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TRAVEL ADVISORY: CORRESPONDENT'S REPORT; Alpine Tunnels Are Scrutinized After Fires

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EVEN self-assured drivers can feel pangs of anxiety after driving miles through the dusky phosphorescence of an Alpine tunnel.

But after two deadly tunnel fires this year -- 39 people killed in March in the Mont Blanc tunnel between France and Italy, and 12 people killed in May in an Austrian tunnel -- European officials have also become nervous.

In both cases, travelers were trapped in excruciating heat and poisonous smoke. It took rescue workers two days to control the Mont Blanc fire and 15 hours to extinguish the one in the Tauern tunnel in Austria.

Now, after numerous investigations, a growing number of European traffic experts argue that rescue systems are not always adequate.

Statistically, driving through tunnels is twice as safe as driving on the open road. There are more restrictions against lane-changing and other maneuvers that increase the likelihood of accidents.

But tunnel accidents can be nightmarish. Rescue operations are difficult and there isn't much time: smoke spreads through a tunnel at 6.5 to 26 feet a second. The average person in a tunnel accident can usually walk about four feet a second.

A recent survey of 20 major European tunnels by ADAC, Germany's equivalent of the AAA, concluded that only 12 had "good" or "adequate" systems for coping with fires. Eight tunnels were either "dubious" or "unsatisfactory." The most frequent criticisms were shortages of adequate escape routes, emergency stopping areas and ventilation systems capable of confining smoke to limited areas.

A more informal survey of the 10 biggest Alpine tunnels, by the German magazine Motor Presse, noted that five offered no space to turn cars around, which is crucial for allowing rescue workers to gain access. The survey gave only the St. Gotthard tunnel in Switzerland a five-star rating. Five tunnels got two stars.

Investigations into the Mont Blanc disaster revealed many problems. The seven-mile-long tunnel, more than 30 years old, has no exit routes or side tunnels and is equipped with an aging ventilation system that could not draw the smoke out.

Rescue efforts were also bogged down by poor communications: officials on the French and Italian ends had different communications equipment. By the time tunnel supervisors realized they had a serious fire -- a truck had caught fire in the middle of the tunnel -- heat was rising toward 1,800 degrees Fahrenheit and workers couldn't get near the blaze.

Experts argue that while most of the big European tunnels are safer than Mont Blanc, many need upgrading.

The ADAC survey, carried out by an engineering consulting firm called Deutsche Montan Technology, concluded that 16 out of the 20 tunnels surveyed had dubious or unsatisfactory escape routes. Only two -- the St. Gotthard and Seelisberg tunnels in Switzerland -- were rated as having "very good" escape passages.

The 10-mile St. Gotthard is one of the only tunnels in Europe that has a separate evacuation tunnel, which is connected to the main one every 820 feet.

The ADAC study did not include the Mont Blanc, which will remain closed at least until sometime next year. But it concluded that half of the tunnels in the study were not equipped with ventilation adequate for firefighting.

All major tunnels have extensive ventilation, often pushing fresh air up from below and removing engine exhaust from above. But only a few systems are powerful enough to redirect air flow and contain smoke in a major fire.

Bernd Aberle, the engineer at Deutsche Montan Technology who coordinated the survey, and his team concluded that one of the worst ventilation systems was in the Tauern Tunnel, which experienced its fire last May a few weeks after the survey was completed.

ADAC ranked three tunnels as worst over a broad range of criteria that includes monitoring systems, ventilation and escape routes. They were the Fourviere tunnel in France, the Grand St. Bernard between Switzerland and Italy and the Felbertauern in Austria.

Other traffic experts warn against placing too much value on a single ranking. Indeed, Motor Presse gave the Felbertauern tunnel in Austria a fairly positive three-star rating because it provides areas for vehicles to turn around.

In the wake of the Mont Blanc and Tauern disasters, officials are tightening standards. The European Commission is pushing countries to adopt common standards and systems, to avoid the babel-like confusion that occurred at Mont Blanc.

But traffic experts have also concluded that drivers need training. In principle, people should get out of their cars and head for the nearest exit as soon as they see heavy smoke. Yet at Mont Blanc, more than 30 people died simply sitting in their cars. (Several people who were not in cars died as well.)

"Evacuation has to be in the first five to seven minutes," said Bernd Thamm, who oversees tunnel equipment and management at Germany's Federal Highway Research Institute near Cologne. "We have to train people not to stay in their cars."