



## **Investigating the relationship between package components and consumer behavior of Sulfur in Ilam gas refinery**

**Mehdi Mohammadi\*, Seyed Reza Hassani**

Department of Management, Kermanshah Branch, Islamic Azad University,  
Kermanshah, Iran

\*E-mail address: [Mehdi.mohammadi77@yahoo.com](mailto:Mehdi.mohammadi77@yahoo.com)

### **ABSTRACT**

This study was done to investigate the effect of packaging components on consumer behavior of sulfur in Ilam's gas refinery. Statistical population of this study was 144 experts and managers of gas Refinery Company of Ilam. By using available simple random sampling, a sample of 105 participants was chosen, based on Cochran method. The aim of present study is practical and the data collection was descriptive and of metrical kind. The questionnaire was used to collect data and to confirm the validity of the questionnaire, experts' ideas were applied and SPSS software was used to assess its reliability. Cronbach Alpha of the packaging component questionnaire was more than 0.7, indicating high reliability. To analyze data, SPSS and single sample T-test were used. The results suggest that packaging components (size, form, shape, material, color, and trademark) have a significant effect on consumer behaviors of Sulfur products.

**Keywords:** Packaging; Packaging components; Consumer behavior

### **Introduction**

In today's world trade perceiving the consumers' behavior and recognizing important attributes of product which have a role in their decision-making, are considered the main

focus of marketing strategy of any organization. Consumer behavior refers to pre-purchase, in purchase and post-purchase behaviors that a consumer manifests. To analyze the consumer's behavior in depth, one of the main issues that should be studied is factors affecting these behaviors. Generally, consumers' behavior may be influenced by several different factors. Consumers' behavior experts classify these factors into three types; namely, social, situational and marketing (Peter & Donnelly, 1998). Social environment including culture, social class, and reference groups; situation of consumption like consumption field, time pressure, individual feelings, and buying attitude and each of the combinational components of marketing such as product, price, promotion and distribution may affect consumer behavior in different ways (Kongsompong, 2006). Meanwhile, product impact on consumer behaviors is of special importance. Many of the products attributes of different companies like trademark, quality, newness, and complexity may affect consumer behaviors.

Review of related literature about products show that traditional analyses were only focused on intrinsic attributes of the product. This approach does not meet the requirements of the current ever changing market, while consumers are affected by at various levels of the products (Enneking et al, 2007). In the literature of packaging, marketing is regarded as part of product and brand, although, experts may express their own particular ideas; for example, Evans and Bellman (1992) considered packaging as an attribute of product while, Olson and Jackobi (1972) regard packaging as an extrinsic product attribute, meaning that, although packaging is an attribute related to the product, it is not part of its physical entity (Ampuero and Villa, 2005).

Kotler and Armstrong (2006) believe that packaging consist of all design activities of a container or covering for a product which has three main functions: protecting the packaged content, providing information and distinguishing a product from other brands by attracting the attention of the consumers. According to Rundh (2009) packaging attracts the attention of customers to a special kind of product and besides increasing mental images; it may affect the customers feeling about the product. Moreover, packaging gives a unique value to the products and serves as a tool to recognize and distinguish; that is, it helps the customers to select a product from wide varieties of similar products. It also motivates the customers to adopt and select purchasing behavior. Therefore, packaging has an important role in marketing communication and can be regarded as one of the most effective factors that influence consumers' behavior.

Analysis of researchers' findings shows that there is no consensus on classifying packaging components as well as ways of packaging effects in consumers' behaviors. Some of the researchers try to investigate all potential packaging components and their effects on consumer behavior. Additionally, the number of scientific findings on this issue does not provide the same solution on effective packaging component in consumer behavior. The various findings in this area depend on both developed research design and research area of interest. All the aforementioned points show that more research on this issue is required. Due to these unknown aspects, the question raised here is, which components of packaging have the most effect on consumer behavior.

### **Theoretical basics**

**Packing:** Packing of a product is meant any container or pack in which the product is supplied for sale in the market or whereby the necessary information regarding the product is

communicated to the buyer (Roosta, 2011). Packing includes expansion of a container and some graphic scheme for a product. A pack is an indispensable part of a product that causes it to have more flexibility, to be safer and easy-to-use. A pack like a trademark could affect the attitudes of the clients in connection with the products (William, 1997). Cutler (2005) considered components of packing as being size, form, shape, material, color and trade name. Packing denotes creation of a hold which guarantees the health of goods and that which is there from the stage of production to the stage of consumption and one that helps sale.

William and Ampiro (2007) have introduced two distinct categories of elements: graphical elements including (color, typography, shape used and pictures) and structural elements (shape, size of the pack, and the kind of material used). One has to pay attention that these two categories do not involve verbal categories like the categorization by Smith and Taylor (2004). Retie and Braver (2000), while emphasizing on the importance of proper situation of packing elements have classified these elements into two groups: Verbal (e.g. advertisement motto), visual (e.g. picture attraction).

Similarly, RotheKion et al., while analyzing decision making process have placed its relevant elements into two groups: non-verbal elements (color, shape, size, picture, designing, genus (material) and smell) and verbal elements (product name, trade name, producer/Country, information and the instruction to use). Their research consists of the brand as a verbal element whereas for instance, Kler (2033) considers packing as one of the five elements of brand along with name, brand, graphical symbol, personality and motto (Kaite, 2009).

In recent researches undertaken by Silawi and Space (2007), the impacts of packing on purchase decisions of the buyer given two variables of level of purchase engagement and temporal pressures when buying products has been investigated. In this study, these researchers have begun classifying packing elements into two visual elements (non-verbal) and information based elements (verbal) categories where each of the these factors have been comprise of various components. According to the model they have presented, packing factors include size, color, designing, and shape of packing as well as information factors include information set forth on packing and the type of packing (technique of used in creating it) (Firoozban, 2010).

### **Consumer's behavior**

Consumer's behavior refers to studying all processes of selection, use, setting aside of the products and services, experiences or ideas by people, groups and organizations for satisfaction of needs and also investigating the impacts of these processes on then clients and the society as a whole; in other words, consuming behavior includes asset of mental and physical processes that starts prior to the purchase and continues after the consumption. Consumer's behavior is referred to as studying what people purchase and what they buy and why they buy?

To McDaniel, consumer's behavior denotes the explanation of the quality of decision making o the consumers' purchase and the way goods and services purchased are used. Salmon expresses his own mentality as follows: consumer's behavior with the aim of satisfaction of needs and wants of various groups and people addressees processes affecting the time of selection of purchase and using products, services, ideas and experiences (Lashkari et al. 2006).

The behavior of each client in the market is complicated and is dependent on measures adopted by firms and relevant reaction from the clients. From another perspective, client's interaction in the market is so important; this need encourages us to have emphasis and interaction with high perception for zooming on client's incentives and their decision making in individual levels. There are always two mechanism for supplying and preparing gin the market.

The first character of the mechanism is the price at which the good has been sold to then client; though low process can reveal a competitive market, customers might not properly react to price variations in a strategic mode. The second mechanism in the market depends on supply and demand. There is rich literature in this regard. Auction designing could have considerable impacts on the decision; even the smallest change in auction related rules could create critical repercussions (Zou et al. 2007). To accurately understand behavioral changes of consumers, scholars have looked at this category from three angles:

- 1- Economy
- 2- Psychology
- 3- Sociology

Sociologists have undertaken large researches in each of the mentioned areas so that it become evident what behavioral factors cause people to purchase a special kind of goods and services and to avoid purchasing some others. Economists, have stated the motive for consumption, generating demand by itself as the main pivot of analyzes and have investigated relations o purchaser's behavior with certain economic factors (e.g. per capita income, income distribution, income used by people and their properties).

Psychologists have focused on purchasers' behavior in a theoretical framework and concepts of learning, individual motivations which pave the way for purchasers' behaviors, influence and dominance of individual needs and their effects on the behavior of purchasers and finally the cognitive perception the consumer will find from the goods and services. In their analysis, sociologists have paid attention to influence of group behavior on the person's behavior, impacts of the individual's behavior on the group, dissemination of thoughts in the area of a kind of good being pervasive among various social groups, and others. (Nabizade, 1998).

Decision making purchase process can be controlled or uncontrolled as affected by two classes of factors, most important of which are: social-cultural and group factors, individual and mental factors and situational factors as well as factors related with blended marketing. Situational impacts affect stability of behavioral attitude and shaping people.

We need to identify situational factors which are motivated for control and production and perceive their impacts; environmental components which raise social prestige will strengthen self-belief feedback performance and they are major determinants of the client's positive behavior. In open shops, there are several reactions appropriate for the client who are unduly reserved and in closed shops, the client does not have this reservation and decides with the agents' behavior. Therefore, the area of purchase will reflect the level of the client's behavior directed at the verification of behavioral pattern on the part of the latter (Lashkari et al. 2006).

## **Research background**

In a study Bahraini et al (2013) investigated the effect of packaging on the behavior of food consumers from the perspective of chain store customers of Boshehr (southern Iran). The results show that all respondents (100%) believe that the quality of product packaging influence the behavior of food consumer's greatly. 84% of the respondents evaluated the effect of packaging color on the behavior of food consumers as high. The material of product packaging was very important for 83.88% of the respondents. 5.81% of all respondents attach high importance to variety of product packaging on the behavior of food consumers. Aghazadeh (2011) analyzed the visual and informational effects of packaging on buying decision making and concluded that these factors effect on consumers' purchasing decision. Firuzian et al (2009) evaluated the impact of packaging factors on various processes of the behavior of food consumers.

Based on the wide scope of research it was tried to assess and compare the effect of various factors of packaging on behavior of food consumers in the process of pre-purchase, in purchase and post-purchase. Based on food- buyers' comments, they concluded that all packaging components have special importance and significant effect on consumer behaviors. According to the results of another research (Zand, 2007) which have investigated the effect of packaging color on selling food items, the color of packaging is influential in attracting customers' attention especially bright colors. It is better to package sweet food items with warm colors. To package frozen food items light colors are suitable. And live and subtle tone colors are mostly favored by women.

Shabani (2006) examined the most important attributes of food packaging (milk) on the customer's choice. The results indicated that the right size milk packaging, attractive colors, way of informing, the type, material and ingredient raw materials, and packaging designs are effective in different stages of pasteurized milk buyers' decision making and choices. Adnan and Ahmad (2013) also in a study investigated the role of packaging in consumers' shopping behavior at Peshawar University in KPK region of Pakistan. The aim of this study was to scrutinize the role of packaging and the way consumers' purchasing behavior is impressed. It is the consumers' purchasing decision that heavily affects the packaging and its attributes

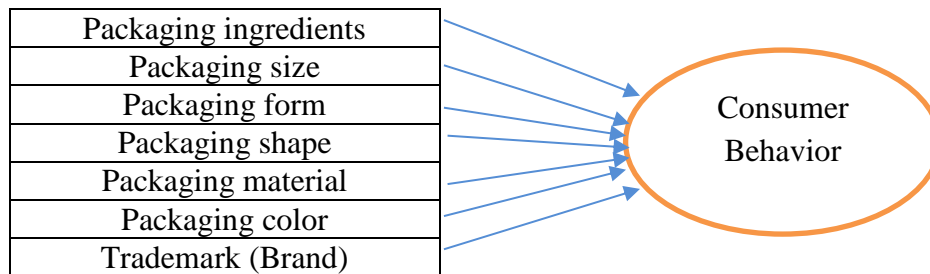
Based on our predictions, a packaging which is colorful and contains packaging material, background image, cover design, printed information, innovation and font style, can impress the customers' choices better. Due to the rapidly changing lifestyle of people, interesting changes are made in packaging that is one of the important factors that influences customers' purchasing decisions.

Silayoi Pinya and Speece (2004) by considering two variables i.e. the complexity level of purchase and the time pressures while purchasing food products examined the impact of packaging on consumer purchasing decisions. In this study, the researchers classified packaging factors into two categories of visual factors and informational factors, and each of these factors are in turn made up of different components. According to their proposed model, visual elements of the package, including size, shape and color of the packaging and the packaging type (the technology used to create the packaging), have positive impact on consumers' purchasing decisions. Bone and Corey (2000) surveyed the ethical issues that must be considered in the packaging design. They concluded that packaging decision-making plays a significant role in the realization of the moral responsibilities of a company to their various stakeholders. Rettie and Brewer (2000) reviewed the different Visual and verbal

aspects in the design of packaging and concluded that the diverse visual and verbal aspects are effective in the packaging design. In the following table the results of other researchers on packaging are shown.

### **Conceptual Model**

In this study, different theoretical models and patterns of independent and dependent variables were available that will be discussed in detail in the background of the research. In the investigation and selection of basic models of the research it was tried to select a model that is more consistent with the existing conditions and characteristics of population. Finally, according to what was elaborated, the model was constructed based on the research background done inside and outside the country. To evaluate packaging ingredient constructs of this research, Adnan and Ahmad (2013) research has been adopted that assesses packaging from six different dimensions:



### **The Conceptual Model of the Research**

#### **Research Hypothesis**

There is a significant relationship between the size of packaging and the consumers' behavior

There is a significant relationship between the form of packaging and consumers' behavior

There is a significant relationship between the shapes of packaging and consumers' behavior.

There is a significant relationship between the material of packaging and consumers' behavior.

There is a significant relationship between the color of packaging and consumers' behavior.

There is a significant relationship between the trademark (brand) of packaging and consumers' behavior

#### **Research Methodology**

Generally, research methods are divided based on two criteria: first, research goal and second, data collection method. Therefore, in terms of purpose this research is practical and in terms of data collection method is descriptive and correlational. The aim of practical research is to develop practical knowledge in a specific field. In other words, practical research is

directed toward the application of scientific knowledge. Thus, this research is practical and is done to investigate the impact of packaging components on consumers' behavior of Ilam gas refinery sulfur product. Descriptive research includes a set of methods that aim to describe the studied conditions or phenomena. Implementation of descriptive research can only be due to better recognition of the current situation or contributing to the decision-making process. Correlational study is a branch of descriptive research. In this type of research, the extent to which changes in one attribute depends on the features of another attribute is determined. The data collection was cross-sectional which was done within the first six months of the year 1394. The population of this study includes 144 managers and experts of Ilam's gas refinery.

To collect the required data and information, written questionnaire was used. To assess the packaging components of this study (Kotler and Armstrang, 2006) questionnaires were used that have investigated packaging components in 6 sections and 18 items. In order to assess the reliability, a sample of 30 questionnaires was pre-tested, and then using the obtained data from the questionnaire, the reliability was assessed through Cronbach Alpha (SPSS 20). Reliability coefficient of the questionnaires for the research variables -shown in the following table indicates the highly reliable questions.

**Table 1.** Cronbach Alpha.

Dimensions	Number of questions	Cronbach Alpha
Packaging ingredients	3	0.762
Packaging size	3	0.752
Packaging form	3	0.713
Packaging shape	3	0.758
Packaging material	3	0.850
Packaging color	3	0.762
Trademark (Brand)	3	0.841

According to Cronbach alpha values of the questionnaire, all Cronbach alpha values are more than 0.7, so the questionnaire has high reliability. Content validity of the questionnaire was based on expert opinion and the necessary changes were made. To assess the validity, factorial analysis and SPSS statistical software were used. The results of exploratory factorial analysis of the first-order constructs of packaging components showed that the sampling adequacy requirements have been met by reviewing the KMO, Bartlett statistics and the percentage of explained variance of the questions was 82 percent and the significant level of Bartlett is zero which shows a high validity.

## Research Findings

Descriptive statistics of demographic variables showed that in terms of education 3.8% of the population had diploma, 26.7 % were associate degree, 55.2 % were bachelor and 14.3 % had a master degree and higher. In terms of work experience 11.4% had 1-5 years of work experience, 26 people or 24.7% had 6-10 years of work experience, 42 people or 40% had 11-15 years of work experience and 25 people of the whole population or 23.9% had more than 15 years of work experience.

## Data Analysis

To test the hypothesis first, correlation test was done and then the research hypotheses were assessed. The correlation coefficient identifies the direction of the variables with each other, so that the positive correlation between the two variables conveys the same direction for the two variables and negative correlation coefficient indicates the opposite direction of change for the two variables, so that an increase in one leads to a decrease in the other. Overall, in the Pearson correlation coefficient, it is examined whether there is a statistically significant correlation between the two variables. The null hypothesis states that there is no statistically significant relationship between the two variables. Given the concept of hypothesis testing, when the probability level is greater than 5% the null hypothesis is not rejected. In other words, if the *sig* or *p*-value is less than 5%, then the hypothesis is rejected and a significant relationship is found between the variables.

The correlation between two variables and the hypotheses are shown as following:

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

In which  $\rho$  indicates the correlation between the two variables of the study. Based on the above-mentioned statements we will examine the research hypotheses.

**Table 2.** Correlation

	Relationship		R	P
Consumers' behavior	<---	Packaging size	0.843	***
Consumers' behavior	<---	Packaging form	0.761	***
Consumers' behavior	<---	Packaging shape	0.804	***



Consumers' behavior	<---	Packaging material	0.608	***
Consumers' behavior	<---	Packaging color	0.587	***
Consumers' behavior	<---	trademark	0.734	***

**The Results of the First Hypothesis**

Based on the obtained results from the Pearson correlation coefficient, the relationship between the Packaging size and consumers' behavior is 0.843 which is significant at the 0.000 level and is smaller than 0.05. Therefore the null hypothesis is rejected at the 95% level of certainty, so H1 hypothesis is confirmed. In other words it can be declared that from the viewpoint of respondents there is a significant relationship between the size of packaging and consumers' behavior.

**The results of the second hypothesis:**

Based on the obtained results from the Pearson correlation coefficient, the relationship between the Packaging form and consumers' behavior is 0.761 which is significant at the 0.000 level and is smaller than 0.05. Therefore the null hypothesis is rejected at the 95% level of certainty, so H2 hypothesis is confirmed. In other words it can be said that from the viewpoint of respondents there is a significant relationship between the form of packaging and consumers' behavior.

**The results of the third hypothesis:**

Based on the obtained results from the Pearson correlation coefficient, the relationship between the Packaging shape and consumers' behavior is 0.804 which is significant at the 0.000 level and is smaller than 0.05. Therefore the null hypothesis is rejected at the 95% level of certainty, so H3 hypothesis is confirmed. In other words it can be declared that from the viewpoint of respondents there is a significant relationship between the shape of packaging and consumers' behavior.

**The results for the fourth hypothesis:**

Based on the obtained results from the Pearson correlation coefficient, the relationship between the Packaging material and consumers' behavior is 0.608 which is significant at the 0.000 level and is smaller than 0.05. Therefore the null hypothesis is rejected at the 95% level of certainty, so H4 hypothesis is confirmed. In other words it can be declared that from the viewpoint of respondents there is a significant relationship between the material of packaging and consumers' behavior.

### **The results of the fifth hypothesis:**

Based on the obtained results from the Pearson correlation coefficient, the relationship between the Packaging color and consumers' behavior is 0.587 which is significant at the 0.000 level and is smaller than 0.05. Therefore the null hypothesis is rejected at the 95% level of certainty, so H5 hypothesis is confirmed. In other words it can be declared that from the viewpoint of respondents there is a significant relationship between the color of packaging and consumers' behavior.

### **The results of the sixth hypothesis:**

Based on the obtained results from the Pearson correlation coefficient, the relationship between the Packaging brand and consumers' behavior is 0.734 which is significant at the 0.000 level and is smaller than 0.05. Therefore the null hypothesis is rejected at the 95% level of certainty, so H6 hypothesis is confirmed. In other words it can be declared that from the viewpoint of respondents there is a significant relationship between the brand of packaging and consumers' behavior.

### **Conclusions**

The findings of research show the effect of packaging components on consumer s' behavior. The results show that packaging components greatly influence consumer purchasing behavior. According to the results, it can be claimed that there is a significant relationship between package size and consumer behavior of Sulfur in Ilam gas refinery and it can be claimed that the more suitable the package size of the products, the more positive attitude the consumers would have about these products. Based on the results of the second hypothesis the form of the packaging has a significant relationship with the consumers' behavior of Sulfur in Ilam gas refinery. Therefore, it can be said that the more the ergonomic principles and easy availability of the products and the form of the packaging are followed, the more effective role they may have on the consumers' purchasing behavior.

The results of the third hypothesis indicated that the packaging shape has a significant relationship with the consumer behavior of Sulfur in Ilam gas refinery. Therefore, it can be claimed that the more and better are maintenance condition and required space for preserving the products, the more efficient role they play in the consumers' behavior. The results of the fourth hypothesis show that the packaging material has a significant correlation with the consumers' behavior of Sulfur in Ilam gas refinery. Therefore it can be claimed that using materials with better quality has a significant role in the maintenance of the products and thus the consumers' behavior.

The results of the fifth hypothesis indicate that the color of packaging has a significant relationship with the consumers' behavior of Sulfur in Ilam gas refinery. It can be argued that composition or color combination has an important role in the consumer's purchasing behavior. Given the results of the sixth hypothesis the trademark of packaging has a significant relationship with the consumers' behavior of Sulfur in Ilam gas refinery, thus it can be declared that the unique design of a products 'packaging remains in the long term memory of the consumers and affects their behavior. Based on the research results the following suggestions are presented:

Producers give little attention to the inserted information on the packaging. By inserting important and positive information on the products, the consumer's purchasing behavior is affected.

Ergonomic principles and consumers' easy access to the content of packaging have an effective role on consumers' behavior.

Larger size and shape (within acceptable limits) leads to the attitude that the package is more valuable and consequently results in more sales.

Using high-quality materials in packaging for the maintenance of a product has an effective role in consumer behavior

Attending to the psychology of colors in designing the packages is very important and this is a problem that is ignored in Iran. Usually the packaging color is selected without research and study and while selecting the colors little attention is given to the target group of consumers. Therefore, forming research groups to discover the favorite color of the target consumers is essential.

It is suggested that the company select a unique design for its own packaging because, the design and the trademark of the products remains in the long term memory of the consumers.

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