

## FIELD VALIDATION OF PASSIVE SAMPLERS TO MEASURE NITROGEN DIOXIDE IN A MEDITERRANEAN COASTAL AREA

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The aim of this work is validate the Radiello® passive sampler to measure nitrogen dioxide in a Mediterranean Spanish coastal area which has an special interest due to the great number of NO<sub>2</sub> sources like an oil power plant, an oil refinery, chemical-factories and more than 300 tile and glaze factories. The area is also crossed by main roads. In the validation of the method precision, bias, accuracy, selectivity and detection limit, cost and applicability were considered. For assessing precision, co-located samplers were exposed in duplicate in two reference-sampling points, beside chemiluminescence NO<sub>2</sub> analyzer. As well, bias was calculated comparing results of passive samplers exposed in these two reference-sampling points with those results given by the reference analyzer. Accuracy was calculated following the NIOSH Manual Analytical Methods. Limit of detection was calculated as 3 times the standard deviation of blanks in a batch of passive samplers. Validation of passive samplers gives a precision of 6.0%, a bias of 14.8%, an accuracy of 22% and a LOD is 0.88 mg/m<sup>3</sup>. Selectivity of the method is of controversy due to likely interference of SO<sub>2</sub>, PAN, HNO<sub>2</sub> as well as meteorological variables. Cost and applicability is in both aspects successful. Nitrogen dioxide levels measured by means of passive sampler are comparable with those averaged values measured with the chemiluminescence analyzer with a correlation coefficient of 0.877. Authors are grateful to Ministerio Ciencia Tecnologia for financial support through the REN2002-04337-C02-01/CLI project. JM Delgado is grateful to the Generalitat Valenciana FPI grant.