

Upholstered furniture can in many instances be regarded as a fire risk and therefore means to evaluate this risk is required. The fire technical properties of a product can be separated into ignition properties and the burning behaviour. The ignition properties can be determined with a small scale test, but the burning behaviour must be investigated in large scale.

The purpose of this project was to develop and investigate a full scale test procedure for burning behaviour of upholstered furniture, to discuss how the measured data could be used and to compare with small scale ignition test results.

The products that were tested were chosen in cooperation with the Norwegian fire research laboratory, who also made ignition tests according to British Standard 5852.

The full scale tests were performed with a 1.8 m long sofa mock up that consisted of three seat cushions, three back cushions and two arm rest cushions. The cushions were made of polyurethane filling and covered with fabric. Different types of polyurethane, fire retardant treated or untreated, were tested with different type of fabrics. One sample had also a neoprene interliner. Additionally two full size sofas, a 65 kg sofa-bed type and a latex cushion sofa, were tested.

The tested samples were ignited with a wood crib specified in British Standard 5852, part 2. ... A simple model is tried to illustrate how data can be used. It demonstrates, that for the conditions chosen the rate of heat release and the reduced visibility due to smoke production will be a greater hazard than the toxicity due to carbonmonoxide production for this burning configuration.

Finally, ignitability data according to British Standard 5852 measured by the Norwegian fire research laboratory for the tested items is presented. The results show that the ranking order achieved by the ignition test may be contradictory to full scale burning behaviour, although in most cases the ease of ignition would reflect the full scale burning rate. The exception was a material that was very easy to ignite but in full scale showed a slow burning rate.