

List of Table

Table 3.1 Chemical composition and mechanical properties of 2205 duplex stainless steel ..	42
Table 3.2 Types of fluxes.....	42
Table 3.3 Physical properties of selected fluxes	44
Table 3.4 Selected Flux for FZ-TIG butt welding Trial Experiments	46
Table 4.1 Quantity of flux required for experimentation.....	52
Table 4.2 A-TIG Welding parameters	52
Table 4.3 A-TIG weld bead geometry	54
Table 4.4 Variable parameters range	55
Table 4.5 Welding variables and their level for RSM	56
Table 4.6 Box-Behnken Design Matrix for selected welding parameters	56
Table 4.7 Experimental results of TIG weld.....	61
Table 4.8 Experimental results of A-TIG weld	61
Table 4.9 ANOVA analysis for depth of penetration	64
Table 4.10 ANOVA analysis for bead width.....	66
Table 4.11 ANOVA analysis for tensile strength	68
Table 4.12 ANOVA analysis for microhardness	69
Table 4.13 Criteria for optimization	77
Table 4.14 Optimization results	77
Table 4.15 Validation test result	79
Table 5.1 Consequence of heat input on macrostructure on FB-TIG 2205 DSS weld joint....	87
Table 6.1 Effect of selected fluxes on heat input and weld bead geometry.....	95
Table 6.2 Weld surface appearance of FZ-TIG welded trial	97
Table 6.3 Welding process heat input.....	100