Health and environmental risk assessment method of indoor air quality in metro systems based on a toxicity of PMs

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The indoor air quality management is on the rise because the time which people stay in indoor increase specifically in subway station. For that reason, the indoor air quality of subway station have to be managed for subway passenger and worker by management of air pollutants such as NO_X, CO, CO_2 and PMs. However, the chemical components of PMs are different in location of subway station and it can be connected to generate of toxic chemical. In this study, the methodology which can evaluate the PMs` toxic level is suggested for improved indoor air quality monitoring. LOAEL and $LC_{50}$ of chemical components of PMs is used for develop. Moreover, the QSAR model is developed for prediction of chemicals` unknown toxicity. Based on toxic standard, we suggest the comprehensive indoor air toxicity index (CIATI) and cumulative-CIATI (CCIATI) for evaluation of subway station` indoor air quality. This methodology can use to sensitive evaluation, check the ventilation time and reflect of geographical feature of subway stations. Acknowledgements: This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIP) (No.2015R1A2A2A11001120)