

## ATI Allegheny Ludlum Stainless Steel AL-6XN® Alloy (UNS N08367)

Category : Metal , Ferrous Metal , Stainless Steel , T 300 Series Stainless Steel

### Material Notes:

The AL-6XN® alloy is a superaustenitic stainless steel which was developed by Allegheny Ludlum Corporation. It exhibits far greater resistance to chloride pitting, crevice corrosion and stress-corrosion cracking than exhibited by the standard 300 series stainless steels, and is less costly than the traditional nickel-base corrosion resistance alloys. The AL-6XN alloy has exhibited good performance in a variety of highly corrosive environments. The AL-6XN alloy is available in a wide range of products from including plate, strip, sheet, bar, billet, tubing pipe and castings. Its various product forms are covered by ASME and ASTM specifications. The use of wrought AL-6XN products in the ASME Boiler and Pressure Vessel is covered by Code Case 1997 (latest revision) for Section VII construction and by Code Case N-438 (latest revision) for Section III construction. This use of AL-6XN castings is covered by Code Case 2106 (latest revision) for Section VIII and Code Case 497 (latest revision) for section III construction. The alloy is approved for both welded and unwelded construction under ANSI/ASME B31.1 Code Case 155. Use of AL-6XN alloy in contact with hydrogen sulfide-containing petroleum and natural gas is covered by NACE MR0175-92. Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_ATI-Allegheny-Ludlum-Stainless-Steel-AL-6XN-Alloy-UNS-N08367.php](http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Stainless-Steel-AL-6XN-Alloy-UNS-N08367.php)

| Physical Properties | Metric    | English                  | Comments |
|---------------------|-----------|--------------------------|----------|
| Density             | 8.06 g/cc | 0.291 lb/in <sup>3</sup> |          |

| Mechanical Properties      | Metric  | English    | Comments |
|----------------------------|---------|------------|----------|
| Hardness, Brinell          | 185     | 185        |          |
| Hardness, Rockwell B       | 90      | 90         |          |
| Tensile Strength, Ultimate | 760 MPa | 110000 psi |          |
| Tensile Strength, Yield    | 380 MPa | 55100 psi  |          |
| Elongation at Break        | 45 %    | 45 %       |          |
| Reduction of Area          | 60 %    | 60 %       |          |
| Charpy Impact              | 190 J   | 140 ft-lb  | V-notch  |

| Thermal Properties | Metric                     | English                    | Comments |
|--------------------|----------------------------|----------------------------|----------|
| CTE, linear        | 15.3 µm/m-°C               | 8.50 µin/in-°F             |          |
|                    | @Temperature 20.0 - 100 °C | @Temperature 68.0 - 212 °F |          |
|                    | 15.5 µm/m-°C               | 8.61 µin/in-°F             |          |
|                    | @Temperature 20.0 - 200 °C | @Temperature 68.0 - 392 °F |          |

| Thermal Properties   | Metric  | English  | Comments |
|----------------------|---|--|----------|
|                      | 15.7 $\mu\text{m}/\text{m}\cdot\text{°C}$<br>@Temperature 20.0 - 300 °C | 8.72 $\mu\text{in}/\text{in}\cdot\text{°F}$<br>@Temperature 68.0 - 572 °F  |          |
|                      | 16.4 $\mu\text{m}/\text{m}\cdot\text{°C}$<br>@Temperature 20.0 - 600 °C | 9.11 $\mu\text{in}/\text{in}\cdot\text{°F}$<br>@Temperature 68.0 - 1110 °F |          |
|                      | 17.6 $\mu\text{m}/\text{m}\cdot\text{°C}$<br>@Temperature 20.0 - 800 °C | 9.78 $\mu\text{in}/\text{in}\cdot\text{°F}$<br>@Temperature 68.0 - 1470 °F |          |
| Thermal Conductivity | 13.7 W/m-K<br>@Temperature 20.0 - 100 °C                                | 95.1 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 68.0 - 212 °F           |          |
| Melting Point        | 1320 - 1400 °C  | 2410 - 2550 °F   |          |
| Solidus              | 1320 °C   | 2410 °F  |          |
| Liquidus             | 1400 °C   | 2550 °F  |          |

| Component Elements Properties | Metric        | English       | Comments   |
|-------------------------------|---------------|---------------|------------|
| Carbon, C                     | <= 0.030 %    | <= 0.030 %    |            |
| Chromium, Cr                  | 20 - 22 %     | 20 - 22 %     |            |
| Copper, Cu                    | <= 0.75 %     | <= 0.75 %     |            |
| Iron, Fe                      | 48 %          | 48 %          | as balance |
| Manganese, Mn                 | <= 2.0 %      | <= 2.0 %      |            |
| Molybdenum, Mo                | 6.0 - 7.0 %   | 6.0 - 7.0 %   |            |
| Nickel, Ni                    | 23.5 - 25.5 % | 23.5 - 25.5 % |            |
| Nitrogen, N                   | 0.18 - 0.25 % | 0.18 - 0.25 % |            |
| Phosphorous, P                | <= 0.040 %    | <= 0.040 %    |            |
| Silicon, Si                   | <= 1.0 %      | <= 1.0 %      |            |
| Sulfur, S                     | <= 0.030 %    | <= 0.030 %    |            |

| Electrical Properties  | Metric           | English          | Comments       |
|------------------------|------------------|------------------|----------------|
| Electrical Resistivity | 0.0000890 ohm-cm | 0.0000890 ohm-cm |                |
| Magnetic Permeability  | 1.0028           | 1.0028           | at 200 Oersted |

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

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