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A SURVEY OF CONSUMER ATTITUDES TOWARD
DIAPER SERVICE PACKAGING

Thesis for the Degree of M. S.
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Douglas Novakoski
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ABSTRACT

SURVEY OF CONSUMER ATTITUDES TOWARD DIAPER SERVICE PACKAGING

by Douglas Novakoski

This thesis represents the first phase of a research project conducted for the National Institute of Diaper Services by the School of Packaging at Michigan State University. The goal of the overall project was the development of an efficient packaging system which would cope with both present and future needs of the diaper industry; specifically, members of the National Institute of Diaper Services.

The first phase of the study, concluded in this paper, was a study of customer attitudes toward the diaper services and their packaging.

A questionnaire was written and mailed to a representative sample of the National Institute of Diaper Service members for distribution among their customers. This questionnaire was written to determine customer attitudes about the diaper packaging and to identify the methods of packaging currently being used.

The results showed that the methods of packaging used by the diaper services were very satisfactory. The primary means of packaging was by plastic bag.

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DIAPER SERVICE PACKAGING**

By

Douglas Novakoski

A THESIS

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in partial fulfillment of the requirements
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INTRODUCTION

This thesis represents one phase of a research project conducted for the National Institute of Diaper Services by the School of Packaging at Michigan State University. The research was conducted under the multi-sponsor research program conducted by the School of Packaging. The author was employed by Dr. J. W. Goff, Director of the School of Packaging, to conduct the research study for the National Institute of Diaper Services.

The Institute is comprised of member diaper services who are engaged in the renting and cleaning of diapers. The Research and Development committee of the National Institute of Diaper Services is responsible for actively seeking new and better methods of improving not only the efficiency of diaper processing and service but also other aspects of the diaper service business. Packaging is included in the scope of its responsibilities.

The goal of the complete research program as established by Dr. Goff and the Research and Development committee was to develop an efficient packaging system, or systems, which would cope with both present and future needs of the diaper service industry.

This research was conducted within a three part framework: (1) to investigate customer attitudes regarding specific packages and packaging systems, (2) to study packaging practices as used by members of the National Institute of Diaper Services for the purpose of developing economically sound packaging improvements, and (3) to

specifically attack the problems of packaging varying quantities of diapers in a standardized package with a higher degree of user convenience and implied sterility. The first two phases of this research study have been completed to date by the author and this thesis is an analysis of the data gathered.

The nember services handle diapers exclusively and do not wash or clean articles of clothing that would be processed by a laundry. These services provide a hamper for soiled diapers and deliver clean diapers once a week as well as pick up the soiled to be cleaned. The diapers are counted at the diaper service, washed with special detergents, dried, folded, counted and delivered to the customer.

The following research paper discusses the development of the questionnaire used in the study to obtain information within the first two parts of the proposed agreement. The paper will include the results and conclusions from the analysis of the data.

CHAPTER I

EXPERIMENTAL PROCEDURE

Exploratory Research

Before a questionnaire could be intelligently constructed it was necessary to become familiar with the background and operation of diaper services. Institute member facilities were visited in Grand Rapids and Detroit, Michigan. These visits provided insight as to the operation of a small service (Grand Rapids) and a medium size (Detroit). Problems with packaging were discussed with the owners and production managers of these two operations. The discussions and subsequent visits to both diaper services during the construction of the questionnaire provided a background and familiarity with plant operations that allowed the author to construct a meaningful customer questionnaire.

Plant level operational requirements varied little, but methods differed significantly. Where one service would use automatic equipment the other would use manual equipment. Also, the views of management toward packaging and problem-solving were likewise varied and different.

From interviews with the management of these two Institute members it was determined that all the members of the National Institute of Diaper Services were equally diverse in operation and opinions

relating to packaging. It was also found that the majority of diaper services used plastic bags for packaging of the clean diapers and used the same bag, after removal of the diapers, to line the hamper used for the soiled diapers.

It should be noted that various means of gathering the data about customer attitudes toward packaging such as personal interviewing, telephone interviewing and mail questionnaires were explored carefully and it was decided that a mail questionnaire would be used. Telephone interviews were also conducted to verify and further substantiate the results obtained with the mail questionnaire.

Questionnaire Objectives

The primary objective of the questionnaire was to determine the attitudes of diaper service customers toward the methods of packaging currently being used for delivery of clean diapers, storage of soiled diapers in the home and pickup of the soiled diapers.

Secondary objectives of the questionnaire dealt with the gathering of data concerning customer orientation toward change of the current packaging and customer-family background.

Questionnaire Construction And Method

Library research indicated there were advantages and disadvantages of mailed questionnaires. Some of the more important ones are as follows:

Advantages:¹

1. Lower Cost (same) for everywhere in the country.
2. Letters reach a person whenever he picks up mail. Contact can be made with those people who are at home infrequently.
3.questions are in print and stated exactly the same in every questionnaire (personal interviewers may ask questions in a variety of ways).
4.person receiving questionnaire will be able to reply at his leisure.
5.respondent remains anonymous, inviting frank and honest answers.
6. No pressure or influence is exerted by the interviewer being present.

Disadvantages:¹

1. Low percent of returns.
2. Special mailing lists difficult to compile.
3. Low percentage replies may render low cost illusory.
4. The majority who reply are seldom representative of sample to which questionnaire is mailed.
5. The absence of an interviewer creates several drawbacks, unable to observe reactions, or see if respondent understands the questionnaire.
6. No control of time of return.

In a trial test conducted in Grand Rapids, Michigan, which will be discussed later, it was found that the advantages conclusively outweighed the disadvantages.

¹Luck, Wales and Taylor, Marketing Research, Prentice Hall, January, 1962. p. 125.

The questionnaire was constructed by the author in collaboration with Mr. David Olsson of Michigan State University and Mr. Ray Van Tainen of the National Institute of Diaper Services.

To be assured of obtaining valid responses to the questions, the author presented the proposed questionnaire on a personal interview basis to sixteen mothers using diaper service in Spartan Village which is a Michigan State University married housing complex. As expected, the interviews indicated that some revisions had to be made in word and structural clarity so that the questionnaire would elicit meaningful responses.

Next, it was decided to distribute copies of the revised questionnaire by mail to twenty customers of the Dy-Dee Wash in Grand Rapids, Michigan, as a field test to determine a percentage of return and again test the validity of the questionnaire. Analysis of the results showed the questions were obtaining the information to meet the objectives of the questionnaire. The return from this test mailing was 65 percent. Ten to 20 percent tends to be a normal return for the typical survey of the general public¹. Based on the high percentage of returns from Grand Rapids, a national return of 40 to 60 percent was predicted. The actual nationwide response achieved was 47 percent.

Satisfied that our questionnaire was valid and that a satisfactory return could be achieved, we directed our efforts toward distribution.

¹Luck, Wales and Taylor, Marketing Research, Prentice Hall, January, 1962. p. 125

Questionnaire Distribution And Sample Size Determination

In addition to library research, the advice of Dr. Erickson, director of the Bureau of Business and Economic Research at Michigan State University was sought.

Since a divergence of opinion was being measured by the questionnaire, the sample size was determined by a frequency of occurrence table. This sample size as indicated below was used to obtain a certainty of 95 percent in the results.

During the initial tests to determine the validity of the questionnaire such a distribution was obtained. Analysis of the Spartan Village test and the Grand Rapids test showed nearly 82 percent of the customers surveyed had a favorable attitude toward their diaper packaging and 18 percent did not. This dichotomy gave the frequency of occurrence that indicated a sample size of 246 customers would provide a 95 percent certainty, the maximum percentage points of error would be no greater than five percent.¹ As a further precaution, to be certain that the 246 customers needed to obtain this level of certainty were contacted, it was decided to oversample by one-third. This gave a total sample size of 328.

Because there are 65 National Institute of Diaper Service members in the United States, and they are evenly distributed among population centers, Dr. Erickson suggested that a random selection of fifteen to twenty of the member services would provide an adequate cross section of diaper service customers. The services were

¹Luck, Wales and Taylor, Marketing Research, Prentice Hall, January, 1962. p. 197.

assigned a number and sixteen services who were going to participate in the mail questionnaire were chosen with the aid of a random number table.

Even though valid results would be obtained with a sample size of 246, the Research and Development Committee of the Institute decided that 4,800 questionnaires would allow greater participation by the membership and thus would be a justification for the research being conducted by the School of Packaging. The Committee also suggested that distribution of the questionnaires be weighted according to the size of the diaper service participating.

Due to the difference in the number of customers among member diaper services, it was necessary to devise a way of distributing the questionnaires so a representative customer sample could be obtained. The Research and Development Committee wished to handle the distribution of the questionnaires and they developed a plan which involved distributing the questionnaires based on the number of customers per diaper service. For example: a small service (as defined by the Committee) probably received enough questionnaires so every sixth customer would receive one, every twelfth customer for a medium size service, and so on.

In order that cross tabulation of certain responses with the geographical location of the respondent might be made later, a four section breakdown by states as recommended by the Census of Business, published by the United States Department of Commerce was selected:

Northeast -- Maine, Vermont, New Hampshire, Massachusetts, Pennsylvania, Connecticut, Rhode Island, New York, and New Jersey.

North Central -- Wisconsin, Michigan, Illinois, Indiana, Ohio, Minnesota, North Dakota, South Dakota, Nebraska, Iowa, Missouri and Kansas.

South -- Maryland, Washington D.C., West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

West -- Montana, Idaho, Wyoming, Colorado, Utah, Nevada, Arizona, New Mexico, Washington, Oregon, and California.

The diaper services and number of questionnaires distributed are listed by area:

Northeast

Baby's Dy-Dee Service, Inc. Lancaster, Pennsylvania	700
--	-----

General Diaper Service Corporation Elmhurst, New York	1000
--	------

North Central

Dy-Dee Wash Detroit, Michigan	350
----------------------------------	-----

Dy-Dee Wash, Inc. Chicago, Illinois	350
--	-----

Dy-Dee Wash Grand Rapids, Michigan	150
---------------------------------------	-----

General Diaper Service Kansas City, Missouri	150
---	-----

South

Lullaby Diaper Service Atlanta, Georgia	200
--	-----

General Diaper Service Houston, Texas	100
--	-----

Dy-Dee Service, Inc. Nashville, Tennessee	150
--	-----

General Diaper Service New Orleans, Louisiana	150
--	-----

South (continued)

Alamo Diaper Service	200
San Antonio, Texas	
Baby Dy-Dee Service	150
Jacksonville, Florida	

West

Tidy-Didy Service	700
Long Beach, California	
Dy-Dee Service	150
Phoenix, Arizona	
Sparkle Diaper Service	100
Rialto, California	
Babyland Diaper Service	200
San Diego, California	

Telephone Interviews

The personal telephone interviews were chosen essentially to determine the validity of the responses in the mail questionnaire. They also had the advantage of measuring, in depth, the respondent's attitudes as recorded by the interviewer. It is not necessary to personally interview a large number of people. According to Dr. Erickson, "After a reasonable number have been contacted and their responses cease to vary, it is time to stop."

Based on the results of the preliminary sampling in Grand Rapids, where 82 percent indicated satisfaction and 18 percent did not, a sample size of 246 persons was needed for an acceptable level of confidence. We therefore took a one-third over sample to assure the minimum required. This brought the customer names needed to 328.

Sixteen services of the 65 were again randomly selected (one did not participate) who upon request sent us the names and addresses of 21 customers. These customers were notified by mail before the telephone interview was attempted. Several attempts were made to telephone without advance notice with results totally negative. A list of services participating in the telephone interview phase is as follows:

Northeast

Dy-Dee Service Inc.
Brockline, Massachusetts

General Diaper Service Corporation
Elmhurst, New York

Baby's Dy-Dee Service Inc.
Lancaster, Pennsylvania

South

Dy-Dee Service
Washington, D.C.

Mary MacIntosh Diaper Services
Miami, Florida

Piedmont Diaper Service
Spartanburg, South Carolina

Crystal Spring Dy-Dee Service
Roanoke, Virginia

Dy-Dee Supply Company
Winston-Salem, North Carolina

Nu-Dy-Per Baby Service
Baltimore, Maryland

Diaper Service, Incorporated
Pensacola, Florida

North Central

Dy-Dee Wash, Inc.
Detroit, Michigan

North Central (continued)

**General Diaper Service
Dayton, Ohio**

**Dy-Dee Wash
Milwaukee, Wisconsin**

West

**Baby's Valet Diaper Service, Inc.
Albuquerque, New Mexico**

**Tidee Didee Diaper Service
Sacramento, California**

While the interviews were being conducted, the results of the mail questionnaire showed that nationally over 93 percent of the people seemed satisfied with their service while less than seven percent were not. This distribution of responses reduced the sample size needed for personal interviews to 138 and still gave a 95 percent level of confidence in the results.

This trend, however, did not become apparent until most of the mail questionnaires had been returned. At this time 174 telephone interviews were complete. As the same trend appeared in the telephone interviews as appeared in the mail questionnaire, the telephone interviews were discontinued.

Questionnaire Sample

As previously explained, the questionnaire was distributed by the participating diaper services to their customers.

Table 1 - NIDS Questionnaire

1. Have you used diaper service previously? yes____ no____
 - a) If yes, for how many children? _____
 - b) How long have you used the diaper service for each child? _____
2. Why are you now using diaper service? (Check more than one if appropriate.)
 - _____ a) Convenience
 - _____ b) More sanitary
 - _____ c) Expectant parent class told you
 - _____ d) More economical
 - _____ e) Dislike washing used diapers
 - _____ f) More time for baby and family
 - _____ g) Protect baby from rash
 - _____ h) Other _____
3. How many deliveries do you receive each week? 1____, 2____
 - _____ a) Is this often enough?
 - _____ b) Too often
4. Are the deliveries convenient? yes____ no____
If not, please explain _____
5. Where or how do you store the clean diapers? (Check the appropriate answer.)
 - _____ a) Cupboard
 - _____ b) Shelves
 - _____ c) Baby dresser
 - _____ d) Bathinette
 - _____ e) Do you leave them in the package until used?
 - _____ f) Other; please explain _____
6. How are the diapers packaged when they arrive at your door? (Check more than one if appropriate.)
 - _____ a) Paper
 - _____ b) Plastic Bag
 - _____ c) Cloth Bag
 - _____ d) Other; please explain _____
7. Is this method of packaging all right? yes____ no____,
Or could it be improved? yes____ no____
8. Which of the following types of special packaging would appeal to you if available?
 - _____ a) "Kleenex" style (pop-up)
 - _____ b) Individually wrapped diapers
 - _____ c) In packages of (____), please indicate number in package
 - _____ d) Other _____
 - _____ e) None _____

9. Do you have any suggestions to improve the packaging of the diapers? yes_____ no_____. (If yes, please explain.)
10. Would you prefer the diapers delivered in: (Check more than one if appropriate.)
- _____ a) Plastic Bags
 - _____ b) Cloth Bags
 - _____ c) Paper Bags
 - _____ d) Paper tied with string
 - _____ e) Skin tight plastic (a plastic wrap sealed and shrunk around diapers)
 - _____ f) Other _____
11. Is there a convenient number of diapers that could be packaged so as to make the handling easier for you? yes_____ no_____
Such as 6, 10, 13, 20 or more? (If yes, circle one).
12. What type of container do you place the soiled diapers in?
- _____ a) Metal hamper
 - _____ b) Plastic bag
 - _____ c) Plastic bag and metal hamper
 - _____ d) Cloth bag and metal hamper
 - _____ e) Plastic bag and plastic hamper
13. What type of container would you prefer for the used diapers? (Check one)
- _____ a) Disposable hamper
 - _____ b) Plastic hamper
 - _____ c) Metal hamper
 - _____ d) Plastic bag and plastic hamper
 - _____ e) Plastic bag and metal hamper
 - _____ f) Cloth bag and metal hamper
 - _____ g) Other, please specify_____
14. What characteristics should the diaper package have? (Check more than one if appropriate.)
- _____ a) Clean
 - _____ b) Sanitary
 - _____ c) Clear (as a plastic bag)
 - _____ d) Protect the diapers
 - _____ e) Strong
 - _____ f) Easy to handle
 - _____ g) Eye appealing
 - _____ h) Easy to open
 - _____ i) Other _____
15. How much do you now (or did you) pay for the diaper service?
\$_____ per week.
- _____ a) Is this reasonable_____
 - _____ b) Very reasonable_____
 - _____ c) Unreasonable_____
16. Would you pay more for special packaging? yes_____ no_____

17. Is there any aspect of your diaper service or diaper packaging that you would like to see improved? If yes, please explain.

Table 2 - Letter Used To Introduce Questionnaire

Dear Diaper Service Customer:

Your diaper service has recommended you to take part in a national survey covering the packaging of diapers. The survey is being conducted under the supervision of the National Institute of Diaper Services of which your local diaper service is a member.

The Institute has retained the School of Packaging at Michigan State University to conduct this survey because of its background and knowledge in the field of packaging. The members of the Institute, with continuing effort to maintain the highest standards of customer service, would like your help.

Will you complete the questionnaire inside this folder as soon as possible and return it in the enclosed, pre-stamped envelope?

Your help is sincerely appreciated.

School of Packaging

Tabulation Plan

Due to the number of questionnaires distributed and cross tabulations of various questions, it was decided to utilize the services provided by the Computer Center at Michigan State University. The questionnaire was constructed to lend itself to tabulation on punch cards, and the responses from customers were thus recorded.

A program was available at the Computer Center for the Control Data 3600 computer that would tabulate and cross tabulate data that was recorded onto the punch cards.

CHAPTER II

QUESTIONNAIRE RETURN SUMMARY AND EVALUATION

Return Summary

Of the 4,800 questionnaires distributed by the sixteen diaper services, 2,300 were returned to the School of Packaging. This represents a return of 47 percent which is more than three times the expected response for a questionnaire of this type.

A normal response range is from ten to twenty percent and anything larger than this is quite out of the ordinary. Contributing to this success was the nature of the questionnaire and the excellent cooperation from the participating diaper services.

On the basis of a preliminary test in Grand Rapids, Michigan, where a 60 percent return was achieved, it was estimated that the national return would be between 40 and 60 percent. The 47 percent response obtained was more than the necessary sample size needed to have a high degree of confidence in the results as discussed earlier.

Of the 2,300 questionnaires returned, 2,262 were used in the analysis. Table 3 shows that the response was proportionate to the number of questionnaires sent out. The sample adequately covered the national attitude toward diaper packaging by concentration of diaper service customers.

The percent of return by area as contrasted to the number of questionnaires sent out is indicated in Table 3.

TABLE 3

Response To The Nationwide Questionnaire

<u>Sent Out</u>			<u>Returned</u>		
<u>Area</u>	<u>Number</u>	<u>Percent of Total Out</u>	<u>Area</u>	<u>Number</u>	<u>Percent of Total Returned</u>
North	1700	35.4	North	690	30.5
Central	1000	20.8	Central	438	19.3
South	950	19.8	South	523	23.2
West	<u>1150</u>	<u>24.0</u>	West	<u>608</u>	<u>26.9</u>
Total	4800	100.0	Total	2259	99.9*

* Note: Some of the questionnaires analyzed were not recorded as to area of the country.

Questionnaire Evaluation

It must be remembered that there is no perfect questionnaire nor is there a perfect method of questionnaire evaluation.

While every effort was made to develop this questionnaire for the best possible results, it was found that some revisions would be made if it were to be done again.

Question 7 would be reworded. The word "all right" does not necessarily elicit a positive answer. The answer "yes, my diaper

packages are all right," may connote, "yes, my diaper packages are all right until something better comes along."

Question 11 would be revised to read, "What number of diapers per unit package would make their handling easier for you (i.e., 6, 10, 13, 20, or more?) The yes or no structure would not be used.

Question 14, "What characteristics should a diaper package have?" was the key question concerning packaging. Following this question should have been the inquiry, "Which of these desirable characteristics does your packaging lack, to some degree at least?"

Based on the general responses to the questionnaire tried in Spartan Village at Michigan State University and the test conducted in Grand Rapids, Michigan, the responses to the national survey were as expected. For the majority of the respondents, it appeared the questionnaire was clearly worded and there was little difficulty in answering the questions.

CHAPTER III

QUESTIONNAIRE RESULTS

The results of the questionnaire are summarized here according to objectives of this phase of the research project and the specific questionnaire objectives. These objectives were: (1) to investigate customer attitudes regarding specific packages and packaging systems and (2) gather data concerning customer orientation toward changes in the current packaging. With these objectives in mind the questionnaire was broken down question by question. The cross tabulations follow each question summary.

Question One Summary

Question 1 was divided into three parts: (1) Have you used diaper service previously? (1)a. If yes, for how many children and (1)b. How long have you used the diaper service for each child? Tables 4, 5 and 6 show the results of the responses to the first question.

Table 4 shows that slightly more than 35 percent of the people who answered this question had used diaper service previously.

TABLE 4

<u>Have You Used The Diaper Service Previously?</u>			
	<u>Yes</u>	<u>No</u>	<u>Total</u>
Responses	815	1436	2251 [*]
Percent	36.2	63.8	100.0

^{*} 99.5 percent of the total sample.

Table 5 shows the number of children in the families who responded to this question. It is interesting to note that 50.7 percent had used diaper service for at least one child and 30.3 percent had used diaper service for two children. Eight hundred and fifteen, or 36 percent of the sample had used diaper service previously.

TABLE 5

<u>Number Of Children In Families Who Use Diaper Service</u>										
	<u>1</u>	<u>2[*]</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>Totals</u>
Responses	413	247	94	36	15	5	3	3	0	816 ^{**}
Percent	50.7	30.3	11.5	4.4	1.8	.6	.4	.2	0	100.0

^{*} Average number of children in the family who have used diaper service.

^{**} 36 percent of the total sample.

The last part of Question 1 concerned the length of time the diaper service was used for the children. It was necessary to divide the responses into a code in order for the data to be analyzed by the computer. This was accomplished by taking the range, which ran from less than one month to two years and six months, and dividing it into three month intervals. This gives a fine enough breakdown to sufficiently determine the length of time diaper service was used.

TABLE 6

Diaper Service Use In Months											
	1	2	3	4	5*	6	7	8	9	10	Totals
Responses	87	114	59	114	18	101	16	205	10	74	798
Percent	10.9	14.3	7.4	14.3	2.5	12.6	2.0	25.5	1.2	9.3	100.0

Key: 1 - 1-3 months 6 - 16-18 months
 2 - 4-6 months 7 - 19-21 months
 3 - 7-9 months 8 - 22-24 months
 4 - 10-12 months 9 - 25-27 months
 *5 - 13-15 months 10 - 28-30 months

*Thirteen to fifteen months was indicated as the average length of diaper service for the people sampled.

Analysis of this data shows that the diaper service was used an average of thirteen to fifteen months. This, however, is relevant only in that this figure gives the average length of diaper service for those people who have used diaper service previously for other children.

A number of correlations were made with Question 1. The first correlation relates Question 1 to Question 8, customer preference in special packaging.

Analysis of data showed little relationship between past diaper service usage and selection of specific types of new diaper packaging except that new users were more inclined toward new packaging ideas (i.e., Kleenex style) than were previous users.

Question 1 was also correlated with Question 9 to determine whether or not people who had used diaper services in the past had more suggestions for diaper package improvement than those who had not previously used the service.

Statistical analysis as performed by the computer showed there was a slight relationship between previous diaper service customers and suggestions for improved diaper packaging. Approximately twenty percent of those who responded to both questions and had used diaper service in the past indicated a need for package improvement. Fifteen percent of the people who had not used diaper service previously made suggestions for improvement. Apparently those who had used diaper service previously were more inclined to offer suggestions for improvement than those who had not used the service. This, however, is not a highly valid conclusion.

Question Two Summary

Question 2 asked, "Why are you using diaper service?" Eight reasons were listed and more than one could be chosen if appropriate. The answers most often chosen were, in order: convenience, more

sanitary, protect baby from rash, and more time for baby and family.

Table 7 shows the responses to Question 2.

TABLE 7

Reasons For Using The Diaper Service								
	1	2	3	4	5	6	7	8
Responses	2057	1193	22	418	535	999	1033	291
Percent	91.0*	52.7*	1.0	18.5	23.7	44.2*	45.7*	12.9
Key:								
	1 - Convenience				5 - Dislike Washing Diapers			
	2 - More Sanitary				6 - More Time for Baby and Family			
	3 - Expectant Parent Class				7 - Protect Baby from Rash			
	4 - More Economical				8 - Others			

* Most popular reasons for using the diaper service.

It is important to note that the three reasons which indicated most often related directly to the health of the child.

Included in the category "other" were those who received diaper service as a gift. This reason accounted for a large number of the twelve percent who answered the question. The telephone interviews of these respondents showed that the number of people was equally divided between those who were going to continue the service after the gift ran out and those who were going to discontinue the service. No definite reasons could be obtained for the discontinuation of the service.

Question Three Summary

Two thousand respondents received their diapers in deliveries made once-a-week and 259 received them twice each week. Of this number, 91.8 percent were satisfied with the number of deliveries made each week and 8.2 percent were not.

The telephone and mail survey both indicated that the majority of those who complained disliked the once-a-week delivery. This was especially true if more than one child was in diapers and a large number was being delivered.

TABLE 8

How Many Deliveries Do You Receive Each Week?			
	1 Delivery	2 Deliveries	Total
Responses	2000	259	2259*
Percent	88.5	11.5	100.0

* 99.9 percent of the total sample

TABLE 9

Is This Often Enough?			
	Yes	No	Total
Responses	1991	178	2169*
Percent	91.8	8.2	100.0

* 95.9 percent of the total sample

When the results were being hand tabulated before being submitted to the computer, it was found that very few people were answering the third part of Question 3. For convenience of analysis it was assumed that a yes or no answer to, "Is this (delivery) often enough?", gave us the same data. As a result, part three was not included in the computer analysis.

Question Four Summary

Question 4 asked whether or not deliveries were convenient. Of the 2,253 people who answered this question, 2,162, or 96 percent, indicated the deliveries were convenient. Of the four percent who were not satisfied with the deliveries, the majority disliked the day of delivery or the time of day the delivery was made. A few people indicated they were receiving deliveries after five p. m. and were not happy with this.

Some of the people mentioned that it was necessary to go to the diaper service to pick up their diapers if they happened to miss a delivery. However, the people who complained about the deliveries were in the minority. It appears that the one delivery per week is accepted by most diaper service customers.

TABLE 10

Are The Deliveries Convenient?			
	Yes	No	Total
Responses	2162	90	2253 *
Percent	96.0	4.0	100.0

* 99.9 percent of the total sample

Question Five Summary

Question 5 asked, "Where or how do you store your clean diapers?" Only 1,595 people answered this question. This represents 70.5 percent of the total sample analyzed.

The most popular place of storage for the clean diapers was a baby dresser which accounted for 41.5 percent of the sample, or 662 responses. The next was the bathinette which accounted for 33.9 percent. Shelves and cupboards accounted for 16.9 percent and 7.5 percent respectively.

Part (c) of Question 5 asks, "Do you leave them (the diapers) in the package until used?" Of the 1,035 persons answering this question 77.5 percent responded with "yes". We feel this is highly significant because it reinforces the emphasis placed on protection (Question 14) which relates to diaper package characteristics preferred. To this question 64.1 percent of the respondents indicated protection as an essential package characteristic even when they are stored.

Question Six Summary

Question 6 was used to determine the prevalence of the various forms of diaper packaging. The customer chose between paper, plastic bags, cloth bags and other means of packaging.

TABLE 11

<u>Prevalence Of Various Types Of Diaper Packaging</u>					
	Paper	Plastic Bags	Cloth Bags	Other	Total
Responses	344	1890	20	7	2261*
Percent	15.2	83.6	0.9	0.3	100

* 100 percent of the total sample

As Table 11 indicates, the most prevalent type of diaper packaging was a plastic bag. Of the 2,261 who answered the questionnaire, 83.6 percent received their diapers packaged in plastic bags, 15.2 percent packaged in paper and 0.9 percent packaged in cloth bags. The remaining 0.3 percent checked "other".

A number of cross-correlations were made to determine (1) if the customers were satisfied with the diaper packaging, (2) the relationship between the types of packaging received and suggestions for improvement on the packaging and (3) the popularity of various means of diaper packaging across the country.

TABLE 12

Question 6 Cross-tabulated With Question 7

Is The Present Method Of Packaging Satisfactory?							
Type of Packaging	Yes		No		Total		% of total usage
	No.	%	No.	%	No.	%	
Paper	276	85.45	47	14.55	323	100.0	14.82
Plastic Bag	1771	96.67	61	3.33	1832	100.0	84.04
Cloth Bag	15	78.95	4	21.05	19	100.0	.87
Other	5	83.33	1	16.67	6	100.0	<u>.28</u>
							100.0

Question 6 was then cross-tabulated with Question 9 to see if there was any relationship between the types of packaging received and suggestions for improvement on the packaging.

TABLE 13

Question 6 Cross-tabulated With Question 9

Do You Have Any Suggestions For Improving The Packaging?

Type of Packaging	Yes		No		Total		% of Total Usage
	No.	%	No.	%	No.	%	
Paper	71	22.90	239	77.10	310	100.0	14.80
Plastic Bag	282	16.03	1477	83.97	1759	100.0	84.00
Cloth Bag	4	22.22	14	77.78	18	100.0	.86
Other	2	28.57	5	71.43	7	100.0	<u>.33</u>
							100.0

A lower degree of relationship exists between these two variables than was found in the preceding tabulation (Table 12), but it should be noted that there is a higher degree of dissatisfaction with packaging, other than plastic bags.

Finally, Question 6 was cross-tabulated with Question 17 (Table 14). The three most prevalent packages in use were correlated with the four geographical areas of the Nation.

Note: Slight differences in percent figures between question summaries and cross correlations are a result of a fewer or greater number of people who answered one of the two questions being correlated.

TABLE 14

Question 6 Cross-tabulated With Question 17Which Types of Packaging Are Prevalent in
the Four Geographical Areas of the Country?

	<u>Northeast</u>	<u>South</u>	<u>North Central</u>	<u>West</u>	<u>Totals</u>
<u>Paper</u>					
<u>Responses</u>	114	46	172	10	342
<u>Percent Across</u>	33.33	13.45	50.29	2.92	100.0
<u>Percent Down</u>	16.55	10.53	32.89	1.64	15.15
<u>Plastic Bags</u>					
<u>Responses</u>	560	390	340	598	1888
<u>Percent Across</u>	29.66	20.66	18.01	31.67	100.0
<u>Percent down</u>	81.28	89.24	65.01	98.36	83.65
<u>Cloth Bags</u>					
<u>Responses</u>	11	0	9	0	20
<u>Percent Across</u>	55.00	00.00	45.00	0.0	100.0
<u>Percent Down</u>	1.60	00.00	1.72	0.0	.89
<u>Others</u>					
<u>Responses</u>	4	1	2	0	7
<u>Percent Across</u>	57.14	14.29	28.57	0.0	100.0
<u>Percent Down</u>	.58	.23	.38	0.0	.31
<u>Total</u>					
<u>Responses</u>	689	437	523	608	2257
<u>Percent Across</u>	30.53	19.36	23.17	26.94	100.0
<u>Percent Down</u>	100.0	100.0	100.0	100.0	100.0

Plastic was the predominant diaper package material in use across the country. A high degree of satisfaction with its use was also evident.

Question Seven Summary

Question 7 asked two questions: "Is this method of packaging all right? Or, could it be improved?" There were 2,181 responses to the first part of this question, or 96.4 percent of the people sampled.

As Table 15 indicates, 2,068 people were satisfied with the type of packaging they were receiving and 113 people indicated they were not satisfied.

Only 937 people answered the second part of the question, or 41.4 percent of the total sample analyzed. Responses to this part of the question were more evenly divided with 390 checking yes, it could be improved, and 547 checking no, it could not.

TABLE 15

Is This Method of Packaging All Right?			
	Yes	No	Total
Responses	2068	113	2181*
Percent	94.8	5.2	100.0

*96.4 percent of total sample

TABLE 16

Or. Could It Be Improved?			
	Yes	No	Total
Responses	390	547	937*
Percent	41.6	58.4	100.0

*41.4 percent of total sample

Question Eight Summary

Three suggestions for new packaging were included on the questionnaire to see if the people were receptive to new packaging ideas.

Only 65.3 percent answered this question. Telephone interviews indicated a similar disinterest in this question. This low response is probably not significant because the question demanded perception of an unfamiliar object.

The Kleenex style, pop-up was checked by 1,041 respondents. Bundles ranging from ten to twenty diapers was next with 399 checking this item. Only 36 of the total selected individually wrapped diapers and no one offered a different idea.

TABLE 17

New Packaging Ideas				
	Kleenex Style	Individually Wrapped	Bundles	Total
Responses	1041	36	399	1476
Percent	71.0	2.0	27.0	100.0

Question 8 was correlated with Question 16 which asks, "Would you pay more for special (new) packaging?"

No significant conclusions could be drawn from the data because the 65 percent response to Question 8 would not correlate with the high 97.1 response to Question 16.

Question Nine Summary

Question 9 asked, "Do you have any suggestions to improve the packaging of diapers?" Yes or no. If yes, please explain. Table 18 tabulates the responses.

TABLE 18

Suggestions For Improvement Of The Diaper Packaging			
	Yes	No	Total
Responses	359	1736	2095*
Percent	17.2	82.8	100.0

*92.7 percent of the total sample

Because a "yes" response required a written explanation, the low 17.2 figure may be deceiving for a variety of reasons. A summary of suggestions for the improvement of packaging is found in a later section, "Comments Most Often Made By Diaper Service Customers Relating To Improvement Of The Packaging Or The Diaper Service."

Question Ten Summary

To help determine what type of packaging the diaper service customer would prefer, Question 10 listed various combinations and types of packaging. Table 19 shows the response to various suggested types of packaging.

TABLE 19

Preferred Types Of Diaper Packaging							
	1	2	3	4	5	6	7
Responses	1609	77	83	23	112	197	2101*
Percent	76.6	3.7	4.0	1.1	5.3	9.4	100.0

Key:

1 - Plastic Bags	5 - Skin Tight Plastic
2 - Cloth Bags	6 - Other
3 - Paper Bags	7 - Totals
4 - Paper Tied With String	

* 92.9 percent of the total sample

Approximately nine percent chose "other" as a preferred package type. The majority of these responses related to using both skin-tight packaging and plastic bags. These were chosen as multiple answers to this question.

Question Eleven Summary

Question 11 was developed to help establish criteria for the development of new packaging ideas. Sixty-two percent indicated no preference for a specific number of diapers in the package.

Of the sample, 383 indicated that the most convenient number of diapers would be ten which accounted for 47.8 percent of the choices made. Next in order of preference was: 20 - 31.2 percent, 13 - 11.2 percent and 6 - 9.5 percent. The remaining one percent wished to have more than twenty diapers in the package.

Only one-third of the respondents suggested receiving their diapers in number count smaller than were now being delivered.

TABLE 20

Is There A Convenient Number Of Diapers?						
	Yes	No	Total			
Responses	791	1295	2086*			
Percent	37.9	62.1	100.0			

* 92.9 percent of the total sample

Per Package	6	10	13	20	Or More	Total
Responses	76	383	90	250	1	800*
Percent	9.5	47.8	11.2	31.2	.1	100.0

* 38.5 percent of the total sample

Question Twelve Summary

Question 12 asked what type of container was being used for soiled diapers. Nearly 93 percent indicated a plastic hamper lined with a plastic bag. Four percent indicated a metal hamper lined with a cloth bag.

There could be some doubt in the validity of the 93 percent figure. Previous to the telephone interviews, we were not aware of the fibreboard type of hamper and did not give it a place on the questionnaire. It is possible that some respondents checked plastic as the next thing to fibreboard.

TABLE 21

Soiled Diaper Containers Currently Being Used						
	1	2	3	4	5	Total
Responses	2	29	32	87	1980	2130*
Percent	.1	1.4	1.5	4.1	92.9	100.0

Key: 1 - Metal Hamper
 2 - Plastic Bag
 3 - Plastic Bag and Metal Hamper
 4 - Cloth Bag and Metal Hamper
 5 - Plastic Bag and Plastic Hamper

* 94.2 percent of the total sample

Question 12 was cross-tabulated with Question 13 to see if the current soiled diaper container satisfied the diaper customers.

Specifically, the cross-tabulation relates the current container with the type of container the customer would prefer.

An analysis of the tabulation indicated a strong correlation between the questions.

Of the 1,936 people who answered the two questions, 1,816 or 93.8 percent, currently use the combination of plastic bag and plastic diaper hamper; 3.46 percent use cloth bags and metal hampers. The remainder use a fibreboard hamper and plastic bag or a plastic bag and metal hamper.

The container preference of those currently using plastic bags and plastic containers for soiled diapers was analyzed closely. It was found that 13.82 percent would prefer a disposable hamper, 5.07 percent a plastic hamper only and .33 percent a metal hamper. Of those who currently have plastic bags and plastic hampers, 74.83 percent indicated satisfaction. The remaining 5.95 percent was divided as follows: 4.74 percent preferred a plastic bag and metal hamper and 1.21 percent preferred a cloth bag and metal hamper.

Question Thirteen Summary

The type of container most often preferred for soiled diapers was a plastic bag and plastic hamper; 70.5 percent chose this container and bag combination. Next in popularity was a disposable hamper for which 14.8 percent indicated preference. Least preferred was the metal hamper.

TABLE 22

What Type Of Container Would You Prefer For The Used Diapers?							
	1	2	3	4	5	6	Total
Responses	300	122	9	1430	119	46	2029*
Percent	14.8	6.0	.4	70.5	5.9	2.4	100.0

Key: 1 - Disposable Hamper
 2 - Plastic Hamper
 3 - Metal Hamper
 4 - Plastic Bag and Plastic Hamper
 5 - Plastic Bag and Metal Hamper
 6 - Cloth Bag and Metal Hamper

*89.4 percent of the total sample

Question Fourteen Summary

This question attempted to bring into focus the characteristics of a diaper package that the customer considered most important.

The respondents were to check all answers they felt were important. In order of importance, as determined by the customer response, desired characteristics were: (1) sanitary, (2) clean, (3) offer protection, (4) be easy to handle, (5) strong, (6) easy to open, (7) clear and (8) be eye appealing. Above all, the people want their diaper package to be sanitary, clean and offer protection. It is also significant, however, to note the strong response to the characteristics of easy to handle, strong and easy to open. A check beside any

Note: Slight differences in percent figures between question summaries and cross correlations are a result of a fewer or greater number of people who answered one of the two questions being correlated.

of these characteristics may indicate a negative dissatisfaction response. The emphasis on having a package which is easy to handle suggests that this is indeed an area where more convenience might be provided by reducing the number of diapers in an individual package.

The next characteristic mentioned was strength. This was brought into sharp focus by both the mail questionnaires and the personal interviews.

The major recommendation for improving the diaper packaging was to have plastic bags of stronger material. The bags were apparently strong enough for delivery of the diapers but, after being filled with a week's accumulation of soiled diapers, would not hold up when being removed from house to the truck.

The emphasis placed on having the diaper package easy to open again shows the importance of having a package that is convenient to handle. It relates to the type of closure used for sealing the containers after the diapers are placed in them. Many objected to tearing the route tag off in order to remove clean diapers and then being unable to reclose the bag. The need for a closure which will meet the demands of the service, yet will be easier and more convenient for opening and closing the diaper container, has to be considered carefully in developing a new package which is convenience oriented. Table 23 indicates the results of Question 14.

Question Fifteen Summary

Question 15 consisted of two parts. First, the cost of the diaper service per week to the customer and second, whether the cost

TABLE 23

Package Characteristics								
	1	2	3	4	5	6	7	8
Responses	1680	1847	826	1665	1450	1538	226	1434
Percent	74.3	81.7	36.5	73.6	64.1	68.0	10.0	63.4
Percent of All Responses to Question 14	15.8	17.4	7.7	15.6	13.6	14.4	2.1	13.4
Totals								10,666*

Key: 1 - Clean
 2 - Sanitary
 3 - Clear (as a plastic bag)
 4 - Protect the Diapers
 5 - Strong
 6 - Easy to Handle
 7 - Eye Appealing
 8 - Easy to Open

is considered reasonable. The objective of this question was to establish customer attitudes toward the cost of their diaper service. This data could be used in conjunction with Question 16 to interpret whether or not the average customer would be willing to pay more for special diaper packaging.

Initial analysis showed that the cost of diaper service ranged from \$1.50 per week to under \$4.50. Within this range, we found that increments of \$.50 gave an adequate separation of the costs. Table 24 gives the spread of the costs.

TABLE 24

	Price Per Week						Totals
	\$1.50	\$2.00	\$2.50	\$3.00	\$3.50	\$4.00	
Responses	21	173	574	749	364	291	2172*
Percent	1.0	8.0	26.4	34.5	16.8	13.4	100.0

* 96.0 percent of the total sample taken

The average cost paid by the diaper service customer across the country was \$3 per week. As Table 25 shows, 95 percent of those who use diaper service felt that the cost was reasonable or very reasonable. Only 5.1 percent who answered this question felt the cost of diaper service was unreasonable. Of those analyzed for this survey, 94.0 percent answered this question, so in this respect it is a representative and significant sample.

TABLE 25

Rating of Diaper Service Cost				
	Reasonable	Very Reasonable	Unreasonable	Total
Responses	1712	305	108	2125*
Percent	80.6	14.4	5.1	100.0

*94.0 percent of the total sample

It can be concluded that the majority of the people were satisfied with the cost of the diaper service.

Question Sixteen Summary

This question asked the customer whether or not he would pay more for special diaper packaging. Of the sample, 2,197 answered this question, or 97.1 percent. Of those who responded, 90 percent indicated they would not pay more for special packaging and ten percent indicated they would. Table 26 gives the results of Question 16.

TABLE 26

Would You Pay More For Special Packaging?			
	Yes	No	Total
Responses	239	1958	2197*
Percent	10.9	89.1	100.0

*97.1 percent of the total sample

Question Seventeen Summary

Question 17 asked for suggestions for improvements in the diaper service or diaper packaging. These suggestions are summarized on the following page.

Summary of Results

The analysis of the questionnaire has shown that the majority of the diaper service customers surveyed were satisfied with the packaging currently being used. It should be noted that a higher degree of satisfaction was indicated by those customers who were receiving their diapers in plastic bags as opposed to customers who were receiving diapers in other packaging materials, such as paper or cloth.

The suggestions made by diaper service customers centered around the following areas: (1) Package, (2) Diaper, (3) Hamper, (4) Odor, (5) Package Closure and (6) Other. The comments made by the customers are listed as follows:

1. Package

- Kleenex style pop-up is a good idea.
- Bundles of six or twelve are better than large amounts.
- Extra plastic bags are needed.
- Stronger plastic bags are needed.
- Small portable box for diapers.
- Dislike paper.

2. Diapers

- Dislike worn diapers.
- Want to be charged for diapers used; not original amount furnished.

2. Diapers (continued)

- Wish to receive correct count of diapers.
- Poor stacking of diapers makes them difficult to handle.
- Badly wrinkled diapers.
- More absorbant diapers.

3. Hamper

- Larger hamper necessary for once-a-week pickup.
- Disposable hamper needed.
- Air tight hamper.
- Tighter container for soiled diapers.
- Tighter closure on hamper.

4. Oder

- Stronger deoderant needed.
- Oder problem with the diaper hamper.
- Sanitize the plastic diaper hamper.

5. Package Closure

- Twist wire no good.
- Twist wire needed.
- Better means of closure on plastic bag needed.

6. Other

- Two deliveries are preferred.
- Dislike having soiled diapers around for a whole week.
- Wish to have a white plastic bag rather than a clear one.
- Plastic bags could cause suffocation of baby.
- Corrugated hamper appeared to do a satisfactory job.

6. Other (continued)

- Service should sell training pants and diapers.
- Sell diaper liners.
- One delivery fine, two pickups needed.
- Dislike late delivery after 5 p. m.
- Customer would like to tour the diaper facilities.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

General

Overall there was little variation in responses as to area of the United States as defined by the Bureau of Census. It is understandable that a greater number of responses would be obtained from the heavier populated areas of the country and for this reason the results might be biased. The author feels, although the sample concentrated on the more densely populated areas of the country, the representativeness and validity of the results is not threatened, as the concentration of diaper service customers corresponds to the population density.

As discussed in the question by question analysis of the questionnaire, the objectives of the questionnaire were reached. The principal objectives of determining consumer attitudes about current packaging and susceptibility to change can be summarized as follows:

- (1) Over 90 percent of the customers participating in the survey were satisfied with the type of packaging they were receiving.

- (2) New ideas of packaging such as a "Kleenex" style container where the diapers "pop-up" were favorably accepted, but the apparent dislike for any increase in cost being passed to the consumer had a negative effect on the reception of specific packaging change.

Review Of Dissatisfied Customer Attitudes

Question 7 asked two questions: Is this method of packaging all right? Yes or No; and Could it (the packaging) be improved? Yes or No. The questionnaires which indicated no to the first question, yes to the second, or did not answer the first part and indicated yes to the second part, were analyzed to see if any characteristics were peculiar to this group of people.

To determine what the customers specifically disliked about the present kind of packaging, a number of cross-tabulations were made. The first of these compared the type of packaging with suggestions for improvement.

Of the people who disliked plastic bags, two reasons occurred most frequently: (1) danger of suffocation with little children present, and (2) the bags were too thin and break easily.

From people who are dissatisfied with paper, the major complaint concerned crackling and noisiness which occurred when removing the diapers from the wrapper. A second complaint related to the relatively poor protection the paper provided if the diapers had to remain on the front porch for a period of time. If it happened to rain, etc., the customer usually had some wet or damp

diapers. Many customers found the paper ripped open or torn and this, too, was disliked.

The suggestion most often made by people who were dissatisfied by paper was to switch to a different means of packaging the diapers. For these customers, the main concern was the elimination of paper as a packaging material.

The next correlation concerned a comparison between the type of packaging now received and the characteristics that a diaper package should have. The objective of this cross-tabulation was to determine if any one favorable characteristic was mentioned frequently as being absent from packages being received. Then, those characteristics were compared with the overall response to Question 14 to see if there were any differences.

Percentage comparisons showed little difference between those who were satisfied and those who were not as far as the selection of desired package characteristics was concerned. The only difference noted was that those who were dissatisfied placed more emphasis on having a strong, easy-to-handle package than did the satisfied customers. Those who were dissatisfied placed ten percent less interest on having a package that was clear.

Many customers felt that one delivery service per week was inadequate. Once-a-week service caused an over accumulation of diapers for the hamper and caused serious odor problems. Many people suggested once-a-week delivery with twice-a-week pickup.

A significant number of people were not satisfied with the plastic diaper hamper now used because of the odor it retained even after scrubbing with a detergent. Many of them showed a

preference for a disposable hamper. This would help reduce odor associated with the soiled diaper container by allowing the disposable hamper to be used for a specified, short period of time.

A majority of the people who were dissatisfied placed emphasis on the strength of the package, ease of handling and ease of opening. This emphasis implies that many of the people may not be receiving their diapers in packages that meet these criteria. For a detailed analysis of the package characteristics people preferred, refer to the summary of Question 14, page 38.

The last correlation compared the area of the country with the type of packaging used and with complaints about diaper packaging. The correlation showed that complaints were of equal distribution for all sections of the country.

An interesting comparison was made between the type of packaging and the frequency of complaints. As shown in Table 12, there was a higher degree of dissatisfaction with people who currently receive paper or cloth packaging.

TABLE 27

Comparison Between Types of Packaging, Area of the Country and Complaints

	North	South	Central	West	Totals
PAPER					
No. Complaints	36	4	20	2	62
Total Response	144	46	172	10	372
Percent ratio, complaints to response	25.0	8.7	11.6	20.0	16.6
PLASTIC BAGS					
No. Complaints	39	22	18	30	109
Total Response	560	390	340	598	1888
Percent ratio, complaints to response	7.0	5.6	5.3	5.0	5.7
CLOTH BAGS					
No. Complaints	3	0	1	0	4
Total Response	11	0	9	0	20
Percent ratio, complaints to response	27.2	0	11.0	0	20.0
OTHER					
No. Complaints	1	0	1	0	2
Total Response	4	1	2	0	7
Percent ratio, complaints to response	25.0	0	50.0	0	28.6
TOTAL					
No. Complaints	79	26	40	32	177
Total Response	689	437	523	608	2257
Percent complaints to total	11.5	6.0	7.6	5.3	7.8

Recommendations

The author believes that the best contribution to the cloth diaper industry can be made through improvement of the packaging materials being used now. Specifically, the polyethylene bag, which has a high degree of user satisfaction could be improved. Although the bag performs well in holding both clean and soiled diapers it has a few characteristics which, if improved, would increase its value to the customer. These characteristics are: (1) the bags tend to tear easily, (2) odors from soiled diapers pass through thin gauge polyethylene film with little or no difficulty and are retained by the plastic hamper, and (3) the bags currently being used are clear and customers as surveyed indicated that opaque bags would be better.

There are plastic films available on the market today which do not have the undesirable characteristics listed above. Bags of these materials can be obtained with only a slight increase in cost to the diaper services. The use of these films would eliminate the three problem areas and improve customer-diaper service relations. The plastic films suggested are polypropylene or saran combination films which (1) can stop odor transmission, (2) give added strength to thin gauge plastic bags and (3) can not only be opaque but come in six colors.

Cost of the diaper service as viewed by the customer is considered reasonable; but, as indicated in Question 16, when the

respondents were asked if they would pay more for special packaging, 90 percent said they would not. For this reason, it was suggested that the plastic bags be modified or changed. It is in this area that maximum improvement in packaging can be made with a minimum increase in cost. The benefits of using a stronger, attractively colored, odor-proof bag can be easily discerned by the customer as soon as the change is made.

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