

## Haynes 242® alloy, cold reduced sheet, annealed

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

### Material Notes:

Age-hardenable, high ductility in the aged condition, lower thermal expansion than most alloys, very good oxidation resistance up to 815°C, excellent low cycle fatigue properties, very good thermal stability, and resistance to high-temperature fluorine and fluoride environments. Applications include seal rings, containment rings, duct segments, casings, fasteners, rocket nozzles, pumps, hydrofluoric acid vapor containing processes, fluoroelastomer process equipment such as extrusion screws. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Haynes-242-alloy-cold-reduced-sheet-annealed.php](http://www.lookpolymers.com/polymer_Haynes-242-alloy-cold-reduced-sheet-annealed.php)

| Physical Properties | Metric    | English                  | Comments |
|---------------------|-----------|--------------------------|----------|
| Density             | 9.05 g/cc | 0.327 lb/in <sup>3</sup> | at RT    |

| Mechanical Properties      | Metric              | English              | Comments                        |
|----------------------------|---------------------|----------------------|---------------------------------|
| Hardness, Brinell          | 257                 | 257                  | Converted from Vickers hardness |
| Hardness, Knoop            | 286                 | 286                  | Converted from Vickers hardness |
| Hardness, Rockwell C       | 19                  | 19                   | Converted from Vickers hardness |
| Hardness, Vickers          | 78.0                | 78.0                 |                                 |
|                            | @Temperature 870 °C | @Temperature 1600 °F |                                 |
|                            | 140                 | 140                  |                                 |
|                            | @Temperature 760 °C | @Temperature 1400 °F |                                 |
|                            | 218                 | 218                  |                                 |
|                            | @Temperature 650 °C | @Temperature 1200 °F |                                 |
|                            | 263                 | 263                  |                                 |
|                            | @Temperature 540 °C | @Temperature 1000 °F |                                 |
|                            | 271                 | 271                  |                                 |
|                            | @Temperature 425 °C | @Temperature 797 °F  |                                 |
| Tensile Strength, Ultimate | 950 MPa             | 138000 psi           |                                 |
| Tensile Strength, Yield    | 450 MPa             | 65300 psi            |                                 |
|                            | @Strain 0.200 %     | @Strain 0.200 %      |                                 |

| Elongation at Break<br>Mechanical Properties | 47 %<br>Metric           | 47 %<br>English          | in 50 mm<br>Comments |
|----------------------------------------------|--------------------------|--------------------------|----------------------|
| Modulus of Elasticity                        | 229 GPa                  | 33200 ksi                | RT                   |
|                                              | 152 GPa                  | 22000 ksi                |                      |
|                                              | @Temperature 1000<br>Â°C | @Temperature 1830<br>Â°F |                      |
|                                              | 163 GPa                  | 23600 ksi                |                      |
|                                              | @Temperature 900 Â°C     | @Temperature 1650<br>Â°F |                      |
|                                              | 172 GPa                  | 24900 ksi                |                      |
|                                              | @Temperature 800 Â°C     | @Temperature 1470<br>Â°F |                      |
|                                              | 185 GPa                  | 26800 ksi                |                      |
|                                              | @Temperature 700 Â°C     | @Temperature 1290<br>Â°F |                      |
|                                              | 193 GPa                  | 28000 ksi                |                      |
|                                              | @Temperature 600 Â°C     | @Temperature 1110<br>Â°F |                      |
|                                              | 199 GPa                  | 28900 ksi                |                      |
|                                              | @Temperature 500 Â°C     | @Temperature 932 Â°F     |                      |
|                                              | 206 GPa                  | 29900 ksi                |                      |
|                                              | @Temperature 400 Â°C     | @Temperature 752 Â°F     |                      |
|                                              | 213 GPa                  | 30900 ksi                |                      |
|                                              | @Temperature 300 Â°C     | @Temperature 572 Â°F     |                      |
|                                              | 219 GPa                  | 31800 ksi                |                      |
|                                              | @Temperature 200 Â°C     | @Temperature 392 Â°F     |                      |
|                                              | 225 GPa                  | 32600 ksi                |                      |
|                                              | @Temperature 100 Â°C     | @Temperature 212 Â°F     |                      |

| Thermal Properties | Metric                         | English                        | Comments |
|--------------------|--------------------------------|--------------------------------|----------|
| CTE, linear        | 10.8 Âµm/m-Â°C                 | 6.00 Âµin/in-Â°F               |          |
|                    | @Temperature 25.0 -<br>100 Â°C | @Temperature 77.0 -<br>212 Â°F |          |
|                    | 11.3 Âµm/m-Â°C                 | 6.28 Âµin/in-Â°F               |          |
|                    | @Temperature 25.0 -<br>200 Â°C | @Temperature 77.0 -<br>392 Â°F |          |

| Thermal Properties     | 11.6 Åµm/m-Å°C<br>Metric     | 6.44 Åµin/in-Å°F<br>English  | Comments |
|------------------------|------------------------------|------------------------------|----------|
|                        | @Temperature 25.0 - 300 Å°C  | @Temperature 77.0 - 572 Å°F  |          |
|                        | 11.9 Åµm/m-Å°C               | 6.61 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 400 Å°C  | @Temperature 77.0 - 752 Å°F  |          |
|                        | 12.2 Åµm/m-Å°C               | 6.78 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 500 Å°C  | @Temperature 77.0 - 932 Å°F  |          |
|                        | 12.3 Åµm/m-Å°C               | 6.83 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 600 Å°C  | @Temperature 77.0 - 1110 Å°F |          |
|                        | 12.4 Åµm/m-Å°C               | 6.89 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 650 Å°C  | @Temperature 77.0 - 1200 Å°F |          |
|                        | 13.0 Åµm/m-Å°C               | 7.22 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 700 Å°C  | @Temperature 77.0 - 1290 Å°F |          |
|                        | 13.7 Åµm/m-Å°C               | 7.61 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 750 Å°C  | @Temperature 77.0 - 1380 Å°F |          |
|                        | 14.0 Åµm/m-Å°C               | 7.78 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 800 Å°C  | @Temperature 77.0 - 1470 Å°F |          |
|                        | 14.5 Åµm/m-Å°C               | 8.06 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 900 Å°C  | @Temperature 77.0 - 1650 Å°F |          |
|                        | 15.0 Åµm/m-Å°C               | 8.33 Åµin/in-Å°F             |          |
|                        | @Temperature 25.0 - 1000 Å°C | @Temperature 77.0 - 1830 Å°F |          |
| Specific Heat Capacity | 0.386 J/g-Å°C                | 0.0923 BTU/lb-Å°F            | RT       |
|                        | 0.405 J/g-Å°C                | 0.0968 BTU/lb-Å°F            |          |
|                        | @Temperature 100 Å°C         | @Temperature 212 Å°F         |          |
|                        | 0.419 J/g-Å°C                | 0.100 BTU/lb-Å°F             |          |
|                        | @Temperature 200 Å°C         | @Temperature 392 Å°F         |          |
|                        | 0.431 J/g-Å°C                | 0.103 BTU/lb-Å°F             |          |

| Thermal Properties   | @Temperature 300 Â°C<br>Metric | @Temperature 572 Â°F<br>English | Comments |
|----------------------|--------------------------------|---------------------------------|----------|
|                      | 0.439 J/g-Â°C                  | 0.105 BTU/lb-Â°F                |          |
|                      | @Temperature 400 Â°C           | @Temperature 752 Â°F            |          |
|                      | 0.451 J/g-Â°C                  | 0.108 BTU/lb-Â°F                |          |
|                      | @Temperature 500 Â°C           | @Temperature 932 Â°F            |          |
|                      | 0.470 J/g-Â°C                  | 0.112 BTU/lb-Â°F                |          |
|                      | @Temperature 600 Â°C           | @Temperature 1110 Â°F           |          |
|                      | 0.595 J/g-Â°C                  | 0.142 BTU/lb-Â°F                |          |
|                      | @Temperature 700 Â°C           | @Temperature 1290 Â°F           |          |
|                      | 0.605 J/g-Â°C                  | 0.145 BTU/lb-Â°F                |          |
|                      | @Temperature 800 Â°C           | @Temperature 1470 Â°F           |          |
|                      | 0.610 J/g-Â°C                  | 0.146 BTU/lb-Â°F                |          |
|                      | @Temperature 900 Â°C           | @Temperature 1650 Â°F           |          |
|                      | 0.627 J/g-Â°C                  | 0.150 BTU/lb-Â°F                |          |
|                      | @Temperature 1000 Â°C          | @Temperature 1830 Â°F           |          |
| Thermal Conductivity | 11.3 W/m-K                     | 78.4 BTU-in/hr-ftÂ²-Â°F         | RT       |
|                      | 12.6 W/m-K                     | 87.4 BTU-in/hr-ftÂ²-Â°F         |          |
|                      | @Temperature 100 Â°C           | @Temperature 212 Â°F            |          |
|                      | 14.2 W/m-K                     | 98.5 BTU-in/hr-ftÂ²-Â°F         |          |
|                      | @Temperature 200 Â°C           | @Temperature 392 Â°F            |          |
|                      | 15.9 W/m-K                     | 110 BTU-in/hr-ftÂ²-Â°F          |          |
|                      | @Temperature 300 Â°C           | @Temperature 572 Â°F            |          |
|                      | 17.5 W/m-K                     | 121 BTU-in/hr-ftÂ²-Â°F          |          |
|                      | @Temperature 400 Â°C           | @Temperature 752 Â°F            |          |
|                      | 19.2 W/m-K                     | 133 BTU-in/hr-ftÂ²-Â°F          |          |
|                      | @Temperature 500 Â°C           | @Temperature 932 Â°F            |          |
|                      | 20.9 W/m-K                     | 145 BTU-in/hr-ftÂ²-Â°F          |          |

| Thermal Properties | Metric                | English                | Comments |
|--------------------|-----------------------|------------------------|----------|
|                    | 22.5 W/m-K            | 156 BTU-in/hr-ftÂ²-Â°F |          |
|                    | @Temperature 600 Â°C  | @Temperature 1110 Â°F  |          |
|                    | @Temperature 700 Â°C  | @Temperature 1290 Â°F  |          |
|                    | 24.2 W/m-K            | 168 BTU-in/hr-ftÂ²-Â°F |          |
|                    | @Temperature 800 Â°C  | @Temperature 1470 Â°F  |          |
|                    | 25.8 W/m-K            | 179 BTU-in/hr-ftÂ²-Â°F |          |
|                    | @Temperature 900 Â°C  | @Temperature 1650 Â°F  |          |
|                    | 27.5 W/m-K            | 191 BTU-in/hr-ftÂ²-Â°F |          |
|                    | @Temperature 1000 Â°C | @Temperature 1830 Â°F  |          |

| Electrical Properties  | Metric                | English               | Comments |
|------------------------|-----------------------|-----------------------|----------|
| Electrical Resistivity | 0.000122 ohm-cm       | 0.000122 ohm-cm       | RT       |
|                        | 0.0001234 ohm-cm      | 0.0001234 ohm-cm      |          |
|                        | @Temperature 100 Â°C  | @Temperature 212 Â°F  |          |
|                        | 0.0001251 ohm-cm      | 0.0001251 ohm-cm      |          |
|                        | @Temperature 200 Â°C  | @Temperature 392 Â°F  |          |
|                        | 0.0001267 ohm-cm      | 0.0001267 ohm-cm      |          |
|                        | @Temperature 300 Â°C  | @Temperature 572 Â°F  |          |
|                        | 0.0001276 ohm-cm      | 0.0001276 ohm-cm      |          |
|                        | @Temperature 1000 Â°C | @Temperature 1830 Â°F |          |
|                        | 0.000128 ohm-cm       | 0.000128 ohm-cm       |          |
|                        | @Temperature 400 Â°C  | @Temperature 752 Â°F  |          |
|                        | 0.0001295 ohm-cm      | 0.0001295 ohm-cm      |          |
|                        | @Temperature 500 Â°C  | @Temperature 932 Â°F  |          |
|                        | 0.0001298 ohm-cm      | 0.0001298 ohm-cm      |          |
|                        | @Temperature 900 Â°C  | @Temperature 1650 Â°F |          |
|                        | 0.0001306 ohm-cm      | 0.0001306 ohm-cm      |          |
|                        | @Temperature 600 Â°C  | @Temperature 1110 Â°F |          |

| Electrical Properties | Metric               | English               | Comments |
|-----------------------|----------------------|-----------------------|----------|
|                       | 0.000132 ohm-cm      | 0.000132 ohm-cm       |          |
|                       | @Temperature 700 Â°C | @Temperature 1290 Â°F |          |
|                       | 0.0001324 ohm-cm     | 0.0001324 ohm-cm      |          |
|                       | @Temperature 800 Â°C | @Temperature 1470 Â°F |          |

**Contact Songhan Plastic Technology Co.,Ltd.**

Website : [www.lookpolymers.com](http://www.lookpolymers.com)  
Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)  
Tel : +86 021-51131842  
Mobile : +86 13061808058  
Skype : lookpolymers  
Address : United North Road 215,Fengxian District, Shanghai City,China