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EVALUATION OF THE TRAFFIC AIR QUALITY BASED ON FUZZY COMPLEX MATTER ELEMENT METHOD AND ENTROPY WEIGHT

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Abstract

For a better evaluation of the impact of road traffic about air quality, this paper considers the development of a new evaluation index system and methods. They address the assessment of the air quality around the areas with an intense road traffic, according to Chinese standards considering sulfur dioxide index (SO₂), total suspended particles index (TSP), floating dust index (PM10), nitrogen oxides index (NO_x) and carbon monoxide index (CO). A systematic air quality evaluation model was established for air quality around traffic areas, by using fuzzy complex matter element method. Furthermore, the fuzzy complex was considered in classification of every index. The weight of each index was determined by integrating analytic hierarchy process (AHP) method and entropy method to consider data objectivity and classification subjectivity. Computation result shows that the maximum correlation degree of evaluated air area around a certain road is 0.6928 to the poor grade, and the second largest correlation degree is 0.1582 to the medium grade, which means that the state of evaluated road is poor closely to medium grade according to the principle of maximum correlation, and is fit with the actual situation. The result indicates that the evaluation index system and method applied in this study are feasible.

Key words: air quality standard, entropy weight, fuzzy complex matter element method

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