ABSTRACT

O-ring seal is the one of machine parts which have function as isolator and prevent machine from room that has pressure and contains of fluid. The one of basic material O-ring seal is Nitril Butadiene Rubber (NBR), this material good in oil resistance. For performing more compound quality, it can be add with Natural Rubber (NR) that has characteristic elastic, flexible, and good abrasion resistance. From this compound, it expected valuable point to obtain reliable formula that fit in applications.

Research start by create o-ring compound, and then continued with mixing modification. First compound contain 100 NBR phr, second compound contain NBR 90 phr + NR 10 phr, and last compound contain NBR 80 phr + NR 10 phr. Then the produced compound must be vulcanized. And the next step, take Vulcanisate physic test for o-ring application and also Rheometer test to decide the time for o-ring seal casting. After that each compound formed as o-ring seal and tested in failure test machine with certain rotation, temperature, and pressure. When test finished, examine the dimension deviation that occurred in o-ring seal.

All of compound did not indicate leakage and this seal recommended in application at rotation 1500 rpm, temperature 100 °C, and pressure at 6 kgf/cm². But the ANOVA result the three compound showing difference about addition Natural Rubber against dimension deviation, so that by economic decision compound C chosen because it have some superior like cheap cost in production process and curing time more short.