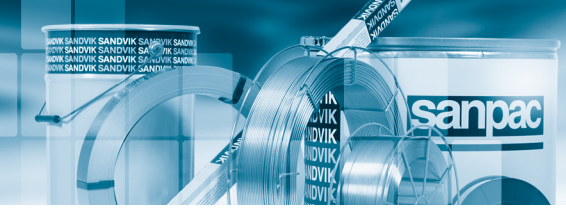


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# Sandvik 37S

## (Welding flux)

Sandvik 37S is a highly basic, agglomerated flux for electroslag strip surfacing. It gives excellent slag removal and bead appearance also for niobium-alloyed strip electrodes. Flux Sandvik 37S is used together with strip electrodes of chromium, chromium-nickel and chromium-nickel-molybdenum steel types with or without niobium. The high basicity of flux Sandvik 37S makes it especially suitable for duplex, super-duplex and fully austenitic stainless steel surfacings.

### ALLOYING VECTOR

The alloying vector describes the difference in chemical composition between the filler metal and the undiluted all-weld metal due to the influnce of the flux.

| Element | Sandvik strip electrode | | | | |
|---|---|---|---|---|---|
| | 22.11.L | 21.11.LNb | 24.13.LNb | 21.13.3.L | 25.22.2.LMn |
| C | +0.001 | -0.002 | +0.002 | -0.001 | +0.001 |
| Si | +0.2 | +0.2 | +0.3 | +0.2 | +0.3 |
| Mn | -0.5 | -0.5 | -0.5 | -0.5 | -0.9 |
| Cr | -0.3 | -0.3 | -0.2 | -0.2 | -0.2 |
| Ni | -0.1 | 0 | 0 | -0.2 | 0 |
| Mo | - | - | - | 0 | 0 |
| Nb | - | -0.1 | -0.1 | - | - |

### CHEMICAL COMPOSITION (NOMINAL), %

| SiO2 | Al2O3+TiO2 | CaO+MgO |
|---|---|---|
| 7 | 25 | 50 |

### FLUX DATA

| | |
|---|---|
| Bulk weight | 0.8 kg/l |
| Basicity (Boniszewski) | 3.8 |
| Current capacity<br>using 60 x 0.5 mm strip electrode | 1800 A |
| Flux consumption | 0.7 kg/kg strip electrode |

### SURFACING

The chemical compositions below are typical results after weld surfacing on 2¼Cr1Mo steel.

| Alloy type | ASTM 347 | ASTM 310MoLN |
|---|---|---|
| Layer 1 | Sandvik 22.11.L | Sandvik 25.22.2.LMn |
| Layer 2 | Sandvik 19.9.LNb | Sandvik 25.22.2.LMn |
| C | 0.02 | 0.020 |
| Si | 0.5 | 0.4 |
| Mn | 1.3 | 3.4 |
| Cr | 19.3 | 24.2 |
| Ni | 10.4 | 21.8 |
| Mo | 0.1 | 2.1 |
| Nb | 0.4 | - |
| N | 0.04 | 0.12 |

| Alloy type | ASTM 347 | ASTM 347 | ASTM 316 |
|---|---|---|---|
| Layer 1 | Sandvik 21.11.LNb | Sandvik 24.13.LNb | Sandvik 21.13.3.L |
| C | 0.02 | 0.03 | 0.02 |
| Si | 0.5 | 0.4 | 0.3 |
| Mn | 1.4 | 1.5 | 1.3 |
| Cr | 18.7 | 21.1 | 18.2 |
| Ni | 9.7 | 11.1 | 12.3 |
| Mo | 0.1 | 0.2 | 2.6 |
| Nb | 0.5 | 0.6 | - |
| N | 0.05 | 0.03 | 0.03 |

**Intergranular corrosion**
All five surfacings above have been IGC tested (ASTM A262, Pr.E, Strauss) after heat treatment at 690°C for 15 hours, and passed.

**Bend testing**
All three surfacings have passed side bend testing (ASME IX) after heat treatment at 690°C for 15 hours. Disbonding results are available on request.

## WELDING PARAMETERS

Direct current, with electrode positive is normally used.

| Strip electrode | Current, A | Voltage, V | Travel speed, mm/min |
|---|---|---|---|
| 60x0.50 | 1100-1400 | 23-26 | 130-220 |
| 90x0.50 | 1650-2100 | 23-26 | 130-220 |

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.