

## Abstract

### Pilot Project: Tunnel Filters

In the mid-1980s, research was started in Austria on the purification of waste air emissions from road tunnels. TU Graz was involved in the research work from the very start and has gained substantial experience in the field of tunnel ventilation in general.

Our research and development activities started in 1991. The first Plabutsch tunnel project was followed by another one in the Katschberg tunnel. Under a project sponsored by the FFF (research promotion fund) a new type of system was developed, again in the Plabutsch tunnel. For this so-called ECCO principle, a patent application has been filed. This project is to be conducted as a long-term test to gain further practical experience. This project examines the efficiency of dust collection, specifically of diesel soot, road and tyre abrasion, and dust in general. Gaseous components cannot be removed by dust filters. The only exception in this regard is electric filters, due to the oxidising effect of ozone that is inevitably produced by corona discharge. Trials conducted as part of the first project showed, however, that the quantities usually generated do not produce any truly significant results.

Electric filters may be used as an environmental protection measure, e.g. in tunnels in urban areas, or as an economic investment, as in by-pass systems designed to improve visibility in tunnels, which obviates the need for exit air shafts. From today's perspective, the use of such filters in case of fires is probably only a secondary field of application.

*Ing. Aigner, Heinz (2002): Pilotprojekt Elektrofilter zur Abluftreinigung im Straßentunnel, Plabutsch Graz. In: Bundesministerium für Verkehr, Innovation und Technologie - Straßenforschung, Heft 526, S. 50-80.*