

# Gold Spooled Wire

**Formula:** Au  
**Percentage Purity:** 99.99%  
**Product Shape:** Spooled  
**Diameter:** 0.1mm  
**Length:** 0.5m  
**Temper:** Annealed  
**CAS Number:** 7440-57-5  
**UOM Code:** 561-044-55  
**SKU:** 1000033768  
**Product Code:** AU00-WR-000133

## Material Properties for Precious Metals

### Atomic Properties

| Element                                           | Value                                                |
|---------------------------------------------------|------------------------------------------------------|
| Atomic number                                     | 79                                                   |
| Crystal structure                                 | Face centred cubic                                   |
| Electronic structure                              | Xe 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>1</sup> |
| Valences shown                                    | 1,3                                                  |
| Atomic weight( amu )                              | 196.9665                                             |
| Thermal neutron absorption cross-section( Barns ) | 98.8                                                 |
| Photo-electric work function( eV )                | 4.8                                                  |
| Atomic radius - Goldschmidt( nm )                 | 0.144                                                |
| Ionisation potential( No./eV )                    | 1/ 9.22                                              |
| Ionisation potential( No./eV )                    | 2/ 20.5                                              |

### Mechanical Properties

| Element             | Value |
|---------------------|-------|
| Material condition  | Soft  |
| Material condition  | Hard  |
| Poisson's ratio     | 0.42  |
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| Bulk modulus( GPa ) | 171   |
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| Element                                   | Value |
|-------------------------------------------|-------|
| Tensile modulus( GPa )                    | 78.5  |
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| Hardness - Vickers( kgf mm <sup>2</sup> ) | 20-30 |
| Hardness - Vickers( kgf mm <sup>2</sup> ) | 60    |
| Tensile strength( MPa )                   | 130   |
| Tensile strength( MPa )                   | 220   |
| Yield strength( MPa )                     | 205   |
| Yield strength( MPa )                     | -     |

## Electrical Properties

| Element                                           | Value         |
|---------------------------------------------------|---------------|
| Electrical resistivity( $\mu\text{Ohmcm}$ )       | 2.20@20@20°C  |
| Temperature coefficient( K <sup>-1</sup> )        | 0.004@0-100°C |
| Thermal emf against Pt (cold 0C - hot 100C)( mV ) | 0.74          |

## Physical Properties

| Element                     | Value     |
|-----------------------------|-----------|
| Boiling point( C )          | 3080      |
| Density( gcm <sup>3</sup> ) | 19.3@20°C |

## Thermal Properties

| Element                                                              | Value        |
|----------------------------------------------------------------------|--------------|
| Melting point( C )                                                   | 1064.4       |
| Latent heat of evaporation( J g <sup>-1</sup> )                      | 1738         |
| Latent heat of fusion( J g <sup>-1</sup> )                           | 64.9         |
| Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )                  | 129@25°C     |
| Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )            | 318@0-100°C  |
| Coefficient of thermal expansion( $\times 10^{-6}$ K <sup>-1</sup> ) | 14.1@0-100°C |