# ADVENT
RESEARCH MATERIALS

**TECHNICAL DATA SHEET**

Source: Wolfram Research / periodictable.com

CAS: 7440-32-6
Atomic Weight: 47.867 g/mol

# Ti
Titanium
22

## OVERVIEW

| | |
|---|---|
| Full Name | **Titanium (None)** |
| Symbol | **Ti** |
| Atomic Number | **22** |
| Series | **Transition Metal** |
| Block / Group / Period | **d-block \| Group 4 \| Period 4** |
| Electron Config. | **[Ar]4s23d2** |
| Phase at STP | **Solid** |
| Colour | **Silver** |
| Discovery | **1791 in The United Kingdom** |

## THERMAL PROPERTIES

| | | |
|---|---|---|
| Melting Point | **1668 °C** | °C |
| Melting Point (abs.) | **1941 K** | K |
| Boiling Point | **3287 °C** | °C |
| Boiling Point (abs.) | **3560 K** | K |
| Heat of Fusion | **18.7 kJ/mol** | kJ/mol |
| Heat of Vaporization | **425 kJ/mol** | kJ/mol |
| Specific Heat (solid) | **520 J/(kg K)** | J/(kg·K) |
| Thermal Conductivity | **22 W/(m K)** | W/(m·K) |
| Thermal Expansion | **8.6×10-6 K-1** | K^-1 |

## MECHANICAL PROPERTIES

| | | |
|---|---|---|
| Density (solid, STP) | **4.507 g/cm3** | g/cm3 |
| Density (liquid, MP) | **4.11 g/cm3** | g/cm3 |
| Young's Modulus | **116 GPa** | GPa |
| Shear Modulus | **44 GPa** | GPa |
| Bulk Modulus | **110 GPa** | GPa |
| Poisson's Ratio | **0.32** | |
| Speed of Sound | **4140 m/s** | m/s |
| Mohs Hardness | **6** | |
| Vickers Hardness | **970 MPa** | MPa |
| Brinell Hardness | **715 MPa** | MPa |

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| Type | **Conductor** | |
| Conductivity | **2.5×106 S/m** | S/m |
| Resistivity | **4×10-7 m ?** | Ohm·m |
| Superconducting Pt. | **0.4** | K |

## MAGNETIC PROPERTIES

| | | |
|---|---|---|
| Type | **Paramagnetic** | |
| Vol. Susceptibility | **0.0001807** | |
| Mass Susceptibility | **4.01×10-8 m3/Kg** | m3/kg |

## REACTIVITY

| | | |
|---|---|---|
| Valence | **4** | |
| Electronegativity | **1.54** | (Pauling) |
| Electron Affinity | **7.6 kJ/mol** | kJ/mol |
| Ionization Energies | **658.8, 1309.8** | kJ/mol |

## ATOMIC DIMENSIONS

| | | |
|---|---|---|
| Atomic Radius | **176 pm** | pm |
| Covalent Radius | **160 pm** | pm |

## CRYSTAL STRUCTURE

| | | |
|---|---|---|
| Structure | **Simple Hexagonal** | |
| Lattice Constant | **295.08, 295.08, 468.55 pm** | |
| Space Group | **P63/mmc** | #194 |

## ISOTOPES & NUCLEAR

| | | |
|---|---|---|
| Stability | **Stable** | |
| Stable Isotopes | **46Ti, 47Ti, 48Ti, 49Ti, 50Ti** | |
| Isotopic Abundance | **46Ti8.25%47Ti7.44%48Ti73.72%49Ti...** | |
| Known Isotopes | **38Ti ■ 63Ti (26 total)** | |
| Neutron Cross Sect. | **6.1** | barns |

## ELEMENTAL ABUNDANCES

| | | |
|---|---|---|
| Universe | **0.0003%** | % |
| Earth's Crust | **0.66%** | % |
| Oceans | **1×10-7%** | % |

## HEALTH & SAFETY

| | |
|---|---|
| DOT Hazard Class | **4.2** |
| NFPA Health/Fire/Rx | **0 / 0 / 0** |