Appendix 1

Table A1: Effect of interaction of coating constituents on the various properties

Type of effect	Term	D	ΔW	ΔH	TC	TD	SH	A_s	θ	γ	W_a
Individual	CaO	-	+	+	-	+	+	+	+	+	-
	CaF_2	-	+	+	-	-	+	+	-	+	+
	SiO_2	-	+	+	-	-	+	-	-	+	+
	Al_2O_3	-	+	+	-	-	+	+	-	+	+
Binary	$CaO.CaF_2$	+	-	-	+	0	-	-	-	+	+
	$CaO.SiO_2$	+	-	-	+	0	-	+	+	+	+
	$CaO.Al_2O_3$	+	-	-	+	0	-	+	+	+	+
	$CaF_2.SiO_2$	0	+	-	+	+	-	+	+	-	-
	$CaF_2.Al_2O_3$	+	-	-	+	+	-	-	+	-	-
	$SiO_2.Al_2O_3$	+	-	-	+	+	-	-	+	-	-
Ternary	$CaO.CaF_2.SiO_2$	0	0	0	-	0	+	0	0	0	0
	$CaO.CaF_2.Al_2O_3$	-	0	+	+	0	-	0	0	0	0
	$CaO.SiO_2.Al_2O_3$	-	0	+	-	0	-	0	0	0	0
	$CaF_2.SiO_2.Al_2O_3$	0	0	0	-	-	+	0	0	0	0
	$CaO.Al_2O_3.(CaO-Al_2O_3)$	-	0	0	0	0	0	0	0	0	0
	$CaF_2.Al_2O_3.(CaF_2-Al_2O_3)$	0	0	+	0	0	0	0	0	0	0

Table A2: Effect of interaction of coating constituents on weld bead chemistry and microhardness

Type of effect	Term	%C	%Si	%Mn	%Cr	%Mo	H_v
Individual	CaO	+	+	-	-	-	+
	CaF_2	-	-	-	-	-	+
	SiO_2	+	+	-	+	+	+
	Al_2O_3	-	+	-	-	-	+
Binary	$CaO.CaF_2$	0	0	+	+	+	-
	$CaO.SiO_2$	0	0	-	-	+	-
	$CaO.Al_2O_3$	0	0	+	+	+	-
	$CaF_2.SiO_2$	0	0	+	0	-	-
	$CaF_2.Al_2O_3$	+	0	+	+	+	-
	$SiO_2.Al_2O_3$	0	0	+	-	-	-
Ternary	$CaO.CaF_2.SiO_2$	0	0	0	0	0	+
	$CaO.CaF_2.Al_2O_3$	0	0	0	0	0	+
	$CaO.SiO_2.Al_2O_3$	0	0	0	0	0	+
	$CaF_2.SiO_2.Al_2O_3$	0	0	0	0	0	-

Note: '+' = Increasing; '-'= Decreasing

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1. **S. Mahajan**, R. Chhibber: **2020,** Investigations on CaO-CaF_2-SiO_2-Al_2O_3 flux system-based SMAW electrodes for P22/P91 dissimilar welds. **Proc. Inst. Mech. Eng. Pt. *L* J. Mater. Des. Appl.** 234(10): 1313-1324.
2. **S. Mahajan**, R. Chhibber: **2020,** Elevated Temperature molten salt corrosion study of SS304L austenitic boiler steel. **Sadhana-Acad. P. Eng. S.** 45, 199.
3. **S. Mahajan,** R. Chhibber: 2020, Investigations on dissimilar welding of P91/SS304L using Nickel-based electrodes, ***Materials and Manufacturing Processes,*** 35 (9): 1010-1023.
4. **S. Mahajan**, R. Chhibber: **2020**, High-Temperature Wettability Investigations on Laboratory-Developed CaO-CaF2-SiO2 -Al2O3 Flux System-Based Welding Electrode Coatings for Power Plant Applications, **Silicon**, **12**, 2741–2753.
5. **S. Mahajan**, R. Chhibber: 2019, Investigation on slags of CaO-CaF_2-SiO_2-Al_2O_3 based Electrode Coatings developed for Power Plant Welds, ***Ceramics International***, 46(7): 8774-8786.
6. **S. Mahajan,** R. Chhibber: 2019, Design and development of CaO–SiO_2–CaF_2 and CaO-SiO_2–Al_2O_3 based electrode coatings to weld low alloy ferritic steels for power plant applications, ***Ceramics International***, 45(18(A)): 24154-24167.
7. **S. Mahajan,** R. Chhibber: 2019, Hot Corrosion Study of 9Cr–1Mo Boiler Steel Exposed to Different Molten Salt Mixtures, ***Transactions of the Indian Institute of Metals,*** 72(9): 2329-2348.
8. **S. Mahajan,** R. Chhibber: 2019, Design and Development of Shielded Metal Arc Welding (SMAW) Electrode Coatings Using a CaO-CaF_2-SiO_2 and CaO-SiO_2-Al_2O_3 Flux System, ***JOM,*** 71(7): 2435-2444.
9. **S. Mahajan,** R. Chhibber: 2019, Hot corrosion studies of boiler steels exposed to different molten salt mixtures at 950°C, ***Engineering Failure Analysis***, 99: 210-224.
10. **S. Mahajan**, S. Sharna, D. Goyal, R. Chhibber: 2021; Effect of shot peening on the high temperature molten salt corrosion resistance of P91 boiler steel. ***Mater. Today.*** 41(4): 801-804. [7th International Conference on Advancement and Futuristic Trends in Mechanical and Materials Engineering [AFTMME 2019] At: Indian Institute of Technology Ropar, Punjab, India.]