

**WEAR PATTERN OF VARIOUS ROUTER BIT MATERIAL IN CUTTING
RUBBERWOOD MEDIUM DENSITY FIBREBOARD**

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In order to study the wear pattern of various router bit material in cutting Rubberwood Medium Density Fibreboard (MDF), two kinds of router bit material (High Speed Steel and Tungsten Carbide Tipped) were employed in cutting Rubberwood MDF. The TCT showed the longest working life (twice the cutting distance compared to the HSS), while the HSS retained its usefulness for only a short distance of cutting. In the testing, using the Tungsten tipped and the Steel tipped, it was also confirmed that the Steel tipped wore more than the Tungsten tipped. From the observation of the worn tips it was found that the most useful in cutting Rubberwood MDF is the TCT, although for the HSS is best suitable for cutting solid wood as for the finish surface is more smooth if the HSS is to be sharpened by honing it. There are many constraining in this testing as the wear mechanism and the wearing processes of those router bit materials are discussed.

CHAPTER I

1.0 INTRODUCTION

The router is one of the latest and most indispensable machines in the furniture making process. Many operations can be performed. For example it is used for making fine lines and grooves for veneer inlaying. Other uses included light shaping cuts, shallow boring and mortising, dovetailing, fluting and moulding. For pierced work, it completely eliminates the need of jig saw. Since it produces finished shaped edges at one cut. On the larger machines, rope moldings, spiral turnings and rosettes are produced.

The cutting tools used for routing operation are known as router bits. Their forms, relative to their functional uses are as shown in figure 3b. Ideally, materials used in cutting tools must have the following characteristics;

- i. Hardness
- ii. Mechanical resistance to bending and compression
- iii. Resistance to abrasion
- iv. Resistance to high temperature
- v. Resistance to chemical reaction.