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A finite  $p$ -group  $G$  is called *powerful* if either  $p$  is odd and  $[G, G] \subseteq G^p$  or  $p = 2$  and  $[G, G] \subseteq G^4$ . A *cover* for a group is a collection of subgroups whose union is equal to the entire group. We will discuss covers of  $p$ -groups by powerful subgroups. The size of the smallest cover of a  $p$ -group by powerful subgroups is called the *powerful subgroup covering number*. Our focus in this presentation is to determine the powerful subgroup covering number of the Dihedral 2-groups. (Received September 24, 2018)