

**EMISSION FACTOR FOR HOUSEHOLD VOCs IN RAYONG PROVINCE, THAILAND**

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**ABSTRACT**

This study aimed to develop the emission factor of household VOCs. The emission factor and emission inventory of household chemical activity are developed taking into consideration local characteristics of the households in Thailand. Activities data in this study are collected in Rayong province. These data will serve and assist in developing the emission database under the Pollutant Release and Transfer Registration (PRTR) program for a non-point source emission estimation. Emission factors of NO<sub>x</sub>, based on amount of LPG usage per household per year are calculated for different size of household. These values are 142.20, 213.30 and 426.60 kg of NO<sub>x</sub> /1000 household/year for small, medium and large sizes of household, respectively. It is estimated that the total amount of NO<sub>x</sub> emissions from household's LPG cooking will be about 60.31 tons per year in Rayong province.

Four VOCs, listed under PRTR target chemical were estimated for their emission rate and amount of release per year. Emission factor of isopropyl alcohol from the use of cleaning product was 0.266 kg/1000 household/year. Emission factor of 1,4-Dichlorobenzene and naphthalene 234.046 kg/1000 household/year and 45.057 kg/1000 household/year, respectively. Emission factor of acetone from the use of nail cleaning product was 16.534 kg/1000 household/year. Emission amounts were estimated as 90.282 kg/year, 79,316.880 kg/year, 15,269.534 kg/year and 5,603.358 year for isopropyl alcohol, 1,4-Dichlorobenzene, naphthalene and acetone, respectively.

**KEY WORDS: OXIDE OF NITROGEN (NO<sub>x</sub>) / HOUSEHOLD / LIQUEFIED PETROLEUM GAS (LPG) / PRTR / HOUSEHOLD CHEMICALS**

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