Water pollution in textile industry assignment

Reduction in the con. [amount of chemicals used thereby reducing their harmful effects. Reduction of waste concentration by recovery and reuse. Reduction of waste concentration by chemical substitution. Reduction of waste concentration by process modification. Segregation of effluent of each process. Devising suitable treatment for ultimate disposal, to meet the requirements. To explore the economics related to reuse of treated effluent.

Reduction in waste water volume Reducing the number of washing and use of hot water in washings Use of counter current washing Use of standing bath in dyeing Use of low Liquor Ratio systems Good house keeping and prevention of leakages and spillages (A reduction of 20- 40 % volume of wastewater generated is possible) Reduction in con. Amount of chemicals Optimum use is necessary, which is not always possible in textile processing industry Textile processing involves heterogeneous interactions between fiber material – solid and chemicals – liquid, solutions or emulsions.

Essential operations involved in Textile Processing : Maximum penetration of chemicals into fiber material to achieve desired interactions. Thorough removal of unused/unfixed chemicals and impurities from the textile material. Because of the heterogeneity of interaction, only limited absorption of various types of chemicals and coolants used for chemical processing onto the excite fiber materials is possible. Reduction of waste con. By recovery and reuse of Recovery of synthetic sizing agents from desiring bath and their reuse.

Recovery of wool grease in wool scouring by cracking, centrifuging or solvent extraction. Use of standing bath in dyeing, wherever possible. Finishing

leftover to be collected and reused for finishing of same sort later on after suitable adjustment. Possibility of reusing spent acids from carbonizing of PET/ Cotton blend. Recovery of caustic soda from memorizing wash water and its reuse after evaporation and concentration. Use of spent print pastes of different colors. Reduction of waste con. Y chemical substitution Use of CM and Polyvinyl Alcohol in place of starch and gelatin. (CM, papa-3% BODE, Water Pollution in Textile Industry By Sheehan_n (Mineral acids have Zero BODE and 60% COD of acetic acid) Use of synthetic detergent in place of soap (Synthetic detergent-BODE O – 22%; Soap-140% BODE) Use of mineral oil with nonionic emulsifier in place of traditional carding oil for woolens. (Carding oil-OHIO%BODE, Mineral Oil Zero BODE, Non-ionic emulsifier 20% BODE) Use of reactive color in place of traditional Vat and Kazoo colors.

Reactive dyes have very low BODE) Multifunctional reactive dyes for better fixation & less unfixed Use of non-ionic tessellate fatty alcohols and anionic polymerases in place of alkyl phenol tessellates Echo-friendly stabilizers, sequestrates Use of mineral acid in desiring Use of enzymes in various processes Substitution of sodium sullied for sulfur dyes Disperse-hydrocarbon carriers No or less kerosene in Pigment Printing Partial or complete replacement of printing gums by suitable emulsions Formaldehyde free cationic dye fixing agent, DEEMED, low formaldehyde Low salt dyes

Reduction of waste con. By process modification Use of Foam technology Use of transfer paper printing Combined processes Automatic dispensing Segregation of drain Many a times it is convenient to segregate the waste water of a particular textile wet process for efficient reuse/ recovery of chemicals or dyes. This leads to economy of the process. However it is

utmost necessary to have sufficient concentration of the chemical / dye in the waste water that can be economically recovered and put to reuse. If the concentration is too low or if the chemical is cheap, then this technique s ineffective.

Devising suitable treatment for ultimate disposal Depends on mode of discharge of effluent. Balance between the capital cost and running cost of treatment. If disposal is into public sewers, preliminary treatment (screening, grit removal and equalization) followed only by primary treatment with chemical coagulation, flocculation and sedimentation will be necessary. If disposal is directly to stream then primary and secondary treatment is necessary. If disposal is on the agriculture land, primary treatment followed by gypsum treatment for reduction of sodium will be necessary.