

Penyisihan sianida dan chemical oxygen demand dari limbah cair industri tepung tapioka dengan teknik ozonasi adsorpsi menggunakan granular activated carbon = Removal of cyanide and chemical oxygen demand from tapioca starch industrial wastewater with ozonation adsorption using granular activated carbon

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Abstrak

Pada penelitian ini dilakukan penyisihan limbah sianida dan COD dari limbah cair industri tepung tapioka menggunakan teknik ozonasi adsorpsi dengan GAC. Efektivitas metode dievaluasi berdasarkan persentase degradasi sianida dan COD serta neraca massa ozon. Pengaruh metode degradasi, pH dan dosis ozon diamati menggunakan limbah sintetis yang mengandung sianida 30 ppm dan COD 1.000 ppm. Dengan menggunakan metode ozonasi adsorpsi pada pH 10 dan dosis ozon 303 mg/jam, 91,75% sianida dan 68,94% COD dari limbah sintetis berhasil didegradasi dalam waktu 1 jam. Limbah cair industri tapioka dengan konsentrasi sianida 8,5 ppm dan COD 4.625 ppm diolah dengan perlakuan serupa dan didapatkan hasil penyisihan sianida sebesar 87,06% dan penyisihan COD sebesar 43,23%.

*In this research, removal of cyanide and COD in tapioca starch wastewater by ozonation adsorption using GAC was examined. The method effectiveness is evaluated from percentage of cyanide and COD degradation and ozone mass balance. Effect of degradation method, pH and ozone dose was determined using synthetic wastewater with cyanide concentration of 30 ppm and COD concentration of 1.000 ppm. Using ozonation adsorption with pH 10 and ozone generation rate of 303 mg O<sub>3</sub>/h, 91,75% cyanide and 68,94% COD from synthetic wastewater was removed in 1 hour. Tapioca starch wastewater with cyanide concentration of 8,5 ppm and COD concentration of 4.625 ppm was treated using the same operating condition. Using this method, 87,06% cyanide and 43,23% COD was removed.*