5th World Conference on
Sustainability, Energy and Environment

Prague, Czech Republic 18 – 20 September 2025

Comparative Analysis of Air Pollution from Rubberized and Conventional Asphalt: A Case Study

Mohammad Mataqi, Dr. Hayaa Almutairi

Kuwait Institute for Scientific Research, Kuwait

ABSTRACT

Recently, there has been a growing interest directed toward the utilization of recycled rubber in asphalt pavements due to its ability to improve the performance of road networks. In addition to enhancing road durability, this approach helps reduce landfill waste by repurposing rubber that would otherwise be discarded, symbiotically benefiting asphalt performance and reducing the landfill waste. This research presents a case study where the air pollution impact of both rubberized asphalt and traditional asphalt mixes on air quality was evaluated and compared. A field study was conducted to collect the concentration and chemical compositions of emissions of various pollutants, such as nitrogen oxides (NOx), nitric oxide (NO), nitrogen dioxide (NO2), sulfur dioxide (SO2), hydrogen sulfide (H2S), ozone (O3), carbon monoxide (CO), and carbon dioxide (CO2). Unlike conventional asphalt pavements, the use of rubberized asphalt can effectively reduce pollutant emissions compared to conventional asphalt roads. Furthermore, these results fall below the Kuwait Environment Public Authority (KEPA) ambient air quality standards. These findings indicate that rubberized asphalt results in lower pollution levels compared to traditional asphalt during the asphalt paving stage.

Keywords: Recycled rubber; Asphalt pavements; Air quality; Emissions; Pollution Impact