

LA491 FLUX

Product description

Agglomerated fluoride-basic flux for submerged arc welding.

Basicity Index (according to Boniszewski) is ~2.7. Particle size is 0.2 – 2.0mm. Nominal composition of the flux is:

40%(CaO+MgO) + 25%(CaF₂) + 20%(Al₂O₃+MnO) + 15%(SiO₂+TiO₂)

Specifications

BS EN 760 S A FB 255 AC
DIN 32522 B FB 6 55455 AC 8

ASME IX Qualification

QW432 F-No -, QW442 A-No -.

Materials to be welded

Major application is for welding modified 9CrMo (P91) creep resisting steel (data sheet A-17) but also suitable for most 300 series stainless steels eg 308L (data sheet B-30), 316L (data sheet B-32) and 309L (data sheet B-50). Also suitable for duplex (B-60) and superduplex (B-61). Not recommended for 321/347 because the Ti/Nb affects slag release.

Applications

The LA491 flux is metallurgically neutral with respect to Mn and Si. It is a hydrogen controlled flux depositing low diffusible hydrogen content weld metal and hence is suitable for thick section joints. Also suitable for use with tandem and multi-wire welding

systems. The LA491 flux has been found to be beneficial for applications with 308S92/ER308L and 316S92/ER316L requiring cryogenic impact properties of 0.38mm lateral expansion at -196°C. Batch selection of wire is generally required and batch testing is recommended.

Welding guidelines

Guidelines will depend on the material being welded. For further details see the appropriate alloy data sheet eg. for modified 9CrMo (P91) using 9CrMoV-N wire see data sheet A-17, 308S92/ER308L see data sheet B-30, 316S92/ER316L see data sheet B-32 and for 309S92/ER309L data sheet B-50.

Typical parameters

Current: DC+ or AC, 800A maximum.

Packaging data

Metrode LA491 flux is supplied in sealed moisture resistant 20kg metal drums.

Storage

Preferred storage conditions for open drums: <60%RH, >18°C.

If flux has become damp or has been stored for a long period, it should be redried in the range 300-350°C for 1-2 hours.

Fume data

SAW fume is negligible.

Typical weld deposit analysis, wt%

Wire	C	Mn	Si	S	P	Cr	Ni	Mo	N	Others
9CrMoV-N	0.08	0.6	0.35	0.005	0.007	8.5	0.7	1	0.04	0.16V, 0.04Nb
308S92/ER308LCF	0.02	1.7	0.4	0.010	0.015	20	10	-	-	-
316S92/ER316LCF	0.02	1.4	0.5	0.010	0.015	18.5	12	2.5	-	-
Zeron [®] 100X	0.02	0.6	0.4	0.010	0.015	24.5	9.3	3.6	0.21	0.7Cu, 0.7W

Typical Mechanical properties

Wire	Tensile strength, MPa	0.2% proof stress, MPa	Elongation on 4d, %	Impact energy, J *
9CrMoV-N (760°C/2h)	745	630	25	40 at +20°C
308S92/ER308LCF	570	450	40	50 at -196°C
316S92/ER316LCF	570	450	40	30 at -196°C
Zeron [®] 100X	890	700	25	40 at -50°C

* For -196°C impact properties with austenitic stainless steels, batch testing of the wire-flux combination is recommended.