

Early Fire Hazard Properties

Flammability - Test Code: T18B

AS/NZS 1530.3-1999 Simultaneous determination of Ignitability, Flame propagation, Heat release & Smoke release (*Early Fire Hazard Properties*)

A vertically mounted specimen is brought to a position 850mm in front of a radiant. At 30 second intervals the specimen is moved closer to the heat source in a series of steps. If ignition has not occurred after 12.5 minutes the specimen remains 175mm from the panel for a further 7.5 minutes (i.e. a maximum total exposure time of 20 minutes) or until ignition occurs whichever is sooner.

During exposure, a small gas pilot flame is held 15mm in front of the specimen. This pilot flame will ignite combustible gases given off but not the surface of the specimen. When ignition occurs the forward movement is stopped. The mean time to ignite for all specimens, subtracted from 20, determines the IGNITABILITY INDEX.

During exposure a radiometer is used to measure the heat radiated from the specimen. There is a steady increase as the specimen moves towards the heat source, followed by a rapid increase at ignition.



The recorded radiometer output is later analysed to determine:

- a) *The rate of rise after ignition by measuring the time taken for the radiation to rise by 1.4 kW/m² from its value prior to ignition; and*
- b) *The area under the radiation curve for the next two minutes after ignition which is converted to a heat evolved value in kJ/m².*

The results of all specimens tested are averaged and the *SPREAD OF FLAME INDEX* and *HEAT EVOLVED INDEX* are determined from tables given in the standard.

A light source and photocell located on the flue above the test continuously monitors the transmission of light through the air in the flue. Ignition and non-ignition specimens are separately analysed to determine the maximum optical density per metre recorded over any one-minute period during the test. The mean optical density per metre for the specimens determines the *SMOKE DEVELOPED INDEX*. The scale is logarithmic with each index number equivalent to double the mean optical density of the index number below it.

Three supplementary tests are necessary if the results for the first six specimens fall outside prescribed limits of variability.

	INDICE RANGE
IGNITABILITY INDEX	0-20
SPREAD OF FLAME INDEX	0-10
HEAT EVOLVED INDEX	0-10
SMOKE DEVELOPED INDEX	0-10