

ESW FLUX: Stainless STEEL



WF-338

Specification	EN760
Classification	ES A AF 2 DC

Application and Properties:

WF-338 is an agglomerated aluminate-fluoride basic type flux for eletroslag strip cladding. It is applied for electroslag strip cladding corrosion resistant boiler and pressure vessels in chemistry, petrochemical and nuclear industries that 309LMo strip is used for 1st layer on strip cladding or 308L, 316L and 347 strip are used for corrosion resistance layers. All dust, oil, and rust should be removed before cladding.

The cladding metal shows excellent wetting and welding properties. Slag detachability is easy; the eletroslag process is stable.

Basicity	3.8 (BIIW)
Grain Size	18-60 mesh
Current	DC+
Redried	300-350°C × 2hrs

Main Constituents (%)

SiO₂+TiO₂	Al₂O₃+MnO	CaF₂	S	P
5	30	60	≤0.03	≤0.04

Surfacing Metal Chemical Analysis (%)

Strip	C	Cr	Ni	Nb	Mo
WS-308L (2nd layer)	≤0.04	18.0-21.0	9.0-11.0	-	-
WS-309L (1st layer)	≤0.04	18.0-21.0	9.0-11.0	-	-
WS-316L (2nd layer)	≤0.04	18.0-21.0	9.0-11.0	-	2.0-3.0
WS-309LMo (1st layer)	≤0.04	18.0-21.0	9.0-11.0	-	2.0-3.0
WS-347 (2nd layer)	≤0.04	18.0-21.0	9.0-11.0	8×C%-1.0	-
WS-309LMo (1st layer)	≤0.04	18.0-21.0	9.0-11.0	8×C%-1.0	-

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WF-338H

Specification	EN760
Classification	ES A AF 2 DC

Application and Properties:

WF-338H is an agglomerated aluminate-fluoride basic type flux for high-speed eletroslag strip cladding. It is applied for electroslag strip cladding corrosion resistant boiler and pressure vessels in chemistry, petrochemical and nuclear industries that 309LMo strip is used for 1st layer on strip cladding or 308L, 316L and 347 strip are used for corrosion resistance layers. All dust, oil, and rust should be removed before cladding.

The cladding metal shows excellent wetting and welding properties. Slag detachability is easy; the eletroslag process is stable.

Basicity	3.8 (BIIW)
Grain Size	18-60 mesh
Current	DC+
Redried	300-350°C × 2hrs

Main Constituents (%)

SiO₂+TiO₂	Al₂O₃+MnO	CaF₂	S	P
5	30	60	≤0.03	≤0.04

Surfacing Metal Chemical Analysis (%)

Strip	C	Cr	Ni	Nb	Mo
WS-308L (2nd layer)	≤0.04	18.0-21.0	9.0-11.0	-	-
WS-309L (1st layer)	≤0.04	18.0-21.0	9.0-11.0	-	-
WS-316L (2nd layer)	≤0.04	18.0-21.0	9.0-11.0	-	2.0-3.0
WS-309LMo (1st layer)	≤0.04	18.0-21.0	9.0-11.0	-	2.0-3.0
WS-347 (2nd layer)	≤0.04	18.0-21.0	9.0-11.0	8×C%-1.0	-
WS-309LMo (1st layer)	≤0.04	18.0-21.0	9.0-11.0	8×C%-1.0	-

ESW FLUX: Stainless Steel



WF-3308

Specification	EN760
Classification	ES A AF 2 CrNi DC

Application and Properties:

WF-3308 is an agglomerated aluminate-fluoride basic type flux for electroslag strip cladding. It is suitable for single-layer electroslag strip surfacing on carbon steel with WS-308L strip, typically for electroslag strip cladding corrosion resistant boiler and pressure vessels in chemistry, petrochemical and nuclear industries. All dust, oil and rust should be removed before cladding.

The electroslag process is stable, and shows excellent wetting and welding properties. Slag detachability is easy.

Metallurgical Behavior	Cr and Ni compensation
Basicity	3.8 (BIIW)
Grain Size	18-60 mesh
Current	DC+
Redried	300-350°C × 2hrs

Main Constituents (%)

SiO₂+TiO₂	Al₂O₃+MnO	CaF₂	S	P
5	30	60	≤0.02	≤0.03

Chemical Composition of the Second Layer Deposited Metal (%)

Strip	C	Si	Mn	Cr	Ni
WS-308L	≤0.04	≤1.0	≤2.5	18.0-21.0	9.0-11.0

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WF-3316

Specification	EN760
Classification	ES A AF 2 CrNiMo DC

Application and Properties:

WF-3316 is an agglomerated aluminate-fluoride basic type flux for electroslag strip cladding. It is suitable for single-layer electroslag strip surfacing on carbon steel with WS-316L strip, typically for electroslag strip cladding corrosion resistant boiler and pressure vessels in chemistry, petrochemical and nuclear industries. All dust, oil and rust should be removed before cladding.

The electroslag process is stable, and shows excellent wetting and welding properties. Slag detachability is easy.

Metallurgical Behavior	Cr, Ni, and Mo compensation
Basicity	3.8 (BIIW)
Grain Size	18-60 mesh
Current	DC+
Redried	300-350°C × 2hrs

Main Constituents (%)

SiO₂+TiO₂	Al₂O₃+MnO	CaF₂	S	P
5	30	60	≤0.02	≤0.03

Chemical Composition of the Second Layer Deposited Metal (%)

Strip	C	Cr	Ni	Mo
WS-316L	≤0.04	18.0-21.0	9.0-11.0	2.0-3.0

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WF-3347

Specification	EN760
Classification	ES A AF 2 CrNiNb DC

Application and Properties:

WF-3347 is an agglomerated aluminate-fluoride basic type flux for electroslag strip cladding. It is suitable for single-layer electroslag strip surfacing on carbon steel with WS-347 strip, typically for electroslag strip cladding corrosion resistant boiler and pressure vessels in chemistry, petrochemical and nuclear industries. All dust, oil and rust should be removed before cladding.

The electroslag process is stable, and shows excellent wetting and welding properties. Slag detachability is easy.

Metallurgical Behavior	Cr, Ni, and Nb compensation
Basicity	3.8 (BIIW)
Grain Size	18-60 mesh
Current	DC+
Redried	300-350°C × 2hrs

Main Constituents (%)

SiO₂+TiO₂	Al₂O₃+MnO	CaF₂	S	P
5	30	60	≤0.02	≤0.03

Chemical Composition of the Second Layer Deposited Metal (%)

Strip	C	Cr	Ni	Nb	FN
WS-347	≤0.04	18.0-21.0	9.0-11.0	0.3-1.0	5-10

ESW FLUX: Nickel-based Alloy



WF-638

Specification	EN760
Classification	ES A AF 2 DC

Application and Properties:

WF-638 is an agglomerated aluminate-fluoride basic type flux for eletroslag strip cladding with nickel-based alloy on carbon steel and low alloy steel. The flux should be welded on DCEP. All dust, oil and rust should be removed.

The chemical composition of cladding metal is nearly matching with strip in the second layer. Cladding weld is smooth, tight ripples and excellent wetting; thereby it can be used in the as-welded condition.

Metallurgical Behavior	Minimum burn-off of alloy elements
Basicity	4.0 (BIIW)
Grain Size	18-60 mesh
Current	DC+
Redried	300-350°C × 2hrs

Main Constituents (%)

SiO₂+TiO₂	Al₂O₃+MnO	CaF₂
5	30	60

Chemical Composition of Deposited Metal (%)

Strip	C	Mn	Si	Cr	Ni	Mo	Fe
WS-NICKEL-6082 (2nd layer)	≤0.03	2.50-3.50	≤0.5	18.0-22.0	bal	Nb+Ta 2-3	≤3.0
WS-NICKEL-6625 (2nd layer)	≤0.03	≤0.5	≤0.5	20.0-23.0	bal	8.0-10.0	≤5.0