

## ATI Allegheny Ludlum AL 825™ Nickel Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

### Material Notes:

Allegheny Ludlum AL 825 alloy is an austenitic nickel-iron-chromium-molybdenum-copper alloy containing high levels of corrosion resistance to both moderately oxidizing and moderately reducing environments. The alloy has a high level of nickel, which in combination with the level of molybdenum and copper, produces substantially improved corrosion resistance in reducing environments compared to the standard stainless steels. The nickel content is sufficiently high to provide good resistance to chloride stress corrosion cracking. The chromium and molybdenum content of the alloy provides a level of resistance to chloride ion pitting, however, not to the level of other Allegheny Ludlum alloys. In addition, the alloy is stabilized against sensitization in the welded condition by the addition of a specified level of titanium. Because of this stabilization, the material is resistant to intergranular attack after exposure in the temperature range which would sensitize unstabilized stainless steels. This alloy has a long history of use in many corrosive environments and has been incorporated in ASTM and ASME specifications for many years. Information provided by Allegheny Ludlum

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_ATI-Allegheny-Ludlum-AL-825-Nickel-Alloy.php](http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-AL-825-Nickel-Alloy.php)

| Physical Properties | Metric    | English                  | Comments |
|---------------------|-----------|--------------------------|----------|
| Density             | 8.13 g/cc | 0.294 lb/in <sup>3</sup> |          |

| Mechanical Properties      | Metric  | English    | Comments         |
|----------------------------|---------|------------|------------------|
| Hardness, Rockwell B       | 85      | 85         | Typical Annealed |
| Tensile Strength, Ultimate | 690 MPa | 100000 psi | typical          |
| Tensile Strength, Yield    | 300 MPa | 43500 psi  | typical          |
| Elongation at Break        | 45 %    | 45 %       | typical in 2"    |
| Modulus of Elasticity      | 195 GPa | 28300 ksi  | typical          |

| Thermal Properties     | Metric                                      | English                                    | Comments |
|------------------------|---|--|----------|
| CTE, linear            | 13.9 $\mu\text{m}/\text{m}\cdot\text{C}$    | 7.72 $\mu\text{in}/\text{in}\cdot\text{F}$ |          |
|                        | @Temperature 20.0 - 93.0 $^{\circ}\text{C}$ | @Temperature 68.0 - 199 $^{\circ}\text{F}$ |          |
|                        | 15.3 $\mu\text{m}/\text{m}\cdot\text{C}$    | 8.50 $\mu\text{in}/\text{in}\cdot\text{F}$ |          |
|                        | @Temperature 20.0 - 315 $^{\circ}\text{C}$  | @Temperature 68.0 - 599 $^{\circ}\text{F}$ |          |
|                        | 15.7 $\mu\text{m}/\text{m}\cdot\text{C}$    | 8.72 $\mu\text{in}/\text{in}\cdot\text{F}$ |          |
|                        | @Temperature 20.0 - 427 $^{\circ}\text{C}$  | @Temperature 68.0 - 801 $^{\circ}\text{F}$ |          |
| Specific Heat Capacity | 0.500 J/g $\cdot\text{C}$                   | 0.120 BTU/lb $\cdot\text{F}$               |          |

| Thermal Properties               | Metric | English | Comments                                   |
|----------------------------------|--------|---------|--|
| Maximum Service Temperature, Air | 538 °C | 1000 °F | Stability maintained well above this temp. |

| Component Elements Properties | Metric   | English  | Comments   |
|-------------------------------|----------|----------|------------|
| Aluminum, Al                  | 0.15 %   | 0.15 %   |            |
| Carbon, C                     | 0.020 %  | 0.020 %  |            |
| Chromium, Cr                  | 21 %     | 21 %     |            |
| Copper, Cu                    | 2.0 %    | 2.0 %    |            |
| Iron, Fe                      | 32.053 % | 32.053 % | as balance |
| Manganese, Mn                 | 0.50 %   | 0.50 %   |            |
| Molybdenum, Mo                | 3.0 %    | 3.0 %    |            |
| Nickel, Ni                    | 40 %     | 40 %     |            |
| Phosphorous, P                | 0.025 %  | 0.025 %  |            |
| Silicon, Si                   | 0.25 %   | 0.25 %   |            |
| Sulfur, S                     | 0.0020 % | 0.0020 % |            |
| Titanium, Ti                  | 1.0 %    | 1.0 %    |            |

| Electrical Properties  | Metric          | English         | Comments |
|------------------------|-----------------|-----------------|----------|
| Electrical Resistivity | 0.000113 ohm-cm | 0.000113 ohm-cm |          |
| Magnetic Permeability  | <= 1.02         | <= 1.02         |          |

## 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