Pengolahan lanjut limbah cair industri tekstil skala semi-pilot dengan teknik ozonasi katalitik = Textile effluent of tertiary treatment in semi pilot scale using catalytic ozonation technique

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Abstrak

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Penelitian ini bertujuan untuk mengurangi polutan dalam perairan yang salah satunya disebabkan oleh limbah cair tekstil dengan menggunakan teknik ozonasi katalitik. Digunakan UV254nm dan katalis GAC (Granular Carbon Active) batok kelapa serta batu bara yang akan meningkatkan prosentase penyisihan fenol dan turunannya dalam limbah cair industri tekstil. Perlakuan terbaik untuk penggunaan GAC batok kelapa adalah konfigurasi ozon+GAC100+UV dengan prosentase penyisihan fenol sebesar 95,87%, TOC 29,49% (dari 50,53 mg/L menjadi 35,6 mg/L), dan penyisihan COD 59,46% sedangkan ozon+GAC100 lebih rendah dengan penyisihan fenol sebesar 78,07%, TOC 13,39%, dan COD 58,97%. Sedangkan perlakuan terbaik untuk penggunaan GAC batu bara adalah konfigurasi ozon+GACC50+UV dengan prosentase penyisihan fenol sebesar 88,56%, TOC 32,52% (dari 50,53 mg/L menjadi 34,1 mg/L), dan penyisihan COD 59,63% sedangkan ozon+GACC50 lebih rendah dengan penyisihan fenol sebesar 78,07%, TOC 19,06%, dan COD 57,89%.
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ABSTRACT
The research goal is decreasing water pollution using catalytic ozonation technique because of textile effluent. Adding UV254nm with GAC (Granular Carbon Active) coconut and charcoal in configuration will increase percentage phenol elimination and derivate in textile effluent which got sedimentation tank (active sludge treatment). The result for GAC coconut is ozon+GAC100+UV configuration with percentage phenol elimination 95,87%, TOC 29,49% (from 50,53 mg/L into 35,6 mg/L), and COD 59,46%. In other hand, ozon+GAC100 configuration lower than adding UV with percentage phenol elimination 78,07%, TOC 13,39%, and COD 58,97%. another GAC (charcoal) had a best result is ozon+GACC50+UV with percentage phenol elimination 88,56%, TOC 32,52% (from 50,53 mg/L into 34,1 mg/L), and COD 59,63%. In the fact, without adding UV, ozon+GACC50 has less percentage phenol elimination 78,07%, TOC 19,06%, dan COD 57,89%.;The research goal is decreasing water pollution using catalytic ozonation technique because of textile effluent. Adding UV254nm with GAC (Granular Carbon Active) coconut and charcoal in configuration will increase percentage phenol elimination and derivate in textile effluent which got sedimentation tank (active sludge treatment). The result for GAC coconut is ozon+GAC100+UV configuration with percentage phenol elimination 95,87%, TOC 29,49% (from 50,53 mg/L into 35,6 mg/L), and COD 59,46%. In other hand, ozon+GAC100 configuration lower than adding UV with percentage phenol elimination 78,07%, TOC 13,39%, and COD 58,97%. another GAC (charcoal) had a best result is ozon+GACC50+UV with percentage phenol elimination 88,56%, TOC 32,52% (from 50,53 mg/L into 34,1 mg/L), and COD 59,63%. In the fact, without adding UV, ozon+GACC50 has less percentage phenol elimination 78,07%, TOC 19,06%, dan COD 57,89%.;The research goal is decreasing water pollution using catalytic ozonation technique because of textile effluent. Adding UV254nm with GAC (Granular Carbon

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