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Study of process techniques for Paper reprocessing unit

K.Jeyajothi and A.Kalaiarasi

Department of Chemical Engineering, Periyar Maniammai University, Vallam, Thanjavur-613403.

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ABSTRACT

Paper recycling plant is one in which waste paper is recycled to form a new product that is a recycled paper. In India there are vast number of paper recycling units are present that recycles waste paper to a useful writing papers, craft papers, tissue papers, chart papers, and some other paper items like paper bags, files etc. Periyar Paper Reprocessing Unit in Periyar Maniammai University. Here we described process as process techniques in waste to useful product.

Introduction

To study the process techniques industries with the production and supply in industry with the waste water emerging out of the paper industry and to study the quality checking of product and waste water. The process of waste paper recycling involves mixing used paper with water and chemicals to break it down. It is then chopped up and heated, which breaks it down further into strands of cellulose, a type of organic plant material; this resulting mixture is called pulp, or slurry. It is strained through screens, which remove any glue or plastic that may still be in the mixture then cleaned, de-inked, bleached, and mixed with water. Then it can be made into new recycled paper. Industrialized paper making has an effect on the environment both upstream and downstream (waste-disposal impacts).Today, 40% of paper pulp is created from wood (in most modern mills only 9-16% of pulp is made from pulp logs; the rest comes from waste wood that was traditionally burnt). Paper production accounts for about 35% of felled trees and represents 1.2% of the world's total economic output recycling one ton of newsprint saves about 1 ton of wood while recycling 1 ton of printing or copier paper saves, slightly more than 2 tons of wood[(11-15).] This is because pulping requires twice as much wood since it removes lignin to produce higher quality fibres than mechanical pulping processes. Relating tons of paper recycled to the number of trees not cut is meaningless, since tree size varies tremendously and is the major factor in how much paper can be made from how many trees. Trees raised specifically for pulp production account for 16% of world pulp production, old growth forests 9% and second- and third- and more generation forests account for the balance. In Periyar Maniammai University a paper recycling unit is present which is called as Periyar TBI Paper Reprocessing Unit, which recycles waste paper i.e., exam written paper to recycled paper where they transform waste paper to paper bags, office files, etc.As per the process in Periyar TBI Paper Reprocessing Unit There are five process here namely Hydro pulper, beating, refinery, paper making machine, finishing process.

Tele: 9751480554

E-mail address: jayaset@yahoo.com

Experimental Section

Hydropulper

The pulp making machine consist of an agitator. It is the capacity of 75Kg. In one batch process took in the 40Kg of paper is kept in it 10K g of water totally around as 50Kg and grinded to pulp. One day capacity in three batches is run the process. It is made in steel.raw material first entered in this hopper to make pulp in this operation. In this operation totally take the time 30minutes per batch after completing the process to directly feed to the beating operation.

Beating

Here half the quantity of pulp is sent to beater where 25Kg capacity of pulp is accept in this operation mixed with 400litre of water and beating process takes place. Here the pulp is nicely beated to form asa fine quantity of pulp and added small amount of additives.

For the finishing process of pulp alum is added which gives smoothness to pulp and improves the quality of paper to form and is known as very fine pulper process, completion the process to take 45 minutes per batch after end of the time move to refinery and paper making operation. It is made in concrete wall.

Refinery and Paper making machine

Here we use refinery as a two storage tank,each tank capacity is 30 Kg we store pulp before sending the paper making machine were pulp is rolled in between two rollers and made in to papers thus after made in to the paper the wet sheets are dried in the solar drier and made in to paper.

Calendaring and Finishing process

As a process of finishing process the paper which is fully dried by solar evaporation. The chart paper size to form in paper making machine after dried more un size the paper to form so in this paper to useful smooth size purpose is sent calendaring operation in this process having two roller at high pressure so that we get well finished paper in the process as a result. After completion of this process in per batch paper used 20 chart type paper, totally 5 minutes is take the process. Thus the finished paper is made in to paper files, paper bags etc.

Result and Discussion

We have paper recycling process for evaluated answer scripts with traceable additives as the part of green initiative in our campus and also waste minimization, reuse and recycling concept to adopt to successful to run the our reprocessing unit, this recycling process to make for innovative paper products for various uses.

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