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COMPARATIVE ANALYSIS OF PRINT WASTAGE OCCURRING IN SHEET-FED
OFFSET PRINTING ORGANIZATIONS FOR CARTON BASED PACKAGING
APPLICATIONS

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ABSTRACT

Mono and liner cartons are widely used in packaging industry to pack a wide range of products like pharmaceutical cartons, agarbatti, coils, ghee, tea, milk powder etc. Objective of this research paper is to analyze and compare various causes of print wastage for mono and liner carton based packaging applications. Around 10 printed jobs of liner carton and mono carton each were examined for print wastage. Print wastage was majorly caused during printing and UV application in case of mono carton; on the other hand in case of liner carton major wastage is caused by printing and liner machine. Further, it was resulted that print wastage is significantly higher in case of liner carton.

KEYWORDS: Mono carton, Liner carton, Packaging, Carton, Sheet-fed offset, UV application.

1. INTRODUCTION

Packaging is a mean of securing the safe delivery of goods to the target customers. Mono and liner carton packaging is used for instance agarbatti packs in mono container and ghee and dry powder packs in liner container to shield inward pressed item from external condition. Printed containers additionally show profitable data: substance and promoting points of interest, weights and measures, subtle elements of the item's root and bar-coded data for estimating and stocking purposes. Containers are frequently essential bundling, i.e. bundling which achieves the customer straightforwardly.

Mono carton: mono containers printing and bundling industry, offering a total extent of Printed Mono Cartons for Pharmaceuticals, FMCG, Consumer Electronics and different ventures. Printed Mono Cartons are accessible with various details to fulfill the necessities and prerequisites of customers and offer containers to Pharmaceutical, FMCG, Consumer Durables and other development parts. make utilization of the most recent bleeding edge innovation for printing these mono-container boxes of various shapes and sizes in a plenty of alluring redid plans. Coordinating up the requests of the customers, give printing arrangements at practical costs. Bundling usage is high in a buyer driven market like India. Other than shopper products pharmaceuticals, IT, telecom and so on additionally require vast volumes of mono-containers.

Liner carton: liner containers printing and bundling industry, offering a total extent of Printed liner Cartons for tea, dairy items and different enterprises. Liner containers are container box with pocket/liner inside for Tea/Masalas/MilkPowder/Custard/Corn/Baking/Glucose Powder/and so forth. Additionally utilized for fluids like oil/ghee. A liner container is a collapsing container that has an inward defensive obstruction bundling of an Aluminum or paper liner. Suited for things that require opposition from direct contact with air, or things that are semi-fluid, for example, Ghee, Tea, Spices, liner containers shape the ideal bundling answer for shoppers. Moreover, they take advantage of the shopper mentality of a more secure and better ensured item.

Research Objective: Objectives of this research paper are:

- To find out degree of print wastage for mono and liner carton based packaging application.
- To compare various cause of print wastage for Mono and Liner carton based packaging application.

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2. RESEARCH METHODOLOGY

Materials for Mono Carton

For printing of mono carton, ink is manufactured by Siegwark India Pvt. Ltd. and Paperboard (gray back and white back) manufactured by Sidhartha and Khanna Paper Pvt Ltd. GSM of Paper board varies from 250 to 350 GSM.

Material used in Liner carton:

Ink manufactured by Siegwark India Pvt. Ltd. and Paperboard (gray back) manufactured by Sidhartha and Khanna Paper Pvt Ltd. GSM of Paper board varies from 250 to 350 GSM. And liner used in ghee cartons is 12micron metpet, 75 micron poly and liner used in masala is 12 micron metpet 40 gsm paper 60 gauge poly.

Machine used in manufacturing of Mono and Liner Carton:

Printing Machine: Heidelberg CD 102 7 color

Lamination machine: KDX

Die cutting machine: Bobst Novacut 106

Liner machine: Heiber Scrubber

Folding and Gluing machine: Bobst Vision Fold

3. DATA COLLECTION AND ANALYSIS

First month data

Carton type	Wastage
Mono Carton	3.65
Liner Carton	6.15

Second month data

Carton type	Wastage
Mono Carton	4
Liner Carton	6.4

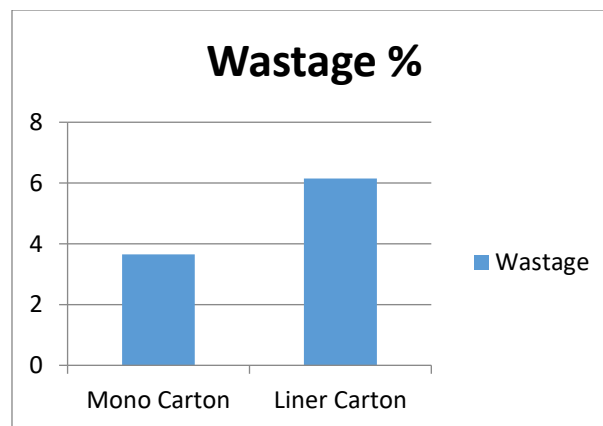


Fig.1. Comparative wastage % analysis for 1st month

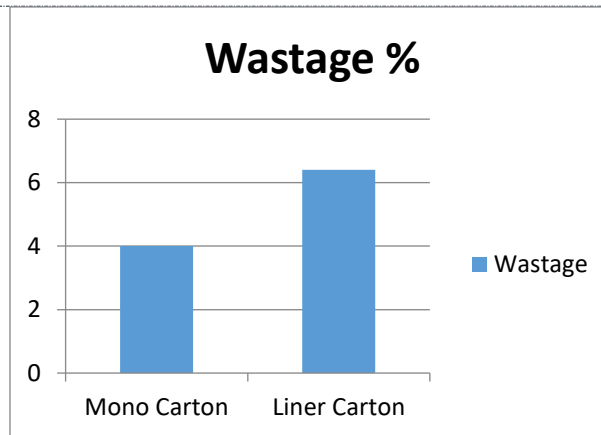


Fig.2. Comparative wastage % analysis for 2nd month

Causes of Print Wastage

In the case of mono carton, the major causes of wastage were printing wastage and cut and creasing wastage, out of which printing machine wastage was most influencing factor for causing print wastage as shown in table 1 & 3.

In the case of liner carton the major causes of wastage were printing wastage and cut and creasing wastage and liner machine wastage, out of which liner machine wastage was most influencing factor for causing wastage as shown in table 2 & 4.

Comparative print wastage analysis

Print wastage of mono and liner carton for first month was 3.65% and 6.15 % respectively.

Print wastage of mono and liner carton for second month was 4% and 6.4 % respectively.

4. Conclusions

- 1) Printing machine wastage was most influencing factor for causing wastage in mono carton.
- 2) Liner machine wastage was most influencing factor for causing wastage in liner carton.
- 3) Print wastage was found more in liner carton.
- 4) Extra wastage in liner carton was caused due to liner machine wastage.

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Table.1. Mono Carton Wastage analysis of first month

JOB NAME	UPS	SHEETS ISSUE	FG (SHEETS)	WAS TAG E (SHEETS)	SORTING WASTE (CTN)	LAM. WASTE %	PTG . WASTE %	H.F.S WASTE %	U.V WASTE %	C&C WASTE %	LINER WASTE %	F&G WASTE %	TOTAL WASTE %
Eye Drop 10ml	30	79343	78056.7	1286	4190	0.00	0.73	0.00	0.87	0.01	0.00	0.01	1.62
Sandal Dhoop Dispenser 10 Sticks	2	6299	6102.5	196	65	0.00	0.93	0.00	0.00	0.63	0.00	1.59	3.11
Loban Dhoop Dispenser 10 Sticks	2	3779	3607.5	172	15	0.00	2.97	0.00	0.00	1.61	0.00	0.01	4.54
MONOCARTON DANT KANTI NATURAL 500 GM(200	6	43058	41316.7	1741	215	0.00	0.91	0.35	0.67	0.04	0.00	2.13	4.04
MONOCARTON Giloy Juice 500 ml	6	17529	17090.0	439	500	0.00	1.19	0.00	0.03	0.03	0.00	1.27	2.50
MONOCARTON TULSI PAUCHANG JUICE 500 ML	6	17434	16648.0	786	54	0.00	3.52	0.00	0.24	0.02	0.00	0.76	4.51
Agarbatti Rose Stick Dispenser 20 gm	2	9900	9025.0	875	0	0.00	2.28	0.00	0.00	1.92	0.00	4.88	8.84
Agarbatti Sandal Stick Dispenser 20 gm	2	10050	9405.0	645	99	0.00	6.87	0.00	0.00	0.02	0.00	-0.50	6.42
Agarbatti Jasmine Stick Dispenser 20 gm	2	11125	10617.0	508	0	0.00	0.71	0.00	0.00	-0.91	0.00	4.75	4.57
Agarbatti Kewda Stick Dispenser 20 gm	2	10125	9151.0	974	0	0.00	5.85	0.00	0.00	1.02	0.00	3.02	9.62
		208642		7622									3.65%



Table.2. Liner Carton Wastage analysis of first month

JOB NAME	UPS	SHEETS ISSUE	FG (SHEETS)	WAST AGE (SHEETS)	SORT ING WAS TE (CTN)	LA M. WA STE %	PTG. WASTE %	H.F. S WA STE %	U.V WAS TE %	C& C WA ST E %	LINE R WAS TE %	F&G WA STE %	TO TAL WA STE %
Cow Ghee 1 Ltr	4	118903	111075.0	7828	10000	0.14	1.41	0.00	0.00	0.38	3.07	1.74	6.58
Cow Ghee 500 ml	9	28749	26444.4	2305	3000	0.46	3.12	0.00	0.00	0.10	1.78	2.79	8.02
Coriender Masala 100 gm	12	17500	16916.7	583	700	0.00	2.69	0.00	0.52	0.02	-0.07	0.20	3.33
Turmeric Masala 100 gm	12	17500	16826.7	673	500	0.00	2.13	0.00	0.04	0.46	0.32	0.94	3.85
Black Pepper Masala 100 gm	12	8750	8500.0	250	169	0.00	2.09	0.00	0.11	0.09	0.27	0.32	2.86
Fenugreek Masala 100 gm	12	8750	8376.7	373	0	0.00	2.33	0.00	0.61	0.19	0.52	0.68	4.27
Carom Seed Masala 100 gm	12	17500	16513.7	986	3000	0.00	1.45	0.00	0.98	0.04	1.78	1.51	5.64
Cumin Whole Masala 100 gm	12	17521	17083.3	438	451	0.00	1.06	0.00	0.22	0.13	0.51	0.59	2.50
Cow Ghee 1 Ltr	4	118903	111075.0	7828	10000	0.14	1.41	0.00	0.00	0.38	3.07	1.74	6.58
Cow Ghee 500 ml	9	28749	26444.4	2305	3000	0.46	3.12	0.00	0.00	0.10	1.78	2.79	8.02
		382825		2356	9								6.15 %



Table.3. Mono Carton Wastage Analysis of Second month

JOB NAME	UPS	SHEETS ISSUE	FG (SHEETS)	WASTAGE (SHEETS)	SORTING WASTE (CTN)	LAM. WASTE %	PTG. WASTE %	H.F.S WASTE %	U.V WASTE %	C&C WASTE %	LINE R WASTE %	F&G WASTE %	TOTAL WASTE %
Eye Drop 10ml	30	80000	78056.7	1943	4190	0.00	1.55	0.00	0.87	0.01	0.00	0.01	2.43
Sandal Dhoop Dispenser 10 Sticks	2	6400	6102.5	298	65	0.00	2.50	0.00	0.00	0.63	0.00	1.59	4.65
Loban Dhoop Dispenser 10 Sticks	2	3800	3607.5	193	15	0.00	3.50	0.00	0.00	1.61	0.00	0.01	5.07
MONOCARTON DANT KANTI NATURAL 500 GM(200	6	43000	41316.7	1683	215	0.00	0.77	0.35	0.67	0.04	0.00	2.13	3.91
MONOCARTON Giloy Juice 500 ml	6	17600	17090.0	510	500	0.00	1.59	0.00	0.03	0.03	0.00	1.27	2.90
MONOCARTON TULSI PAUCHANG JUICE 500 ML	6	17400	16648.0	752	54	0.00	3.33	0.00	0.24	0.02	0.00	0.76	4.32
Agarbatti Rose Stick Dispenser 20 gm	2	9915	9025.0	890	0	0.00	2.43	0.00	0.00	1.92	0.00	4.88	8.98
Agarbatti Sandal Stick Dispenser 20 gm	2	10050	9405.0	645	99	0.00	6.87	0.00	0.00	0.02	0.00	-0.50	6.42
Agarbatti Jasmine Stick Dispenser 20 gm	2	11100	10617.0	483	0	0.00	0.49	0.00	0.00	0.91	0.00	4.75	4.35
Agarbatti Kewda Stick Dispenser 20 gm	2	10150	9151.0	999	0	0.00	6.08	0.00	0.00	1.02	0.00	3.02	9.84
		209415		8396									4.0 %

Table.4. Liner Carton Wastage Analysis of Second Month

JOB NAME	UPS	SHEETS ISSUE	FG (SHEETS)	WASTAGE (SHEETS)	SORTING WASTE (CTN)	LA M. WASTE %	PTG. WASTE %	H.F. S WASTE %	U.V WASTE %	C& C WASTE %	LINE R WASTE %	F&G WASTE %	TO TAL WASTE %
Cow Ghee 1 Ltr	4	119000	111075.0	7925	10000	0.14	1.49	0.00	0.00	0.38	3.07	1.74	6.66
Cow Ghee 500 ml	9	28800	26444.4	2356	3000	0.64	3.12	0.00	0.00	0.10	1.78	2.79	8.18
Coriender Masala 100 gm	12	17600	16916.7	683	700	0.00	3.24	0.00	0.52	0.02	-0.07	0.20	3.88
Turmeric Masala 100 gm	12	17650	16826.7	823	500	0.00	2.96	0.00	0.04	0.46	0.32	0.94	4.66
Black Pepper Masala 100 gm	12	9000	8500.0	500	169	0.00	4.81	0.00	0.11	0.09	0.27	0.32	5.56
Fenugreek Masala 100 gm	12	8900	8376.7	523	0	0.00	3.98	0.00	0.61	0.19	0.52	0.68	5.88
Carom Seed Masala 100 gm	12	17600	16513.7	1086	3000	0.00	2.01	0.00	0.98	0.04	1.78	1.51	6.17
Cumin Whole Masala 100 gm	12	17700	17083.3	617	451	0.00	2.06	0.00	0.22	0.13	0.51	0.59	3.48
Cow Ghee 1 Ltr	4	119000	111075.0	7925	10000	0.14	1.49	0.00	0.00	0.38	3.07	1.74	6.66
Cow Ghee 500 ml	9	28800	26444.4	2356	3000	0.64	3.12	0.00	0.00	0.10	1.78	2.79	8.18
		384050		2479 4									6.46 %

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