MATERIAL DATA SHEET

# Niobium (Nb), pure element

Open pure-element reference card for Niobium (Nb) with room-temperature density and available thermal properties.

| Field | Value |
|---|---|
| Material ID | element-niobium-pure |
| Category | Metal |
| Condition | pure elemental niobium reference \| unspecified bulk elemental material |
| Unit system | Common SI |
| Unit contract | Material properties stored in SI engineering units. |
| Generated | 2026-11-15 23:12 |

## Source and Validity

| Field | Value |
|---|---|
| Quality | Catalog record |
| Design release allowed | No |
| Source family | Catalog record |
| Confidence | Reference-grade |
| License | Open |
| Source note | MIT-licensed pure-element reference record generated from a pinned source snapshot. |
| Citation | mendeleev-data v1.2.0, elements.csv and propertymetadata.csv, commit 665935bc115d1aaed8a8264ce4cb54c9be8b75f7, MIT license; https://github.com/lmmentel/mendeleev-data |
| Valid temperature | 21.85 ... 25 degC (Density is reported at 295 K; specific heat capacity and thermal conductivity are reported at 25 degC.) |
| Valid pressure | 1 ... 1 bar (Specific heat capacity is reported at 1 bar; pressure effects on the listed solid reference values are not modeled.) |
| Valid phase / condition | Pure elemental Niobium near room temperature; upstream allotrope and lattice conventions apply. |
| Uncertainty | Open reference-compilation values for screening. Verify purity, allotrope, microstructure, product form, temperature, and supplier data before engineering release. |
| Last reviewed | 2026-07-30 |
| Reviewer | scripts/import_mendeleev_public_elements.py |
| Review status | Checked |
| Review scope | Checked pinned source hashes, MIT attribution, selected-element scope, field units, and deterministic unit conversions; not validated as alloy or design allowable data. |
| Notes | Not an alloy grade or product-standard record. |

| Field | Value |
|---|---|
| License ID | MIT |
| License URL | https://opensource.org/license/mit |
| Attribution | mendeleev-data, Copyright (c) 2024 Lukasz Mentel |

## Material Condition

| Field | Value |
|---|---|
| Condition | pure elemental niobium reference |
| Product form | unspecified bulk elemental material |
| Thickness / diameter range | Not applicable to this pure-element reference card. |
| Test direction | Not specified by the upstream elemental compilation. |
| Processing route | Not specified. |
| Temperature range | 21.85 ... 25 degC |
| Notes | Pure element only; do not use as a substitute for an alloy grade or product specification. |

## Properties

### Physical

| Property | Value | Unit | Type | Applies to |
|---|---|---|---|---|
| Molar mass | 92.90637 | kg/kmol | Nominal | Numerically equivalent to the upstream relative atomic weight in Da. |
| Density | 8570 | kg/m^3 | Nominal | Pure element at 295 K; upstream allotrope convention applies. |

### Thermal

| Property | Value | Unit | Type | Applies to |
|---|---|---|---|---|
| Specific heat capacity | 265 | J/kg/K | Nominal | Pure element at 25 degC and 1 bar. |
| Thermal conductivity | 53.7 | W/m/K | Nominal | Pure element at 25 degC. |

### Identity

| Property | Value | Unit | Type | Applies to |
|---|---|---|---|---|
| Atomic number | 41 | - | Nominal | Element identity. |

## Structure

| Property | Value | Unit | Type | Applies to |
|---|---|---|---|---|
| Lattice structure code | BCC | - | Nominal | Upstream room-temperature crystallographic code. |

Engineering note: seed solid-material values are reference values only. Verify against the project material specification or supplier data sheet before release.