Comparison of an inexpensive photodegradation system with high performance oxidation process

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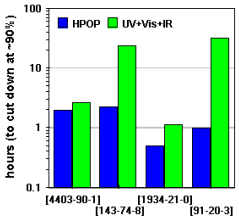
Several systems and methods for photodegradation of aqueous matrices such as industrial wastes, pharmaceuticals and urban wastewater are described in the literature. These systems seem to become ever more complex, increasing the efficiency of some steps but loosing ease of use and cheapness of the costs for the industrial installation and maintenance. The availability in our laboratory of a "high performance oxidation process" and the acquired experience in the field has brought us, in an European collaboration, to a comparison between this advanced system and a simple lab-made optimised photoreactor. Operating on 4 different molecules the level of degradation were estimated and the ratios of the operating time needed to obtain the same abatement degrees calculated. From Fig. 1 we can notice that the ratios are between 1/7 et 1/9 leaving us to conclude that the degradation by the more economic and simpler system occurs in industrially acceptable times.



1) Bellanti F., Castrucci M., Ruiu D., Visco G., Campanella L., Comparison of Catalytic Efficiency of Some Industrial Nanosized Titanium Dioxides in Heterogeneous Photodegradation by Chemometric Analysis, CMA4CH 2008 Meeting, 1-4 June Ventotene, Italy, ISBN: 978-88-7547-134-7