

# Agglomerated Welding Flux BF 2.1

**Flux type:** Aluminate-Rutile

**Classification:** ISO 14174 – S A AR 1 76 AC H5\*

**Characteristics:**

BF 2.1 is an agglomerated welding flux with the characteristic of an Aluminate-Rutile Type. Designed for all SAW-processes and welding of ordinary carbon-manganese, low alloy structural and boiler quality steels with yield strength up to 355 MPa (t < 25 mm) in combination with wire grades S2, S2Si. The flux is suitable for high speed welding (up to 2.2 m/min.) and provides very good weld bead appearance and excellent slag release even

with small angle preparation and fillet welds. The chemical nature of BF 2.1 flux provides high resistance to cracking on single pass applications. Additional features are resistance to porosity when welding rusty plates, heavy scale or other contaminations of plate surfaces (e.g. special primer-coatings) and low sensitivity to arc blow.

**Application:**

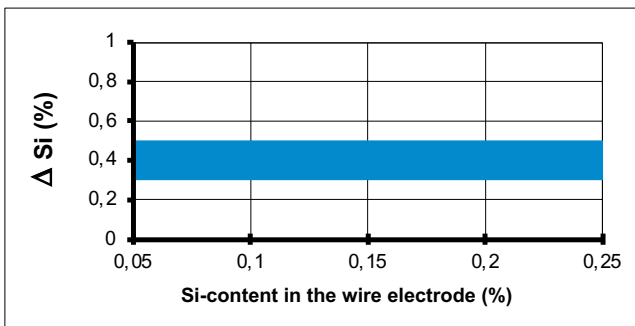
Preferentially used for single-run, two-run and fillet SA-welding. Main fields of application include structural steelwork, thin-walled containers, LP-gas cylinders and lightning towers.

**Characteristic chemical Constituents:**

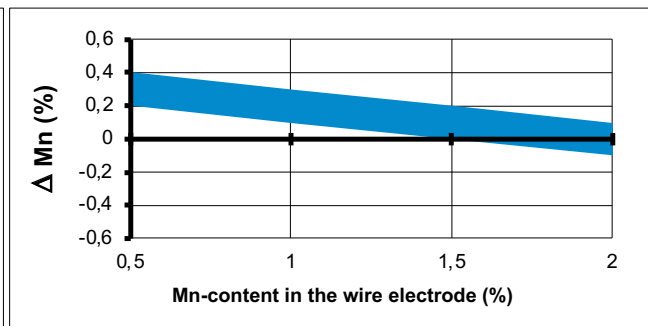
$SiO_2 + TiO_2$	$Al_2O_3 + MnO$	$CaO + MgO$	$CaF_2$
25 %	50 %	10 %	10 %
Basicity according to Boniszewski: ~0.8			

**Metallurgical behaviour acc. to ISO 14174 type of current DC:**

Pick-up Silicon



Pick-up/Burn-out Manganese



**Flux density:** 1.0 kg/dm<sup>3</sup> (l)

**Grain size acc. to ISO 14174:** 4–14

**Current-carrying capacity:** up to 800 A (DC or AC) using one wire

\* Diffusible hydrogen content H5: determined in deposited metal acc. to the method described in ISO 3690 Type of current DC; redrying conditions 150–200 °C

**All-weld metal multiple pass classification of wire-flux combinations:**

Wire electrode		Test assembly ISO 15792-1: type 1.3	AWS A5.17M/5.23M	AWS A5.17/5.23
ISO 14171-A ISO 24598-A	AWS A5.17/.23			
BA-S2	EM12(K)	ISO 14171-A: S 42 0 AR S2	F48A0-EM12(K)	F7AZ-EM12(K)
BA-S2Si	EM12K	ISO 14171-A: S 42 2 AR S2Si	F48A2-EM12K	F7A0-EM12K

**Two-run classification of wire-flux combinations:**

Wire electrode		Two-run ISO 15792-2: type 2.5	AWS A5.17M/5.23M	AWS A5.17/5.23
ISO 14171-A	AWS A5.17/.23			
BA-S2	EM12(K)	ISO 14171-A: S 3T 2 AR S2	F43TA2-EM12(K)	F6TA0-EM12(K)
BA-S2Si	EM12K	ISO 14171-A: S 3T 2 AR S2Si	F43TA2-EM12K	F6TA0-EM12K

**Chemical composition of all-weld metal acc. to EN ISO 15792-1 and AWS A5.17/5.23:**

(characteristical values in wt. %)

Wire electrode		C	Si	Mn	Mo	Ni	Cr	Cu
BA-S2	EM12(K)	0.04–0.08	0.4–0.8	1.0–1.4				
BA-S2Si	EM12K	0.04–0.08	0.4–0.8	1.0–1.4				

**Mechanical properties of all-weld metal acc. to EN ISO 15792-1 and AWS A5.17/5.23:**

(characteristical values)

Wire electrode		Heat treatment	YS MPa	UTS MPa	Elong. %	Impact ISO-V (J)				
						RT	± 0 °C +32 °F	-20 °C -4 °F	-30 °C -22 °F	-40 °C -40 °F
BA-S2	EM12(K)	U	>420	>530	>22	>70	>47			
BA-S2Si	EM12K	U	>430	>540	>22	>80	>50	>27		

**Packaging:** 27.5 kg PE-Bags or 500–1,250 kg Big Bags

**Storage:** Unopened originally packed flux bags can be stored up to one year in dry storage

**Redrying conditions specific to the flux:**

150–200 °C effective flux temperature