MATERIAL DATA SHEET

Iron (Fe), pure element

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

Field	Value
Material ID	element-iron-pure
Category	Metal
Condition	pure elemental iron reference | unspecified bulk elemental material
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 22:57

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 Iron 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 iron 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	55.845	kg/kmol	Nominal	Numerically equivalent to the upstream relative atomic weight in Da.
Density	7870	kg/m^3	Nominal	Pure element at 295 K; upstream allotrope convention applies.

Thermal

Property	Value	Unit	Type	Applies to
Specific heat capacity	449	J/kg/K	Nominal	Pure element at 25 degC and 1 bar.
Thermal conductivity	80.4	W/m/K	Nominal	Pure element at 25 degC.

Identity

Property	Value	Unit	Type	Applies to
Atomic number	26	-	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.