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INNOVATIVE MULTI-CRITERIA TECHNIQUES APPLIED TO THE ANALYSIS OF BTX IN THE ATMOSPHERE

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Benzene (B) is an air pollutant, which is dangerous for man's health because of its cytotoxic and mutagenic effects; its presence in the atmosphere, which is object of national and international laws, seems related to other aromatic substances, such as toluene (T) and xylene (X), with which it interacts synergistically. In this work we want to study the presence of BTX in the atmosphere of a high risk area, the industrial area of Priolo-Syracuse (Sicily, Italy), by analysing the hourly data monitored in the period of two years, their month and daily variations and the relations among the three substances. For this purpose, at first we used classic statistic analysis techniques in order to obtain a short description of the relationships among the considered variables; afterwards, we wanted to study in detail each variable's importance in the complex problem of pollutants concentrations. Therefore, we used modern methodologies such as the Rough Set Analysis, integrated by the application of the Shapely index. These modern instruments of multi-criteria analysis allow us to study this phenomenon in the depth. They also allow us to obtain easily comprehensible results. Therefore, such analysis techniques can be considered suitable for further studies aiming at the prevention of pollution.