VOC emission from the asphalt is always accompanied with its aging process. During the VOC emission process, some light components in the asphalt can volatilize into the atmosphere and the others may be combined with the oxygen into large molecular structures.

《Evaluation of Volatile Organic Compounds from Asphalt Using UV-visible Spectrometer》

During heating, mixing, transfer, and application of asphalt binders, some odor often is perceived in relation to the emission of volatile organic compounds (VOCs) which leads to the deteriorate of asphalt pavement [2]. In additional, VOC could cause occupational exposures suffer from mucosal irritation , skin irritation, rash, nausea, stomach pain, decreased appetite, headaches, and fatigue as reported [3].

《Grey system theoretical analysis on the influence of volatile organic compounds emission from asphalt on its performance》

Light components in the asphalt can volatilize under the circumstances of high temperature or long-term service process, leading to the deteriorating of the asphalt pavement.

《Airborne emissions of asphalt\_wax blends for warm mix asphalt production》

Although most of the lightweight compounds in the crude oil have been removed during the reﬁnery process, there are still some remains in the ﬁnal asphalt residue [4]. These remaining compounds can be released during the production process of asphalt mix at high temperature, which is also known as emission. The compositions of the emission include combustion CO, CO2, SO x, NO x, volatiles organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAH)

[5–8]. Some of such emissions are hazardous or even carcinogenic and harmful to the environment as well as human heath[4,7,9,10].Temperature is the primary factor aﬀecting the airborne emission during the production of asphalt mix [5]. The content of VOCs is also dependent on the crude oil type, asphalt composition as well as the degree of asphalt oxidation [4].