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FUGITIVE EMISSIONS ESTIMATION FROM PETROLEUM STORAGE TANKS

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Abstract

Liquid petroleum fuel products such as High Speed Diesel (HSD), Superior Kerosene Oil (SKO), Motor Sprit (MS) are stored in floating roof tanks under atmospheric conditions. The Storage tanks are provided with fittings like rimseals, gauge float wells, sample ports, deck drains and access hatches and becomes the sources of hydrocarbon vapour emissions released to the atmosphere. The net throughput and the annual turnovers of the fuel products and annual average meteorological conditions were considered to estimate the fugitive hydrocarbon emissions from the storage tanks using storage tank emissions calculation software. The emission losses from HSD, SKO and MS tanks is predicted to be 0.6 kg/d, 0.94 kg /d and 2.43 kg/d respectively from different tank fittings considered in the study and the emission rate per unit area of storage tanks is estimated to be 1.2 x 10^{-3} kg/d .m^2 , 4.1 x 10^{-3} kg/d .m^2 and 1.1 x 10^{-3} kg/d .m^2 respectively, revealing the hydrocarbon vapour losses are higher from MS fuel storage tanks due to high volatility, vapour pressure and other material properties.

Keywords: fugitive emission, storage tank, tank fittings, meteorological data, emission rate