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EFFECT OF ISOPROPYLALCOHOL FOUNTAIN SOLUTION ANDECO FRIENDLY
DAMPENING SOLUTION (UNITROL) FOR COST & WASTE REDUCTION; AND
QUALITY IMPROVEMENT
(A CASE STUDY OF “B.K. PRINT & PACK” HARIDWAR)

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Abstract

The aim of this study is to critically analyze the various aspects related with Eco Friendly Dampening Solution (Unitrol).This study was carried out at B.K Print & Pack, Haridwar. Printing is a Servicing Industry. It is an art, craft, science, & technology of reproduction of ‘n’ number of replicas with the help of a suitable Printing Process on the desired substrate and surface. It has an impact on everyone’s life. Printing is the second largest industry of India. We are basically providing services to the society; being overlapped by various branches of Education like Computers, Electronics, Manufacturing, Chemical, Electrical, Optical and, what not? It is impossible to imagine survival of human beings without Printing. Sir Johannes Gutenberg, Father of Printing, was declared as ‘Man of Millennium’ by Time magazine. And, Printing is declared as the ‘Greatest Invention of Millennium’ again, by Time magazine. Present era is meant for the ‘Survival of the Fittest’. And, this is where Printing has touched one and all. It is said that Printing had started with humanization. On a parallel track, it has an association with human lives till time.

I. INTRODUCTION

This study was carried out at B.K Print & Pack, Haridwar. The aim of this study is to critically analyze the various aspects related with Eco Friendly Dampening Solution (Unitrol).

II. RESEARCH OBJECTIVE

The main objective of this research is to study the consumption of IPA free product during printing on different machines. Therefore, if we use the IPA free fountain solution then overall cost will be reduced and quality will also be improved. The present study objective is thus, focused on eco friendly fountain solution that must have an effect on cost; and remains eco-friendly in “B.K Print & Pack” Haridwar.

III. RESEARCH METHODOLOGY

The whole study focuses on study of Eco Friendly Dampening Solution (UNITROL) during printing in different-different printing machine. The following methodology will be adopted during the study:

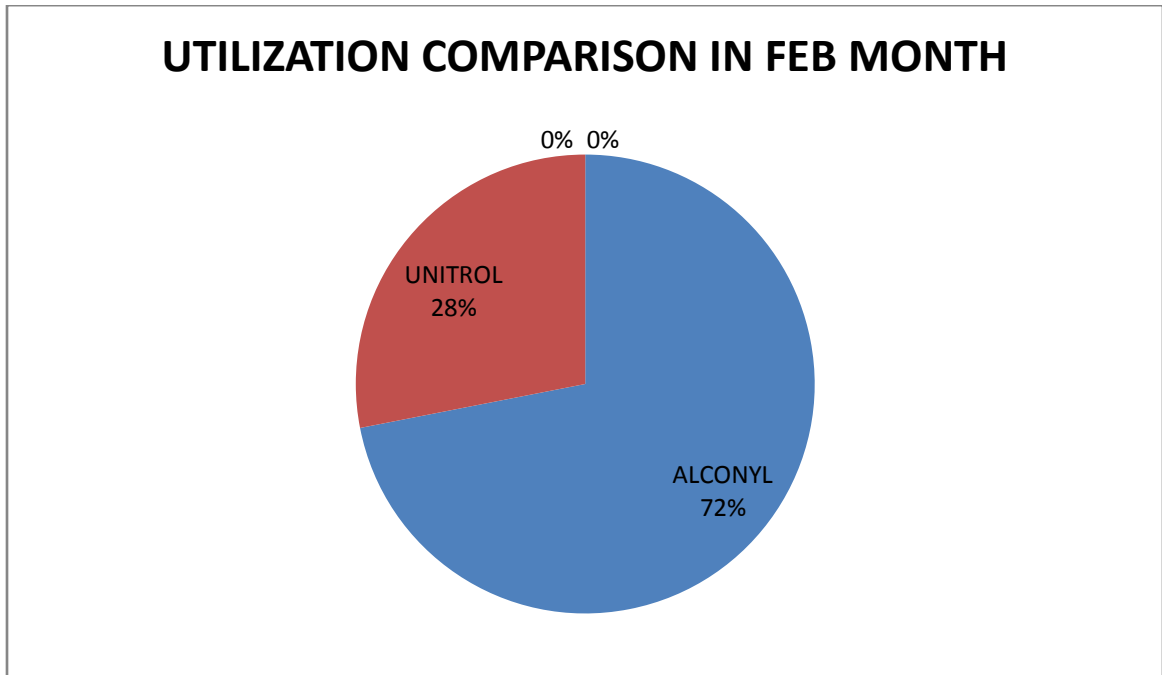
1. Study of dampening solution in a offset printing machine. Record daily consumption value, total cost saving in terms of money.
2. Daily consumption report of unitrol while printing machine working eight hours per day in ‘B.K Print & Pack” Haridwar. During project. Found that how many its environments friendly.
3. Data will be collect from different –different printing machine.
4. Daily PH, TDS and CONDUCTIVITY measured report will be maintain.

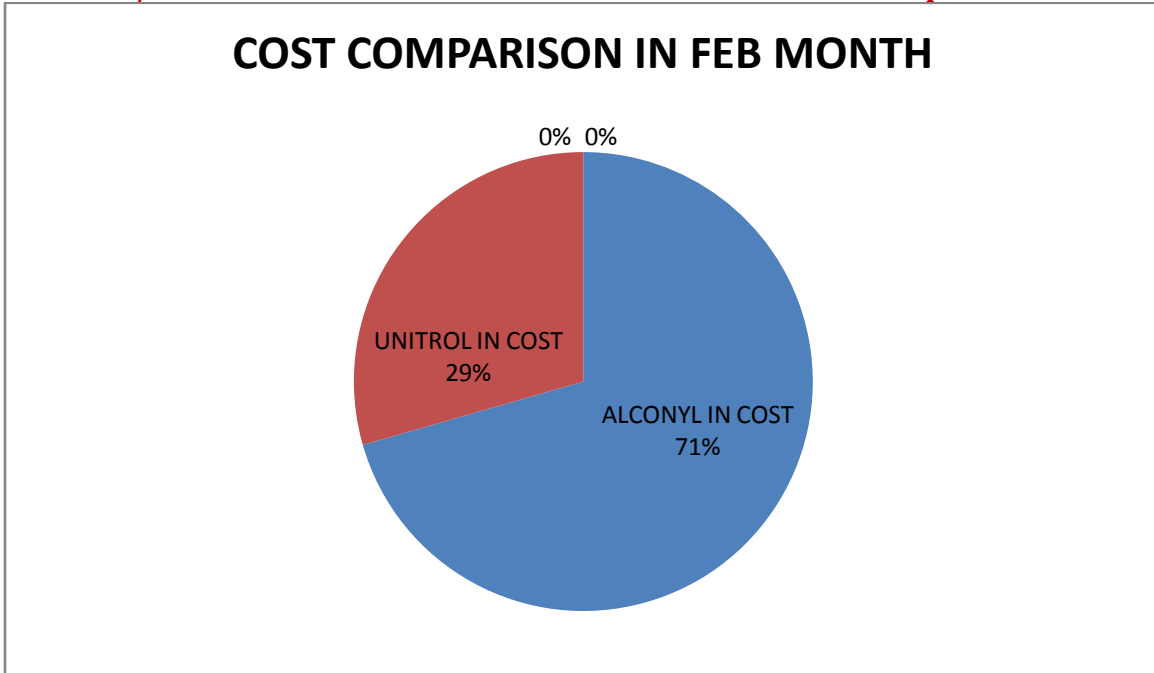
IV. DATA COLLECTION

B.K Print & Pack, Haridwar

Name of Machine	:	KOMORI
Machine Specification	:	5 colour + Coting section
Printing Size	:	28x40 inches
Change over time of job on machine	:	45 Min.
M/C Run	:	8 Hr

Table - DATA OF 5/c PRINTING MACHINE AT B.K PRINT & PACK” HARIDWAR FOR THE MONTH OF FEBRARURY, 2018



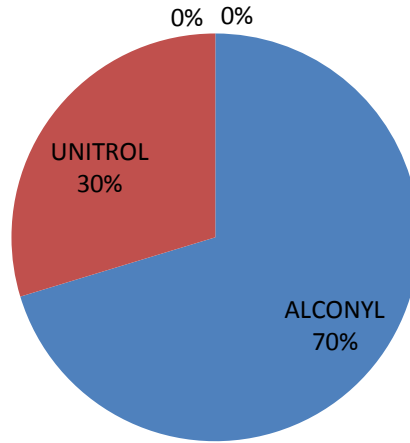


B.K PRINT & PACK, HARIDWAR

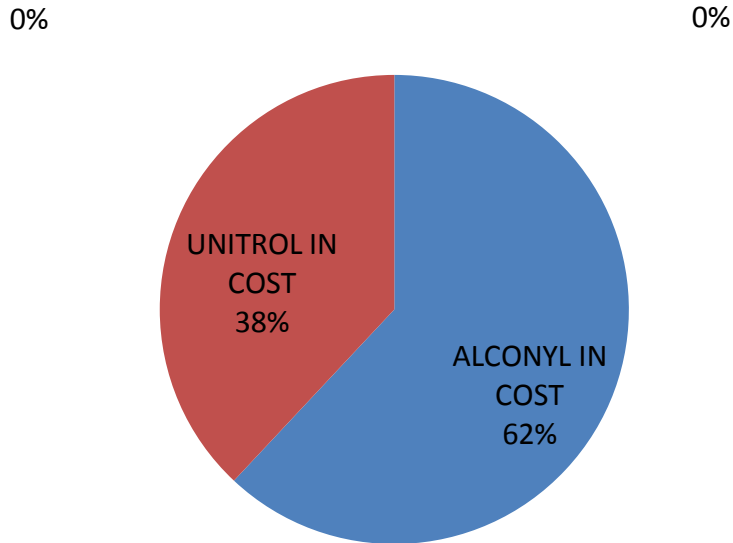
Name of Machine : KOMORI
Machine Specification : 6 colour + Coting section
Printing Size : 28x40 inches
Change over time of job on machine : 60 Min.
M/C Run : 8 Hr

Table - DATA OF 6/c PRINTING MACHINE AT B.K PRINT & PACK” HARIDWAR FOR THE MONTH OF MARCH, 2018

UTILIZATION COMPARISON IN MARCH MONTH



COST COMPARISON IN FEB MONTH



Observations :

We compare the IPA fountain solution and Unitrol fountain solution. These both fountain solution used in offset printing machine for non image area. We have done this case study in B.K PRINT & PACK, HARIDWAR

1. The difference of consumption ratio in both fountain solutions is very high.
2. The consumption of IPA fountain solution is more than unitrol fountain solution.
3. The evaporation of unitrol is less than IPA fountain solution.
4. The cost of unitrol is high but when we compare its consumption as per IPA then it is a cost saving fountain solution
5. The unitrol fountain solution is alcohol free.
6. The unitrol fountain solution is non evaporation product.
7. The unitrol fountain solution is Eco Friendly fountain solution.

To implement it properly we generate a check list in form of table to check the different factors before and after use of unitrol the cost saving and the consumptions of fountain solution. This will help us to reduce hazard fountain solution & to increase productivity with better quality and for generation of system for operating the machine with less wastage and achieving the desired quality level.

V. RESULTS & DISCUSSION

Table - DATA OF B.K PRINT & PACK” HARIDWARPRINTED SHEET ON DIFFERENT PRINTING MACHINE FOR THE MONTH OF February&March, 2018

ANALYSIS REPORT FOR USING CHEMICAL	
PROCEDURE FOR PROCESS CONTROL	
Purpose : To control chiller water pH, TDS and CONDUCTIVITY Scope : In general procedure most of printing units are using 8% ALCONYL with water for control pH, TDS and Conductivity, but ALCONYL is a petroleum base product. At the time of Circulation of water the part of Alcohol vapoured and mixes in environment. For that, we are using 4% UNITROL, this product is not alcoholic base product, There is no chance of polluted environment and also saving of cost. Procedure :- Standard for process are established 1) pH (2) TDS (3) Conductivity	

MIXING RATIO UNITROL IS DESCRIBED AS UNDER :

S. No.	WATER	UNITROL	STANDARD	
1	100 L	4 L	pH	4.5 to 5.5 +/- 5%
2	80 L	3.2 L	T D S	250 to 1200 +/- 5%
3	40 L	1.6 L	CONDUCTIVITY	500 to 2400 +/- 5%

MIXING RATIO ALCONYL IS DESCRIBED AS UNDER :

S. No.	WATER	ALCONYL	STANDARD	
1	100 L	9 L	pH	4.5-5.5+/- 5%
2	80 L	7.2L	T D S	250 to 1200 +/- 5%
3	40 L	3.6 L	CONDUCTIVITY	500 to 2400 +/- 5%

QUANTITY OF PRINTED SHEET & CHEMICAL CONSUMSION REPORT

MONTH	TOTAL PRINTED SHEET	NAME OF CHEMICAL	QUANTITY	RATE PER UNIT	TOTAL COST Rs.	COST SAVING IN A MONTH
FEB'2018	1691551	ALCONYL	77.5	177	13717.5	###
Mar'2018	1618184	UNITROL	36.5	257	9380.5	

TOTAL COST SAVING PER YEAR Rs. Appx. 52044

VI. CONCLUSION & FUTURE SCOPE

This research focuses on optimum utilization of fountain solution & waste reduction in fountain solution at “**B.K Print & Pack**” Haridwar. The observations made during the study will be incorporated in a checklist which will be in the form of table to check the different machine production and different fountain solution used. Various points in this check List will help to reduce the wastage of fountain solution&hence will improve the environment and cost saving.The studyhelps us to reduce the consumption and save the cost. And the unitrol fountain solution is eco-friendly fountain solution

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14. *Method Of Monitoring And/Or Controlling Dampening-Medium Feed In An Offset Printing Machine By: Helmut Kipphan, Gerhard Loffler*
15. *Method Of Supplying Or Feeding Dampening Solution By: Anton Rodi*
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17. *Method Of Monitoring Ink-Water Balance On A Lithographic Printing Press By : David Zelmanovic*
18. *Printing Fountain Solution By: Irwin B. Bernstein*
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