



# SANDVIK 27.31.4.LCu

## WELDING WIRE

### DATASHEET

Sandvik 27.31.4.LCu is a copper alloyed chromium-nickel-molybdenum filler material for welding of high-alloy austenitic stainless steels such as Sanicro 28 (UNS S08028, 1.4363) type. It is also suitable for joining Sanicro 41 (UNS N08825, 2.4858) and other similar materials.

#### STANDARDS

- ISO 14343: 27 31 4 Cu L
- AWS A5.9/ASME SFA-5.9: ER383

#### Product Approvals

- CE
- TÜV

Contact your nearest sales office for details.

#### CHEMICAL COMPOSITION (NOMINAL) %

##### Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Ni	Mo	Cu
≤0.020	≤0.2	1.7	≤0.015	≤0.010	27.0	31.0	3.5	1.0

#### APPLICATIONS

Due to its outstanding corrosion properties, Sandvik 27.31.4.LCu can be used in the most diverse environments, such as phosphoric and sulphuric acid, sour gas service in the oil & gas industry and chloride bearing seawater. Typical applications are found in heat exchangers, evaporators and transport piping.

#### WELD METAL CHARACTERISTICS

Fully austenitic.

#### MECHANICAL PROPERTIES

MIG TIG – typical for non-heat treated weld metal

Temperature	°C (°F)	20 (68)
Yield strength, RP <sub>0.2</sub>	MPa (ksi)	360 (52)
Tensile strength, R <sub>m</sub>	MPa (ksi)	540 (78)
Elongation, A	%	35
Reduction in area, Z	%	65
Hardness, Vickers	HV10	160

## CORROSION RESISTANCE

Sandvik 27.31.4.LCu has high resistance to general corrosion, particularly in contaminated technical phosphoric acid. It has also very good resistance to intergranular corrosion and stress corrosion cracking. For example in 50% sulphuric acid at 80 °C for 1+3+3 days, the corrosion rate is about 0.23 mm/year.

## FABRICATION

### Recommended welding data

#### MIG welding

Electrode positive is used to give good penetration in all types of welding joint. The following table shows common conditions for MIG welding.

Wire diameter, mm	Wire feed, m/mm	Current, A	Voltage, V	Gas, l/min. (CFH)
Short-arc welding				
0.8	5-9	50-140	16-25	15 (31)
1.0	5-9	70-160	16-25	15 (31)
Spray-arc welding				
1.0	6-12	150-230	26-31	22 (46)
1.2	5-9	170-280	27-32	22 (46)
Pulsed-arc welding <sup>1)</sup>				
1.2	3-10	150-250	23-31	18 (38)

1) Pulse parameters:

- Peak current 300–400 A
- Background current 50–150 A
- Frequency 80–120 Hz

Sandvik can provide recommendations for shielding gases.

Short-arc welding is used for thin gauge material of less than about 3 mm, in depositing root runs, and in welding out-of-flat positions.

The higher the inductance in short-arc welding, the higher the fluidity of the molten pool.

Spray-arc welding is normally used for heavier gauge material.

#### TIG welding

The parameters for TIG welding depend largely upon the base metal thickness and the welding application.

Electrode negative and a shielding gas of argon or helium should be used to prevent oxidation of the weld metal.

#### Submerged-arc welding

Electrode positive is suggested for joint welding to give good penetration.

Wire diameter, mm	Current, A	Voltage, V
2.0	200-300	28-32
2.4	250-400	28-32
3.2	300-450	29-34

Recommended welding flux is Sandvik 15W.

---

**Disclaimer:** Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.