

Transmitted by the experts from
Norway and Sweden

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agenda item 1.3.)

Fire safety in buses
(Burning behaviour of materials)

Note: The text reproduced below was prepared by the experts from Norway and Sweden in order to inform about the progress of the project Fire Safety in Buses.

Fire safety in buses

Highly relevant issue

Two major catastrophes in Europe during the last year.

Poland 2005
12 dead



Switzerland 2006
9 dead



Material fire tests



11 modern bus interior materials have been tested in several state-of-the-art small-scale fire tests.

- Test of horizontal flame spread according to vehicle requirements (ISO 3795)
- Test of horizontal flame spread, ignition and smoke according to marine requirements (IMO Res A.653)
- Test of heat release and estimate of Euroclass according to building regulations (ISO 5680-1, ConeTools)
- Test of horizontal flame spread and smoke according to proposed EN train requirements (prEN 45545-2)

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ISO 3795 / FMVSS 302



- Test of horizontal flame spread
- Burning rate 100 mm/minute is the main fire safety requirement for buses today. All tested materials except one pass this test.



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Material fire tests



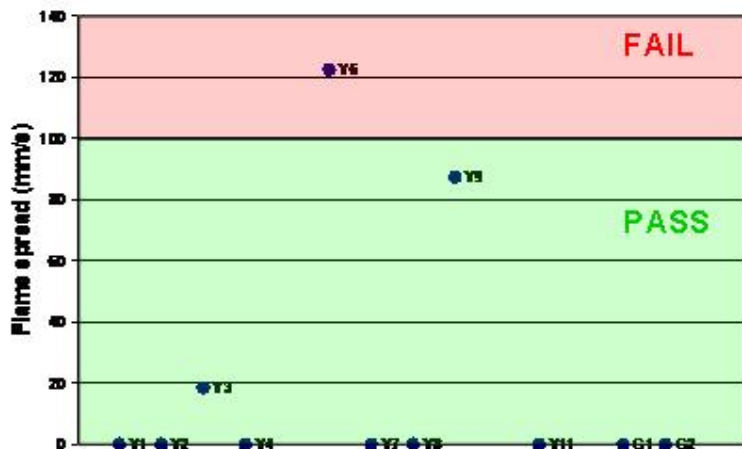
Tested materials are:

- Wall/ceiling linings
- Floorings
- Insulation
- Plastic panels and lists
- Seats



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ISO 3795 Results, Vehicle Regulations



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Ignition requirements for passenger ships and trains



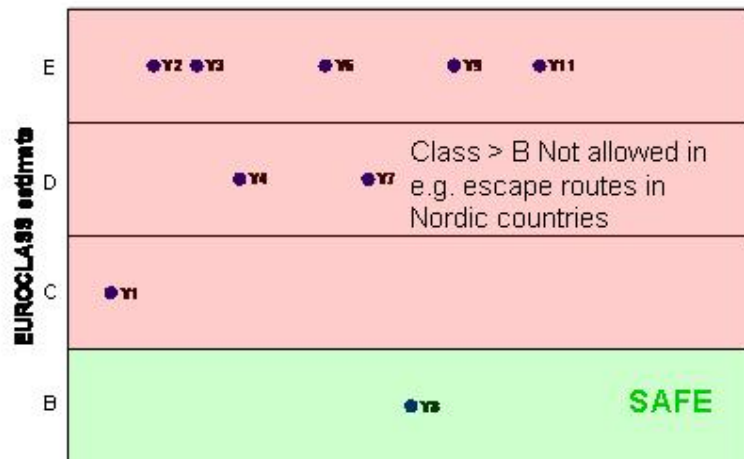
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Smoke requirements for passenger ships and trains



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Building regulations



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Conclusions



- The tested bus interior materials pass the present fire requirements (Vehicle Regulations)
- The fire safety level is low or very low compared to other areas

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