

## Sleeper coaches



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# Sleeper coaches in Denmark: brief history



# 2 serious accidents in 2004



# Tightened requirements



# Restraint system for horizontal use



# How about a safety bag?



# Testing the safety bag



# Parachute-type belt





# International rules on sleeper coaches

- Upright position (as seat): existing regulations must be complied with (seat, seat belts and anchorages)
- Horizontal position:
  - Comfortable restraint system must be provided.
  - Similar strength requirements to normal seats.
- The restraint system itself: how do we test it? Do we need a special dummy and test procedure?

*Thank you for your attention !*