ABSTRACT

The present invention relates to a process that combines the lightweight and high strength properties of carbon fiber with the versatility of polymers. It discloses the use of carbon fiber composites woven into a mat form, whereby each mat comprises of a certain number of carbon filaments per tow and is twilled weave into a mat form. The present invention relates to a process using injection molding to over mold a thin wall polymeric material such as polypropylene onto carbon fiber woven into a mat form. Having thin walls is good for complex parts and with carbon fiber being overmolded, it enhances the mechanical properties and durability of the end product for applications such as structural and automotive applications where weight savings and structural integrity are critical. In addition, electronic sensors are incorporated into the overmolding process for smart product / surface applications.

Use **Figure 2B and 2C.**