

## PM<sub>10</sub> Concentration Emitted from Blasting and Crushing Processes of Limestone Mines in Saraburi Province, Thailand

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**Abstract :** This study aimed to investigate PM<sub>10</sub> emitted from different limestone mines in Saraburi province, Thailand. The blasting and crushing were the main processes selected for PM<sub>10</sub> sampling. PM<sub>10</sub> was collected in two mines including, a limestone mine for cement manufacturing (mine A) and a limestone mine for construction (mine B). The IMPACT samplers were used to collect PM<sub>10</sub>. At blasting, the points aligning with the upwind and downwind direction were assigned for the sampling. The ranges of PM<sub>10</sub> concentrations at mine A and B were 0.267-5.592 and 0.130-0.325 mg/m<sup>3</sup>, respectively, and the concentration at blasting from mine A was significantly higher than mine B (p < 0.05). During crushing at mine A, the PM<sub>10</sub> concentration with the range of 1.153-3.716 and 0.085-1.724 mg/m<sup>3</sup> at crusher and piles in respectively were observed whereas the PM<sub>10</sub> concentration measured at four sampling points in mine B, including secondary crusher, tertiary crusher, screening point, and piles, were ranged 1.032-16.529, 10.957-74.057, 0.655-4.956, and 0.169-1.699 mg/m<sup>3</sup>, respectively. The emission of PM<sub>10</sub> concentration at the crushing units was different in the ranges depending on types of machine, its operation, dust collection and control system, and environmental conditions.

**Keywords :** PM<sub>10</sub> concentration, limestone mines, blasting, crushing

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