

Classification

EN ISO 14174

SA FB 1 55 AC H5

Characteristics and typical fields of application

UV 418 TT is an agglomerated flux of fluoride basic type for joining and surfacing and applications with dissimilar steels. Mainly for high strength and cryogenic fine grained structural steels. The Si and Mn pick-ups and burn-off rates are neutral because of its metallurgical behaviour. The flux is weldable with almost every wire electrode.

When used in combination with Union S 3 Si wire electrode, the weld metal has high toughness properties up to -60 °C (-76 °F) and very good CTOD values up to -30 °C (-22 °F), so that this combination is outstandingly suited for offshore constructions.

The flux can be used for tandem and multi-wire welding with DC and AC. Very good slag detachability.

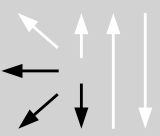
Base Materials

Unalloyed steels, high strength steels, cryogenic fine grained structural steels

Composition of sub-arc welding flux (wt. %)

	SiO ₂ +TiO ₂	CaO+MgO	Al ₂ O ₃ +MnO	CaF ₂
wt-%	15	38	20	25

Operating data

	Polarity DC / AC	Basicity acc. to Boniszewski: 3.5 Mol. % 2.6 weight %
		Grain size acc. to EN ISO 14174: 3 – 20 (0,3 – 2,0 mm)
		Flux consumption: 1.0 kg flux per kg wire
		Redrying: 300 – 350 °C, 2 hrs min.

Typical Composition of all-weld Metal with different Wires

SAW wires	C	Si	Mn	Cr	Mo	Ni	Weld metal classification acc. to EN ISO 14171 / • EN ISO 26304-A AWS A5.17 - SFA 5.17 •• AWS A5.23 - SFA 5.23
Union S 2 Weld metal	0.10 0.07	0.10 0.20	1.00 0.95				S 35 4 FB S2 ••F7A5-EM12
Union S 2 Mo Weld metal	0.10 0.07	0.10 0.20	1.00 0.95		0.50 0.45		S 46 4 FB S2Mo F8A6-EA2-A2
Union S 2 Ni 2,5 Weld metal	0.10 0.07	0.10 0.20	1.00 0.95			2.30 2.20	S 46 8 FB S2Ni2 F8A10-ENi2-Ni2 /F7P15-ENi2-Ni2
Union S 2 Ni 3,5 Weld metal	0.09 0.06	0.15 0.20	0.90 0.85			3.30 3.20	S 42 8 FB S2Ni3 F7A15-ENi3-Ni3
Union S 2 Ni 370 Weld metal	0.08 0.06	0.10 0.25	1.00 1.30			1.30 1.20	S 42 6 FB S2Ni1,5 F7A8-EG-G
Union S 2 NiMo 1 Weld metal	0.11 0.07	0.10 0.20	1.00 0.95		0.25 0.23	0.90 0.85	S 50 6 FB SZ2Ni1 F8A8-ENi1-Ni1
Union S 2 Si Weld metal	0.10 0.08	0.30 0.30	1.10 1.10				S 42 5 FB S2Si ••F7A6-EM12K

SAW wires	C	Si	Mn	Cr	Mo	Ni	Weld metal classification acc. to EN ISO 14171 / • EN ISO 26304-A AWS A5.17 - SFA 5.17 •• AWS A5.23 - SFA 5.23
Union S 3 Weld metal	0.12 0.08	0.10 0.20	1.50 1.35				S 38 4 FB S3 ••F7A6-EH10K
Union S 3 Mo Weld metal	0.12 0.08	0.10 0.20	1.50 1.35		0.50 0.45		S 46 4 FB S3Mo F8A5-EA4-A4
Union S 3 NiMo Weld metal	0.08 0.06	0.10 0.20	1.50 1.40		0.45 0.40	1.50 1.40	S 50 6 FB S3Ni1,5Mo F9A8-EG-F1
Union S 3 NiMo 1 Weld metal	0.12 0.08	0.10 0.25	1.60 1.55		0.60 0.55	0.95 0.90	S 50 6 FB S3Ni1Mo F9A8-EF3-F3
Union S 3 NiMoCr Weld metal	0.14 0.08	0.10 0.20	1.75 1.50	0.35 0.32	0.60 0.58	2.10 2.00	S 69 6 FB SZ3Ni2,5CrMo F11A8-EG-F6
Union S 3 Si Weld metal	0.10 0.08	0.30 0.30	1.70 1.55				S 46 6 FB S3Si ••F7A8-EH12K / F7P10-EH12K
Union S 4 Mo Weld metal	0.12 0.08	0.10 0.20	2.00 1.65		0.50 0.45		S 50 4 FB S4Mo F8P6-EA3-A3

Mechanical properties of the weld metal, as welded:

Wire electrodes used	Yield strength MPa	Tensile strength MPa	Elongation (L ₀ =5d ₀) %	Impact values* ISO-V CVN J					
				+20 °C	0 °C	-20 °C	-40 °C	-60 °C	-80 °C
Union S 2	400	480	26	160	140	100	47		
Union S 2 Mo	470	550	25	160	140	100	47		
Union S 2 Ni 2,5	470	550	25	160	140	120	100	80	47
Union S 2 Ni 3,5	420	520	25	160	140	120	100	80	47
Union S 2 Ni 370	420	530	25	160	140	100	70	47	
Union S 2 NiMo 1	500	560	25	180	160	120	100	80	27
Union S 2 Si	420	520	26	160	140	100	60	47	
Union S 3	400	510	26	160	140	100	47	27	
Union S 3 Mo	470	550	25	160	140	100	47		
Union S 3 NiMo	550	620	22	160	140	120	80	47	27
Union S 3 NiMo 1	550	640	22	160	140	110	70	47	
Union S 3 NiMoCr	690	760	17	120	100	80	47	27	
Union S 3 Si	460	550	26	160	140	120	70	47	
Union S 4 Mo	550	620	18	140	100	60	47		

* Average values from 3 tests

Approvals	TÜV	DB	DNV	GL	LR	BV
Union S 2	10410	51.132.05				
Union S 2 Mo	11576	51.132.05				
Union S 2 Ni 2,5	11575					
Union S 2 Ni 370	11577					
Union S 3 Si	07276	51.132.05	X	X	X	X
Union S 3	11579					
Union S 3 NiMoCr	11585					