

Quantitative Characterization of Asphalt VOCs using Fingerprints

Information

Abstract: With the rapid development of transportation and environmental protection, constructions nowadays focus on green building materials. Asphalt VOCs (volatile organic compounds) released during heating are so complicated that it is difficult to quantitatively characterize them. In this study, a method for quantitative characterization of bitumen VOCs, based on the fingerprint component database, was proposed. Individual and total amount of VOCs released from 5 different bitumen binders were presented. Research results show that the established evaluation formula can be successfully used to quantitatively characterize the VOCs release amount from bitumen binder. The volatilization of a single fingerprint component can reach $0.76\mu\text{g/g}$, and the total VOCs release of five different asphalts is between $1.88\text{-}4.42\mu\text{g/g}$.

Keywords: asphalt VOCs; quantitative analysis; fingerprint components; release amount.