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Topic 2. Safety and Mobility in Winter: Social, environmental and Economic Aspects

Title : Bus accidents in winter time

ABSTRACT

Buses in Sweden have a low accident risk but buses have a higher percentage of accidents that occur on ice/snow covered roads than other vehicles. Accidents with buses involve many people either as passengers in the bus or getting on or off the bus or as pedestrians/cyclists around the bus.

In the project four different studies were carried out: tyre tests, focus group discussions, driving simulator tests and accident study. Here is given a short summary concerning methods and conclusions of each sub project.

The tests in the tyre test facility on smooth ice did not show any significant difference between summer tyres and non-studded winter tyres, while studded tyres exhibits a better ice grip than non-studded tyres.

Nor did driving simulator tests with driving on ice covered road under the influence of heavy wind from the side show a difference between summer tyres and non-studded winter tyres. Also in these tests were the studded tyres superior to the non-studded. If studded tyres are used only on one axle, the driving simulator study showed that during side wind the ability to steer is important.

Three focus groups were carried out and the importance of the tyres for traffic safety during winter was discussed. It is however hard from the gathered discussion material to estimate just how important the tyres really are.

When calculating the accident risk, the risk on ice/snowy roadways is normalised with the accident risk on bare roadways, to minimise the risk that other factors than tyres affects the accident risk. The buses equipped with studded tyres are the ones that are driven the most on icy/snowy roadways, and those equipped with summer tyres are the ones that are driven the least on icy/snowy roadways.

There is no statistically significant difference in relative accident risk, but it is the buses that have summer tyres on the steering axle and winter tyres on the driven axle that has the lowest estimated risk, which is in accordance with the results in a previous study. The buses equipped with studded tyres on both axles could not be statistically analysed since only 2 accidents occurred on bare roadways, and none on icy/snowy roadways, while at the same time the buses in this category drive a lot on icy/snowy roadways. This probably makes these buses the safest on winter roadways.