



DESCRIPTION

Basic coated electrode for nickel based C22 alloy

The high level of Mo is similar to alloys C276 and C4 but performance in a wide range of more oxidising media is significantly enhanced in alloy C22 by increasing Cr to 22%. This alloy also provides a tough Nb-free weld metal for dissimilar welds in superaustenitic and superduplex stainless steel or combinations of these with Ni base alloys. Applications in aggressively corrosive media include scrubbers for flue gas desulphurisation (FGD), digesters and papermaking equipment, chemical process plant, corrosion resistant overlays and in severe offshore and petrochemical environments.

SPECIFICATIONS

ISO 14172	E Ni 6022	AWS A5.11	ENiCrMo-10
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	-
Positions	PA, PB, PC, PD, PE, PF	Current	DC+

ASME QUALIFICATIONS

F-No (QW432)	43
A-No (QW442)	-

FERRITE

-

PREN

72.195

HARDNESS

-

CHEM. COMP. %

	DEFAULT
C	0.005
Mn	0.15
Ni	58
Cr	22.2
V	0.05
P	0.006
S	0.002
Mo	13.5
Si	0.1
Cu	0.05
Fe	2.6
W	3.3

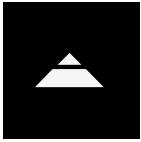
MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R_m MPa	690	700
Yield strength $R_{p0.2}$ MPa	350	410
Elongation A ($L_0=5d_0$) %	22	25
Impact Charpy ISO-V	-	50J @ -196°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	2.5 mm	3.2 mm	4 mm	
Ampere	50A - 70A	75A - 100A	80A - 140A	125A -
Voltage	-	-	-	-
Packaging	60 pcs/kg	29 pcs/kg	19 pcs/kg	13 p
Packaging Type	Carton box and tube.	Carton box and tube.	Carton box and tube.	Carton box and



**C22**

DESCRIPTION

NICKEL ALLOYS

C22

APPLICATION

The composition of the weld deposit, Ni-22Cr-13.5Mo-3W, is tailored to correspond to the nickel base alloy commonly referred to as alloy C22. The elevated molybdenum content mirrors alloys C276 and C4, but alloy C22 significantly improves performance in a broader range of oxidizing media by increasing chromium to 22%. Alloy C22 also furnishes a robust Nb-free weld metal suitable for dissimilar welds involving superaustenitic and superduplex stainless steels, or combinations of these with nickel base alloys. Some authorities prohibit or have ceased the use of alloy 625 consumables in such applications, where harmful Nb-rich precipitates may form in diluted or partially mixed regions around the fusion boundary. Applications of alloy C22 in highly corrosive environments encompass scrubbers for flue gas desulphurization (FGD), digesters and papermaking equipment, chemical process plants, corrosion-resistant overlays, and in severe offshore and petrochemical settings. Preheat is not typically required, with interpass temperature restricted to 100°C, and maintaining heat inputs below 1 kJ/mm is advisable.

ALLOY TYPE

Nickel base 22%Cr-13.5%Mo-3%W, alloy C22.

MICROSTRUCTURE

Solid solution strengthened high nickel austenite, with some microsegregation typical of as deposited weld metal.

MATERIALS

EN W.Nr.: 2.4602 (NiCr21Mo14W), 2.4811, 2.4836 (NiCr20Mo15), 2.4697 (G-NiCr20Mo15), 2.4610 (NiMo16Cr16Ti), 1.4529, 1.4565, 1.4575, 1.4652.

ASTM: A494 CX2MW (cast).

UNS: N06022, N06455, S31254, S31266, S32654, S34565, N08367, N08925, N08926.

PROPRIETARY: Hastelloy® Alloy C-22, C-4 (Haynes International Inc), Nicrofer 5621hMoW (VDM), Inconel® 622 (Special Metals), 254SMO, 654SMO (Outokumpu), Uranus B66 (Usinor Industeel).

