Degradation of mechanically sorted organic fraction (MSOF) of municipal solid waste in composting facilities is among the major contributors of volatile compounds (VCs) generation and emission, causes nuisance problems and health risks on site as well as in the vicinages. The aim of current study was to determine the seasonal (summer and winter) variation and human health risk assessment of VCs in the ambient air of different processing units in MSOF at composting plant in China. Average concentration of VCs was 58.50 and 138.03 mg/m³ in summer and winter respectively. Oxygenated compounds were found to be the highest concentration (46.78–91.89 mg/m³) with ethyl alcohol as the major specie (43.90–85.31 mg/m³) in the two seasons respectively. Nevertheless, individual non-carcinogenic (Hazard relation i.e HR < 1) and carcinogenic risk (CR < 1.0E-04) of the quantified VCs were within acceptable limit except naphthalene at biofilter unit. In addition, cumulative non-carcinogenic risk exceeded from the threshold limit both in summers and winters in all units except at biofilter unit during winter. Furthermore cumulative carcinogenic risk also exceeded at same unit during the summer season. Therefore special attention should be made to minimize cumulative non-carcinogenic and carcinogenic risk as people are well exposed to mixture of compounds, not to individual.

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