

OP 41TT is an agglomerated fluoride-basic type flux for welding high-tensile fine-grain structural steels as well as heat-resistant structural steels. In the nuclear sector it is used for many applications in combination with different wire electrodes, such as reactor pressure vessels, steam generators, pressurizers, reactor safety tanks and pipes in the primary and secondary circuits as well as the auxiliary units. OP 41TT is used with wire electrodes containing a higher level of manganese and silicon, such as e.g. OE-SD3. Due to the special manufacturing process of the flux the moisture pick up of the flux and the weld metal hydrogen content are very low. OP 41TT should be welded on DC+ at up to approximately 800 A.

Grain size according to EN-ISO 14174: 2-20.

Classification		
	EN ISO	14174: SA FB 1 53 DC H5
OE-S2 Mo	AWS	A5.23: F6P5-EA2-A2
OE-S2 Mo	AWS	A5.23: F8A8-EA2-A2
OE-S2 Ni1	AWS	A5.23: F7A8-ENi1-Ni1
OE-S2 Ni1	AWS	A5.23: F7P10-ENi1-Ni1
OE-SD3 Mo	AWS	A5.23: F8A6-EA4-A4
OE-SD3 Mo	AWS	A5.23: F8P6-EA4-A4
OE-SD3	AWS	A5.17: F6P8-EH12K
OE-SD3	AWS	A5.17: F7A8-EH12K

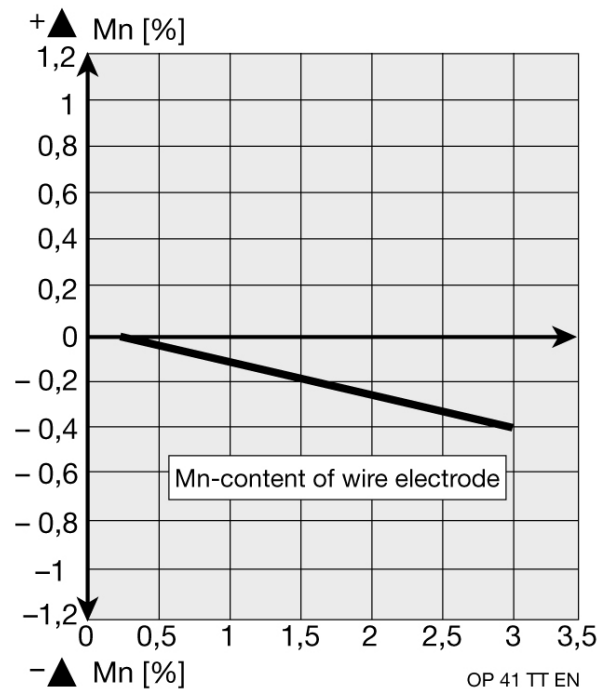
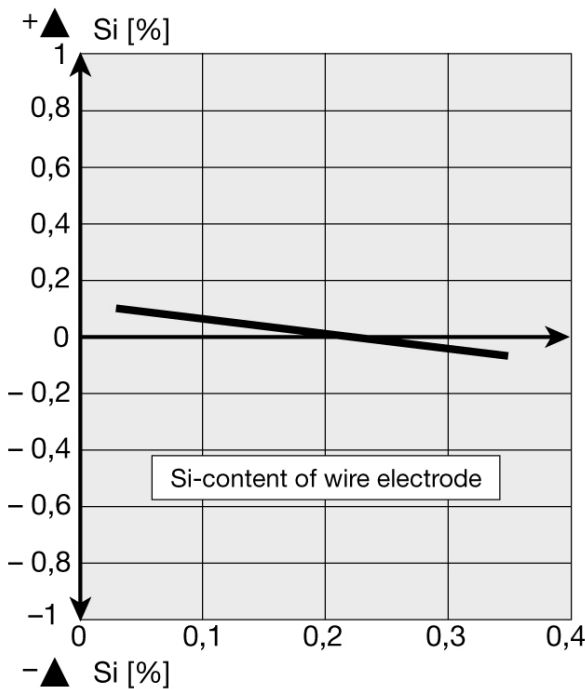
Flux Main Components	
CaO + MgO	35 %
CaF ₂	30 %
Al ₂ O ₃ + MnO	20 %
SiO ₂ + TiO ₂	10 %

	Approvals	Grade
OE-S2 CrMo1	TÜV	●
OE-S2 Mo	TÜV	●
OE-S2 Ni2	TÜV	●
OE-SD3 Mo	TÜV	●
OE-SD3	ABS	3YM
OE-SD3	BV	3YM
OE-SD3	DB	●
OE-SD3	DNV	IIIYM
OE-SD3	GL	3YM
OE-SD3	LRS	3M, 3YM
OE-SD3	RMRS	3YM
OE-SD3	TÜV	●
OE-SD3 1Ni ½Mo	TÜV	●

Boniszewski Basicity 3.1

METALLURGICAL BEHAVIOUR

Pick-up and burn-out of the alloying elements Si and Mn = f (alloy content of wire electrode)
DVS-Merkblatt 0907 Part 1



Chemical analysis (Typical values in %)

		C	Mn	Si	Cr	Ni	Mo
All weld metal	OE-S1 CrMo2	0.08	0.5	0.2	2.2	-	1
All weld metal	OE-S2 CrMo1	0.07	0.8	0.2	1	-	0.5
All weld metal	OE-S2 Mo	0.07	0.8	0.2	-	-	0.5
All weld metal	OE-S2 Ni1	0.07	1.1	0.3	0.15	1.15	0.3
All weld metal	OE-SD3 Mo	0.07	1.2	0.2	-	-	0.5
All weld metal	OE-SD3	0.07	1.2	0.3	-	-	-

All-weld metal Mechanical Properties

	Heat Treatment	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation A5 (%)
OE-S1 CrMo2	740°C	≥ 450	550-650	≥ 22
OE-S2 CrMo1	710°C	≥ 380	530-630	≥ 24
OE-S2 Mo	As Welded	≥ 490	570-670	≥ 20
OE-S2 Ni1	As Welded	≥ 420	500-600	≥ 24
OE-S2 Ni1	600°Cx2h	≥ 380	480-500	≥ 26
OE-SD3 Mo	As Welded	≥ 500	560-660	≥ 24
OE-SD3 Mo	620°Cx2h	≥ 470	550-650	≥ 25
OE-SD3	As Welded	≥ 420	530-630	≥ 24

SAW Fluxes SAW Basic and Semi-basic Fluxes

All-weld metal Mechanical Properties - CV

	Heat Treatment	Impact Energy (J)					
		+20 °C	0 °C	-20 °C	-40 °C	-46 °C	-60 °C
OE-S1 CrMo2	740°C	≥ 140	≥ 100				
OE-S2 CrMo1	710°C	≥ 200	≥ 150				
OE-S2 Mo	As Welded	≥ 140	≥ 120	≥ 100	≥ 70		≥ 50
OE-S2 Ni1	As Welded	≥ 150	≥ 130	≥ 100	≥ 70		≥ 50
OE-S2 Ni1	600°Cx2h	≥ 170	≥ 140	≥ 110	≥ 90		≥ 70
OE-SD3 Mo	As Welded					≥ 40	
OE-SD3 Mo	620°Cx2h					≥ 40	
OE-SD3	As Welded	≥ 170	≥ 150	≥ 120	≥ 70		≥ 40

Typical applications

	Materials
OE-S1 CrMo2	ASME: A387 Gr.22, Cl 1 and 2, A182 Gr.F 22, A 36 Gr.F22 EN: 10CrMo9-10, 12CrMo9-10
OE-S2 Mo	ASME: X60, X65, ASTM A355 Gr. P1; A182M Gr. F1 EN: 16Mo3, S(P)355-S(P)460, L245-L450
OE-S2 CrMo1	ASME: A199 and A200 Grade T11, A213 Grades T11, T12 EN: 13CrMo4-5, 13CrMoSi5-5
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-SD3	ASME: A516 all Grades EN S(P)235-S(P)420

Redrying

300-350°Cx2-4h

Current Conditions

DC+

Packaging data

Packaging Type	DRYBAG
Weight (kg)	25
-	●