

SAW Rutile-Acid Fluxes C-Mn and low-alloy steels

OP 143 is an agglomerated calcium-silicate type flux for welding general structural steels, boiler and pipe steels, as well as fine grain structural steels. It produces a high silicon and manganese pick-up when using wire electrodes OE-S1, OE-S2 and OE-S3. It is particularly suited for twin-wire, tandem and multi-wire welding at high speeds and for welding from both sides in one pass. For enhanced weld metal toughness, molybdenum alloyed wire such as OE-S2Mo should be used. The high current carrying capacity up to 1200A in single wire makes OP 143 the ideal flux for all applications where high currents are involved (multiwire welding, surfacing, etc.) Easy slag removal in all cases. The fused slag is fast freezing and allows circumferential welding of small-diameter workpieces without the slag running off. Damp flux should be re-dried at 300-350°C. Grain size according to EN 760: 2-20.

Wire	Classification
OE-S1	AWS 5.17 F6A0 EL12
OE-S2	AWS 5.17 F7A0 EM12K
OE-S2Mo	AWS 5.23 F8A0 EA2-A2
	EN 760: SA CS 1 98 AC

Wire	Approvals	Grades
OE-S1	DB	
OE-S1	TÜV	
OE-S2	DB	
OE-S2	TÜV	

see Appendix, Classification Society Approvals, for details pag. 521

Flux Analysis	
CaF ₂	10 %
Al ₂ O ₃ + MnO	25 %
SiO ₂ + TiO ₂	40 %
CaO + MgO	25 %

Basicity to Boniszewski 1,0

Typical Applications

Wire	Materials
OE-S1	ASME: ASTM A131 Grades A, B, D, DS; A253 All grades; A529 Grades 42, 50; A570 All grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: 'S(P)235-S(P)355; L245-L360
OE-S2	ASME: ASTM A131 Grades A, B, D, DS; A253 All grades; A529 Grades 42, 50; A570 All grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: 'S(P)235-S(P)355; L245-L360
OE-S2Mo	ASME: API 5L Grades A, B, X42, X46, X52, X56, X60 EN: 16 Mo 3, S(P)355-S(P)420, L245-L450

Analysis of all-weld metal (Typical values in %)

Wire	C	Mn	Si	Cr	Ni	Mo	Nb	N	Cu
OE-S1	0.04	1.30	0.80	-	-	-	-	-	-
OE-S2	0.05	1.70	0.90	-	-	-	-	-	-
OE-S2Mo	0.05	1.70	0.90	-	-	0.50	-	-	-

All-weld metal Mechanical Properties

Wire	Heat Treatment	Yield Strength N/mm ²	Tensile Strength N/mm ²	Elongation A5 (%)
OE-S1	As Welded	≥ 360	460 - 560	≥ 24
OE-S2	As Welded	≥ 400	530 - 630	≥ 24
OE-S2Mo	As Welded	≥ 480	600 - 700	≥ 22

All-weld metal Mechanical Properties - Cv

Wire	Heat Treatment	Charpy V Notch Impact Toughness (J)							
		+20	0	- 20	- 30	- 40	- 60	- 80	- 101
OE-S1	As Welded	90 min	50 min	30 min	-	-	-	-	-
OE-S2	As Welded	90 min	50 min	35 min	-	-	-	-	-
OE-S2Mo	As Welded	65 min	50 min	35 min	-	-	-	-	-

Packaging data

25kg heavy duty sealed polythene sacks

Further forms of delivery on request.

Current condition

AC; DC+