

## Photocatalytic degradation of organic water pollutants using Fe-containing natural and synthetic materials

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### Abstract

Catalytic activity of the silicon nitride and boron nitride, containing iron, and also natural zeolites and peat modified with iron in destruction of phenol, hydroquinone, formaldehyde and aniline in aqueous solutions was investigated. Optimal conditions: pH of solution, ratio of "composite-solution", additives concentration, duration of exposure to UV were estimated. It is shown that destruction of dissolved organic compounds at silicon or boron nitride composites most effective in presence of oxalate ions, but in case of peat and zeolites hydrogen peroxide required additionally. Investigated composites are sources of iron ions for Ruff-Fenton system in acidic conditions, and form ferric-oxalic-peroxide system in neutral and slightly alkaline media. Aniline is best destroyed by ozonation.