ABSTRACT

As the population and active smokers increase, cigarette filter waste and glass waste increase every year. This can cause environmental damage by polluting soil and air quality. The purpose of this research is to utilize cigarette filter waste and glass into composites. Composites consist of two or more constituents, cigarette filters are used as fibers and glass as fillers in powder form. The filter is made into strands and the glass is ground to 120 mesh powder. The material is mixed with polyester resin and then molded using molding. The design of experiment method used is fractional factorial design, because the method can be used to determine the main effect for each independent parameter and the interaction effect between parameters on the response. The results of the impact test in the pilot study were used as level parameters. The parameters studied were the amount of polyester resin, glass powder and cigarette filter. Making the composition using ½ factorial for the efficiency of making composite specimens. The composition of the design of experiment results obtained eight specimens with the highest impact test results are specimen two, 0.021 J/mm2 and the smallest specimen four 0.013 J/mm2. The highest tensile test result is specimen one 40.64 Mpa and the smallest specimen three 21.16 Mpa.

Keywords: Composite, Design of Experiment, Filter, Glass