

ABSTRACT

To provide a flux for submerged arc welding that has good welding workability and can reduce the moisture-absorption amount of the flux and the diffusion hydrogen content in a weld metal, even in the use of either an alternating current or a direct current welding power source.

The flux for submerged arc welding is set at the composition including: Al_2O_3 : 15 to 35% by mass; SiO_2 : 10 to 30% by mass; MgO : 10 to 25% by mass; F in terms of CaF_2 : 10 to 25% by mass; Mn in terms of MnO : 3 to 20% by mass; a total of at least one or more of Na in terms of Na_2O , K in terms of K_2O and Li in terms of Li_2O : 0.5 to 6.5% by mass; Fe in terms of FeO : 0.5 to 8% by mass; CaO : 6% by mass or less (including 0% by mass); TiO_2 : 8% by mass or less (including 0% by mass); water-soluble SiO_2 : 1.0% by mass or less (including 0% by mass); water-soluble Na_2O : 1.0% by mass or less (including 0% by mass); and water-soluble K_2O : 0.8% by mass or less (including 0% by mass), wherein a C content is 0.2% by mass or less (including 0% by mass), and the flux satisfies the following numerical expression (I), where $[\text{Al}_2\text{O}_3]$ is the Al_2O_3 content, $[\text{MgO}]$ is the MgO content, and $[\text{MnO}]$ is a content as the Mn in terms of MnO .

$$0.20 \leq \frac{[\text{MgO}]}{[\text{Al}_2\text{O}_3] + [\text{MnO}]} \leq 0.80 \quad \cdot \cdot \cdot \quad (\text{I})$$