5.4.3 Outdoor air pollution

Dangerous nitrogen oxides (NOx) are among the most closely studied of emissions for their toxicity to human health. Road transport contributes significantly to this and it is necessary to substantially reduce nitrogen oxides concentration.

The use of photocatalysts on a photocatalytic surface can greatly reduce hydrocarbon waste produced from industrial factories burning fossil fuel or coal and transportation. Photocatalytic coated concrete has been developed to reduce air contaminants such as NOx and VOC’s, especially at sites with a high level of pollution: highly trafficked canyon streets, road tunnels, the urban environment, etc. These pollutants have an increasing impact on the urban air quality and contribute to the formation of “photochemical smog” and ozone. Using photocatalytic coatings, NO is gradually oxidized to nitric acid, which is eventually neutralized in the presence of alkali metal ions or alkali soil into various nitrates, depending on the substrate nature. They have already been applied different construction materials used in buildings, street pavements, tunnels, etc.