tk accelis

# Material Data Sheet

Technischer Verkauf

## Low alloyed copper alloy

| Material designation: | EN-Material-No. | DIN-Material-No. |
|---|---|---|
| | **CuNi2SiCr ~ [CW111C]** | |

### Scope

This data sheet applies to long products made of precipitation hardening copper alloy CuNi2SiCr.

### Application

The material CuNi2SiCr exhibits strength even at elevated temperatures. In addition to high wear resistance, the material is characterized by high electrical conductivity when fully hardened. In a natural atmosphere CuNi2SiCr exhibits good corrosion resistance. This material is mainly used in electrical engineering and mechanical engineering as a contact material, as well as in instrument manufacturing.

### Chemical composition in %

| Cu | Ni | Si | Cr |
|---|---|---|---|
| Rest[a)] | 1,8-3,0 | 0,4-1,0 | 0,2-0,8 |

[a)] Other elements: total: max. 0,3 %

## Mechanical properties at room temperature (rod, bar) acc. EN 12163

| Temper | Dimensions | | Tensile strength | Proof strength | Elongation | | | Hardness |
|---|---|---|---|---|---|---|---|---|
| | Diameter | Hexagonal | $R_m$ | $R_{p0,2}$ | $A_{100\ mm}$ | $A_{11,3}$ | A | Brinell |
| | [mm] | [mm] | [N/mm²] | [N/mm² | [%] | [%] | [%] | HBW |
| R650[a)] | ≥2-30 | ≥2-30 | ≥650 | ≥500 | - | - | ≥10 | - |
| H190[a)] | ≥2-30 | ≥2-30 | - | - | - | - | - | 190 -240 |

[a)] solution annealed, cold formed and precipitation hardened

## Mechanical properties at room temperature (profiles und rectangular bars) acc. EN 12167

| Temper | Dimensions | | Tensile strength | Proof strength | Elongation | | | Hardness |
|---|---|---|---|---|---|---|---|---|
| | Profile[a)] | Rectangular bar Thickness | $R_m$ | $R_{p0,2}$ | $A_{100\ mm}$ | $A_{11,3}$ | A | Brinell |
| | | [mm] | [N/mm²] | [N/mm² | [%] | [%] | [%] | HBW |
| R650[b)] | - | ≥3-10 | ≥650 | ≥500 | - | - | ≥10 | - |
| H190[b)] | - | | - | - | - | - | - | 190 -240 |

[a)] The mechanical properties of profiles depend on the shape and dimensions of the profile and must be agreed between the buyer and supplier.

[b)] solution annealed, cold formed and precipitation hardened

## Reference data for some physical properties (for guidance only)

| Density at 20 °C | Electrical conductivity | Thermal conductivity | Specific heat capacity | Young's modulus | Shear modulus |
|---|---|---|---|---|---|
| [kg/dm³] | [MS/m] | [W/m·K] | [J/g·K] | [MPa] | [MPa] |
| 8,78 | ~26,0 | 160 | 0,42 | 140000 | - |

## Guidance on the temperatures for hot forming and heat treatment

| Soft annealing temperature | Stress-relieving annealing temperature | Hot forming temperature |
|---|---|---|
| - | - | - |

## Processing/Welding

In the solution-annealed condition the material has a very good hot and cold formability. Cold formability becomes more difficult as hardening increases. Furthermore, CuNi2SiCr is well suitable for welding and brazing. The machinability of this material is rated as moderate to difficult. Machinability improves with increasing mechanical strength.

## Remark

The material is compliant to RoHS and REACH.

## Editor

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## Reference

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|---|---|
| DIN EN 12163:2025-02 | Beuth Verlag GmbH, Postfach, D-10772 Berlin |
| DIN EN 12167:2016-11 | |
| Copper Material Data Sheets | Deutsches Kupferinstitut Berufsverband e.V.<br>D-40239 Düsseldorf |
| Data Sheet Elmedur NCS | Wieland-Werke AG<br>89079 Ulm |

## Important note