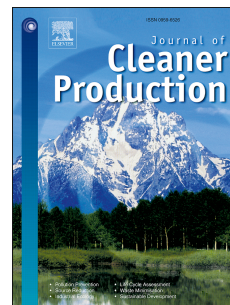


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## Cleaner production applied to urea-free printing of cotton fabrics using polyethylene glycol polymers as alternative additives

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### ABSTRACT

Urea plays an important role in the cotton fabric printing process as a dye solubilization and disaggregating agent. However, the using of urea can cause a series of environmental problems because of the high ammonia-nitrogen content in the printing effluent. Polyethylene glycol is a nonionic soluble polymer without nitrogen element. The printability of cotton fabric using polyethylene glycol with different molecular weight, PEG-400, PEG-800, PEG-1000, PEG-2000, as additives instead of urea in the reactive dye print paste was investigated. The intermolecular interaction between the polymer and reactive dye were discussed by the absorbance spectra. The color yield, dye fixation, building up, colorimetric data and fastness of the printed fabrics with polyethylene glycols as additives were evaluated. The results showed that PEG-400, PEG-800, PEG-1000 had better effect on increasing the solubility of the reactive dye. PEG-400 as an additive instead of urea could be applied in urea-free

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