INTRODUCTION

1.1 BACKGROUND TO STUDY

The paper industry, in South Africa, is growing at a rate of three percent per year, and is valued at twenty-nine billion Rands (Patel, 2006). There are four key players in the paper industry in South Africa. However two key players dominate the market, making it a duopoly. The company in this study and the main competitor account for ninety-five percent (www.fao.org) of the production volumes, with these volumes spread almost equally between these two key players.

Paper plays a key role in packaging. According to the Packaging Council of South Africa (www.pacsa.co.za), paper is the largest volume of raw material used in the manufacture of packaging. Packaging, which is defined in the Concise Oxford Dictionary as the “making of wrapper or container for goods”, is pervasive, and a part of modern day life in the 21st century. Whatever the content, packaging makes products and services transportable, appealing and recognizable, and hence permits a fast paced lifestyle. Diesen and Oyi (1998, p3) describe paper as having a vital role in the cultural development of humankind, and state that it will continue to play an important role in the future.

Boxes or corrugated containers are a form of packaging that is constructed from two fundamental grades of paper; these paper grades are known as fluting and liners. The performances of boxes are dependant on the quality of both fluting and liners. In this study paper made at mills is referred to as fluting-paper. The process that occurs when fluting-paper has a wave form and shape imparted to it
is known as the corrugation process, and the plant is known as a corrugator. The corrugators exist separately from mills and are customers of mills in this study. Once the fluting-paper has a wave-form imparted to it during corrugation, it is referred to as fluting.

1.2 BACKGROUND TO PROBLEM

Fluting-paper is produced at three mills of the company’s many mills in South Africa and sold to customers in the local market. Customers can receive fluting-paper from any of the three mills. The current specifications for fluting-paper are set by the SABS (South African Bureau of Standards), with the company having additional specifications. The fluting-paper manufactured at these mills is made to meet all these SABS and company specifications. Numerous customer complaints recorded by the mills indicate that there are customers who are not satisfied with the quality of the paper. The customers’ perceptions are that there are significant variations in the quality of the fluting-paper from the different mills. The quality of the fluting-paper that meets the technical specifications (SABS and company specifications) therefore does not always satisfy the customer.

It is possible that the problem is that quality is expressed differently by the two parties. Customers commonly express quality and their needs in terms of tangible factors such as strength and moisture resistance, whereas mills use descriptions which are technical in nature (technical characteristics) such as tensile strength, and water floatation to describe the product. The problem, therefore, seems to be that the customer needs may be different to the technical characteristics of fluting-paper, or there may be customer needs that are not encompassed within the technical specifications for fluting paper. Drawing comparisons between these technical characteristics and customer needs may help determine whether the company is producing fluting-paper that meets the customer needs.
1.3 **HYPOTHESIS**

The hypothesis which will be tested as part of this study is:
The company’s mills produces fluting-paper consistently according to technical specifications that meet the customer needs.

1.4 **RESEARCH OBJECTIVES**

There are four objectives to this study:
1. Investigate the nature of customer complaints of fluting-paper to identify problem areas.
2. Identify and relate the customer needs to the technical specifications, defined by the company, of fluting-paper.
3. Relate the technical specifications to measures of the process of producing fluting-paper.
4. Determine the reasons (if any) for the customers differing perceptions and claims of inconsistent quality.

1.5 **SIGNIFICANCE**

Studying the quality of fluting-paper, and investigating the hypothesis, would provide results to identify the customer needs and the relationships between the customer needs and the technical specifications. The outcome of these relationships provides the company with clarification of whether fluting-paper manufactured at mills meets the customer needs.

Gryna et al (2007, p28) express that the cost of poor quality arises from the cost of nonconforming products, the cost of inefficient processes, and the cost of lost opportunities for sales revenue. They further emphasize that focus on quality systems and the investigation of quality matters may assist in quantifying the size of quality problems in monetary values and improving communication between the different management levels. Furthermore these investigations help to identify the opportunities for cost reduction and for reducing customer
dissatisfaction. The activities may also assist in the development of strategic quality plans that are consistent with overall organization goals.

According to Deming (1992, p141) profit in business comes from repeat customers that are happy and it is these customers that increase your customer base by referral. He further explains that profits from a repeat customer may be ten times that from a customer responding to advertising. Past studies in the United States of America (Vredenburg and Wee, 1986) confirm that there is value for the company from satisfied customers. Cost savings can also be acquired from resolving customer complaints and putting preventive measures in place to reduce possibility of reoccurring ones (Mraz, 2007). Gryna et al (2007, p130) gives five benefits of loyal customers in addition to providing continuing sales revenue:
1. Adding new sales by referring other customers
2. Paying a price premium
3. Purchasing other products from the company
4. Cooperating in the development of new products
5. Reducing company internal costs such as selling costs

In exploring the quality of fluting-paper, it can be determined if the company produces paper that meets the customer needs. Opportunities and activities to improve customer satisfaction may be identified with these explorations. In addition the question of why customers are unhappy with the quality of the fluting-paper although it meets the technical specifications may be answered. The various benefits discussed above of reducing customer dissatisfaction and creating loyal and satisfied customers may be realized.

1.6 LAYOUT OF THE STUDY
This study is divided into eight chapters.

Chapter 2 provides the literature survey of this study. The literature surrounding key concepts in this study are explored. These are quality and the definition thereof; paper and papermaking, and the characteristics of fluting-paper.
Chapter 3 is the research methodology. This chapter indicates the research approach taken and discusses the tools and methods used to investigate the hypothesis.

Chapter 4 contains the results of the study of the customer complaints. This chapter provides the results of the different categories and frequencies of customer complaints and the observations noted from the study.

Chapter 5 contains the results of the customer survey. This chapter provides the results obtained from the customer survey, the development of the quality function deployment chart with these results and the observations noted from the chart.

Chapter 6 contains the results of process measurement: cull. The cull or rejects of the process of papermaking at the mills is presented here together with comparisons to the customer survey results, the technical specifications and the customer complaints.

Chapter 7 is the discussion. This chapter discusses the results obtained from the customer complaints, customer survey and process research.

Chapter 8 contains the conclusions, recommendations, and further research deduced from the discussions made in chapter 7.