

Optimal Fire Protection for Underground Mass Transport Facilities

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The Author and Presenter

Ruediger Kopp completed his studies of Chemical Engineering and Safety Engineering at the University of Dortmund as Diploma-Engineer. Since 22 years he is involved in development, fire testing, approval and marketing of high pressure water mist systems.

At present he is General Manager for fixed water mist systems at the company FOGTEC Fire Protection based in Cologne, Germany. He is member of various international water mist guideline working groups (e.g. NFPA 750, APSAD D2, FIA/BAFSA) as well as foundation member of the International Water Mist Association (IWMA). He has published numerous articles about water mist technology and has held papers at many conferences around the world.

Abstract

The importance of underground mass transport systems is constantly increasing due to the growth of mega cities all over the globe. Fire protection is key topic for refurbishment of existing metro stations as for new built metro lines.

Water mist has been identified as ideal firefighting technology for metro stations due to less water usage than other water based firefighting systems, having benefits for the system integration into underground structures. But even more important, the outstanding cooling effect of water mist has been valued advantageous for improved evacuation of metro stations in case of fire.

The paper will describe the risk assessment process, selection of suitable fire tests protocols for individual risk areas as well as the development of a full scale fire test protocol for metro station platform areas based on the requirement of CEN TS 14972 standard. Full scale fire test results will be presented.

Finally the implementation of a high pressure water mist system into the M2, M3 and M4 metro lines in Budapest based on the aforementioned fire test results will conclude the paper.

Key Words

Underground mass transport
evacuation

Metro stations

Full scale fire tests

Safe