中文摘要

此研究利用克維拉纖維的良好特性，例如:低密度、高抗張力、低含水率、低熱膨脹係數等特性，加上機械抄造的方式來製成紙張，用以提升纖維之間的交織性及緊密度，也以此來與手工抄造之克維拉纖維紙張與添加 50% Teflon 的克維拉纖維紙張互相做比較。

在製作積層板的過程中，使用環氧樹脂含浸機械抄造之克維拉纖維、手工抄造之克維拉纖維紙與添加 50% Teflon 纖維三種紙張，另外並以環氧樹脂添加 20% 的溴化環氧樹脂，含浸機械抄造克維拉纖維紙張，以上四種基層板種類做厚度、密度、重量、含水率、吸水率、TGA、DMA、介電常數等測試。

本研究所得結果，機械方式抄造之克維拉纖維紙雖然厚度較不足，不過在物性方面卻不輸給其他兩種纖維紙。在基層板方面，原先所使用的手工克維拉纖維基層板，在纖維紙機械化之後性能不減，物理性質可接近手工添加 50% Teflon 所製成的基板。

樹脂的比較方面，添加 20% 溴化環氧樹脂的環氧樹脂，能明顯提升環氧樹脂的耐熱性質，而且在製成機械抄造克維拉基層板後，其電性、物性比較也並無下降，若能以機械方式抄造添加 50% Teflon 的克維拉纖維紙張並改用溴化環氧樹脂，相信能提升基層板之特性。

Abstract

In this study, we used Kevlar fiber that because it has excellent properties such as low density, high tensile strength, high tensile modulus, low moisture content and negative thermal expansion coefficient (TEC), and we also used this fiber to manufacture the paper by machine for the sake of better interknitted, and then we used this paper as compared with another Kevlar fibrous paper by handcrafted；and Kevlar fibrous paper which mixed 50% Teflon fiber.

When we fabricated the printed circuit board(PCB), we used epoxy resin to soak Kevlar fibrous paper fabricated by machine, another by handcrafted and Kevlar fibrous paper mixed with 50% Teflon fiber. And we used epoxy resin mixed with 20% TBBPA soaked Kevlar fibrous paper fabricated by machine. We used all of PCB test for depth, density, weight, hydrous rate, spongy rate, DMA and TGA.

The results we got from experiments that although Kevlar fibrous paper fabricated by machine is not enough about depth, but in the physical property, it is better than other fibrous paper . About the printed circuit board, when we mechanized fibrous paper of handmade which is not changed from quality. The physical property is nearly Kevlar fibrous paper which mixed with 50% Teflon fiber.

As compared with resin, the epoxy resin mixed with 20% TBBPA is better than epoxy resin in hot quality. And we used the epoxy resin mixed with 20% TBBPA to manufacture printed circuit board of Kevlar by

machine, which is not debased in electric and physical property. If we can use Kevla**r** fibrous paper which mixed with 50% Teflon fiber by machine, and use the epoxy resin mixed with TBBPA**,** it must be better in quality.