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agenda item 1.4.6)

Transmitted by the experts from Norway and Sweden

FIRE SAFETY IN BUSES

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

Fire safety in buses



Aim

The aim of the project is to get a knowledge basis about fire safety in buses and fire properties of material used in modern buses.

Commissioned and funded by

- Norwegian Public Roads Administration
- Swedish Road Administration

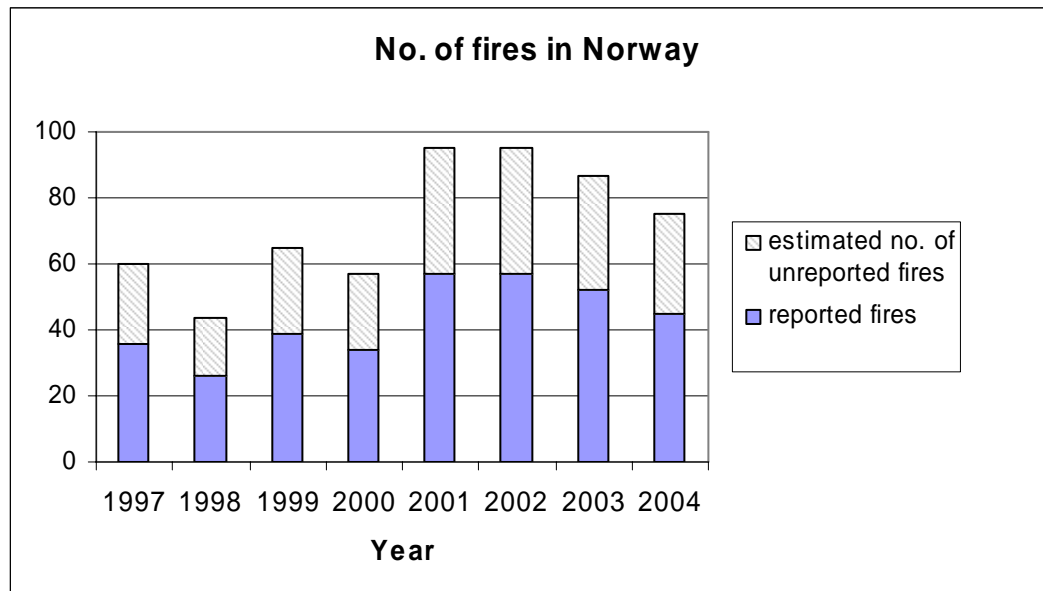
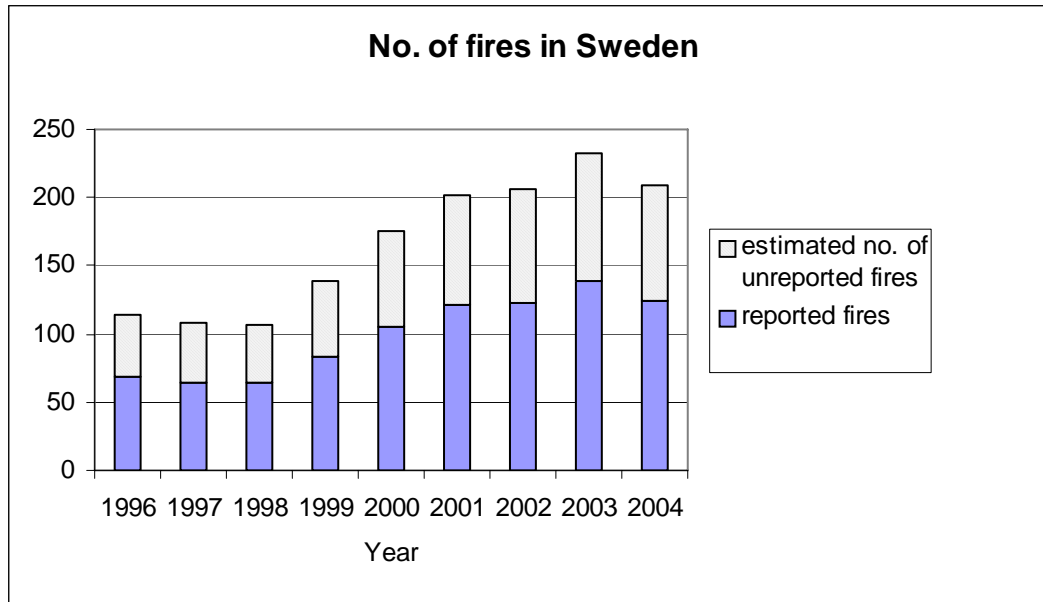
Time plan

The project runs for two years, 2005-2006

The project is divided into 8 work packages

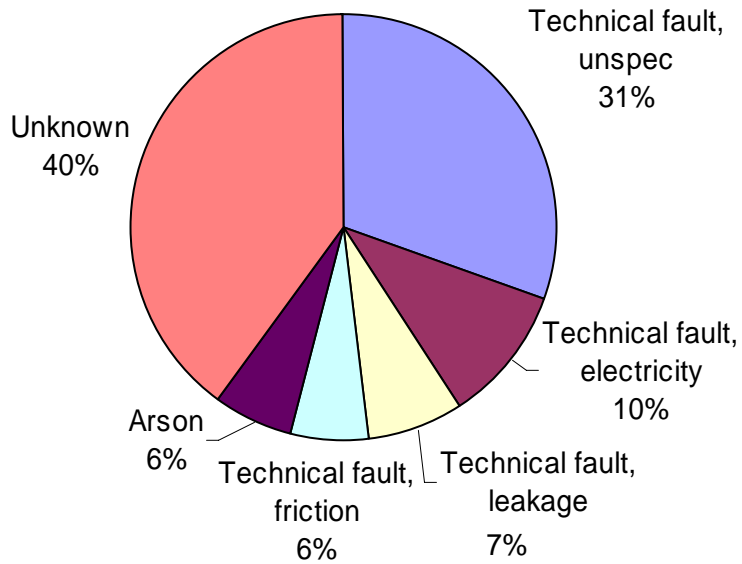
- Survey of bus fires in Norway and Sweden
- Survey and fire tests of interior material in buses
- Bus construction risk assessment
- Fire partitions to the engine compartment
- Engine compartment – active fire protection
- Fire simulations
- Full-scale fire test
- Proposals for improvements

Survey of bus fires in Sweden and Norway

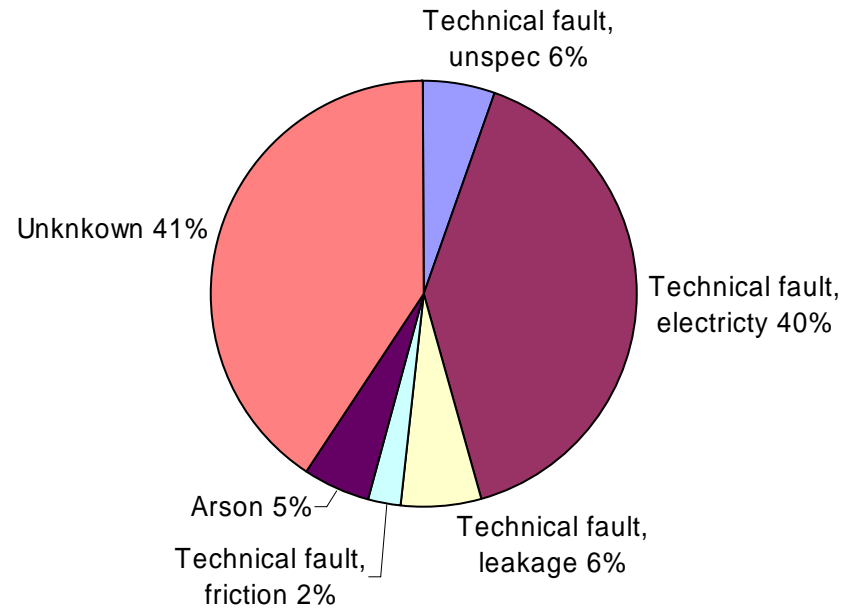


Survey of bus fires – Cause of fire

Sweden 1996-2004



Norway 1997-2004



Are matches fire safe?



ISO 3795

- Test of horizontal flame spread
- Burning rate 100 mm/minute is the main fire safety requirement for buses today



ISO 3795 criticized for long time



NFPA 1979, Investigation on FMVSS 302

“This standard prescribes a test method that tests materials only in a horizontal orientation and is considered by test experts to be totally ineffective in providing fire safety in a real fire situation.”

NIST 1990 (NISTIR 4347)

Investigation after fatal school bus fire concluded that FMVSS 302 provided too low fire safety, especially for seats.

Flame Retardancy News, October 2005

“The fire recommendations were never implemented and that is likely to be one of the reasons that road vehicle fires and bus fires continue being deadly”

Full-scale seat fire test



Full-scale seat fire test

