



# NOTE ON SAW FLUXES

## 1. BASICITY OF THE FLUX:

Basicity is ratio of Basic oxides to Acidic oxides present in the flux. For the basicities mentioned in AWL literature, formula devised by Boniszewski is used, which is as below:

$$\text{Basicity} = \frac{\text{CaO} + \text{MgO} + \text{CaF}_2 + \text{NaO} + \text{K}_2\text{O} + \frac{1}{2}(\text{MnO} + \text{FeO})}{\text{SiO}_2 + \frac{1}{2}(\text{Al}_2\text{O}_3 + \text{TiO}_2 + \text{ZrO}_2)}$$

Based on Basicity No. Fluxes are divided in following Types:

- a. Acidic – Basicity  $\leq 0.80$
- b. Neutral –  $0.80 > \text{Basicity} \leq 1.20$
- c. Basic –  $1.20 > \text{Basicity} < 2.00$
- d. High Basic – Basicity  $> 2.00$

## 2. ACTIVITY OF FLUXES:

Activity of the flux is devised by Wall Neutrality Number. Wall Neutrality Number is measured as below:

- a. Make two chemistry pads with same wire flux combination, same welding parameters, except voltage used for 2nd pad is increased by 8V.
- b. They are analyzed for Si and Mn.
- c. The wall neutrality Number is calculated by following formula:  
Wall Neutrality Number =  $100 ( |\Delta \% \text{Si}| + |\Delta \% \text{Mn}| )$   
 $\Delta \% \text{Si}$  – Difference in Si in two pads  
 $\Delta \% \text{Mn}$  – Difference in Mn in two pads  
Wall Neutrality Number is absolute value, ignoring positive and negative sign.

Based on Activity, Fluxes are divided into following types:

- A. Active Flux – Wall Neutrality Number  $> 35$
- B. Neutral Flux – Wall Neutrality Number  $\leq 35$

## 3. RE-DRYING OF SAW FLUXES:

Recommended cycle for flux re-drying: 300-350°C for minimum 2 hrs.