

BAB V

KESIMPULAN

Hidrogel selulosa/TiO₂ adalah polimer penyerap air berbahan dasar selulosa termodifikasi TiO₂ yang dapat menginisiasi degradasi senyawa organik khususnya zat pewarna tekstil. Polimer ini dapat dihasilkan dengan proses pencampuran selulosa dalam larutan NaOH/urea panas bersuhu 55°C lalu pelarutan larutan NaOH/urea dingin pada suhu -12°C, pencampuran TiO₂, dan penambahan *crosslinker* epiklorohidrin, dan pencetakan hidrogel selulosa/TiO₂. Pada tangki pencampur I, dilakukan proses pencampuran selulosa dalam larutan NaOH/urea dengan rasio NaOH:urea:selulosa:air adalah 7:12:7:74 dan penambahan TiO₂ dengan fraksi massa 0,0001. Desain alat ini berupa *turbine mixer* berdiameter 0,99 meter dan tinggi 1,44 meter dengan tebal 3/16 inch berbahan dasar SA-167 Grade 3 Tipe 316. Tangki pengaduk ini memiliki tutup atas dan tutup bawah setebal 3/16 inch dan menggunakan pengaduk jenis *high efficient three-blade impeller* berdiameter 0,48 meter, membutuhkan *power* sebesar 0,16 hP sebanyak 2 pengaduk selama 0,81 menit pengadukan. Jaket untuk pemanas membutuhkan 46,22 kg/jam uap air.

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