new full scale test can be related to existing classification procedures.