

ICOPAL NOx-Activ® roofing membranes for better air quality : from laboratory to field efficiency assessment

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ICOPAL Group is European market leader for the development, production and sale of watertightness roofing membranes in building construction. Based on the evidence that millions of square meters are already installed on existing buildings, and 200 millions new square meters are installed every year in Europe, it came out that the profession could take the benefit of these very large areas to propose roofing membranes with primary watertightness function but with an additional air depollution feature. Air quality is still in focus, as stated recently in EEA's report showing that 11 EU members have exceeded their NO_x emission limits in 2010, so NO_x pollution is still a major health concern.

In the NOx-Activ® product, the depollution function is provided by anatase TiO₂ photocatalytic material introduced in the colouring treatment of mineral granules traditionally used for the protection of bituminous membranes towards UV. Thus NOxite® granules can easily be combined with bitumen substrate to make NOx-Activ® membranes.

The laboratory efficiency assessment of NOx-Activ® material towards NO_x destruction is presented according to different test methods, of which some using static (batch) or dynamic (flow) chamber. A special highlight is made about a comparison of ISO 22197-1 tests performed on the same material in different laboratories and showing high discrepancies on the final result.

In addition a modelling has been made as an extension of Exp'Air® software developed by ARIA Technologies and ITALCEMENTI for roads and facades by including roofs. This shows a contribution of NOx-Activ® membranes to the depollution of air in an urban environment.

In the end, an attempt for field efficiency assessment on a roof of Schiphol Airport, The Netherlands, is presented, showing how it is difficult to go from laboratory to reality.

NOx-Activ® roofing membranes have been introduced on the market end of 2009 and more than 600 000 square meters have already been installed all over Europe. Examples of realizations are presented.