# Factors Influencing Catalytic Wet Peroxide Oxidation of Maleic Acid in Aqueous Phase over Copper/Micelle Templated Silica-3-Aminopropyltrimethoxysilane Catalyst.

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**Abstract**

Catalytic wet peroxide oxidation (cwpo) of initial maleic acid feed concentration (0.005 to 0.03 m) was carried out in a temperature range of 20-50°c, on micelle templated silica-3-aminopropyltrimethoxysilane (mts-amp) supported copper catalyst. The influence of various operating parameters such as initial feed concentration of maleic acid, temperature, catalyst loading and the stability of the catalyst were investigated. cwpo reactions were performed in a stirred batch reactor at an atmospheric pressure in the presence of h<sub>2</sub>o<sub>2</sub> as an oxidant. Total conversion of maleic acid into acetic acid was obtained under mild conditions (i.e. atmospheric pressure and 40°c). Blank experiments showed no measurable maleic acid conversion (i.e. only ~0.5% conversion of initial maleic acid), indicating that a significant oxidation reaction of maleic acid is enhanced by the presence of a catalyst. Copper on micelle templated silica-3-aminopropyltrimethoxysilane catalyst therefore was found to be suitable for aqueous phase oxidation of maleic acid with 100% of maleic acid conversion.