

## Industeel SIRIUS 309 23% Cr - 13% Ni Heat Resistant Stainless Steel

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

### Material Notes:

Description: CLI SIRIUS 309 grade is a fully austenitic stainless steel containing 23% Cr, and 13% Ni additions. The alloy is well known for its multi-purpose high temperature corrosion resistance behavior. Carbon additions are optimized in order to provide improved creep resistance properties. Alloy CLI SIRIUS 309 can be easily welded. With its high chromium and low nickel contents, the alloy is designed for high temperature applications up to 1000Â°C (1832Â°F) in sulphur containing atmospheres. Higher sulphur content in gases will result in lower maximum temperature of uses. The alloy can be also used in slightly oxidizing atmospheres, nitriding, cementing conditions as well as with thermal cyclings, but the maximum temperature of use will be reduced. Information provided by manufacturer.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Industeel-SIRIUS-309-23-Cr-13-Ni-Heat-Resistant-Stainless-Steel.php](http://www.lookpolymers.com/polymer_Industeel-SIRIUS-309-23-Cr-13-Ni-Heat-Resistant-Stainless-Steel.php)

| Mechanical Properties      | Metric                                    | English                                     | Comments                         |
|----------------------------|---|---|----------------------------------|
| Tensile Strength, Ultimate | 540 MPa                                   | 78300 psi                                   | Typical after Solution Annealing |
| Tensile Strength, Yield    | 240 MPa                                   | 34800 psi                                   | Typical after Solution Annealing |
|                            | @Strain 0.200 %                           | @Strain 0.200 %                             |                                  |
|                            | 260 MPa                                   | 37700 psi                                   | Typical after Solution Annealing |
|                            | @Strain 1.00 %                            | @Strain 1.00 %                              |                                  |
| Elongation at Break        | 40 %                                      | 40 %  | Typical                          |
| Creep Strength             | 120 MPa                                   | 17400 psi                                   |                                  |
|                            | @Temperature 600 Â°C,<br>Time 3.60e+6 sec | @Temperature 1110<br>Â°F,<br>Time 1000 hour |                                  |
| Modulus of Elasticity      | 200 GPa                                   | 29000 ksi                                   |                                  |
| Poissons Ratio             | 0.333                                     | 0.333                                       | Calculated                       |
| Shear Modulus              | 75.0 GPa                                  | 10900 ksi                                   |                                  |
|                            | @Temperature 20.0<br>Â°C                  | @Temperature 68.0 Â°F                       |                                  |

| Thermal Properties | Metric                         | English                        | Comments |
|--------------------|--------------------------------|--------------------------------|----------|
| CTE, linear        | 14.5 Âµm/m-Â°C                 | 8.06 Âµin/in-Â°F               |          |
|                    | @Temperature 20.0 -<br>100 Â°C | @Temperature 68.0 -<br>212 Â°F |          |
|                    | 15.0 Âµm/m-Â°C                 | 8.33 Âµin/in-Â°F               |          |
|                    | @Temperature 20.0 -<br>200 Â°C | @Temperature 68.0 -<br>392 Â°F |          |

| Thermal Properties     | Metric                      | English                      | Comments |
|------------------------|-----------------------------|------------------------------|----------|
|                        | @Temperature 20.0 - 400 Å°C | @Temperature 68.0 - 752 Å°F  |          |
|                        | 17.0 Åµm/m-Å°C              | 9.44 Åµin/in-Å°F             |          |
|                        | @Temperature 20.0 - 600 Å°C | @Temperature 68.0 - 1110 Å°F |          |
| Specific Heat Capacity | 0.500 J/g-Å°C               | 0.120 BTU/lb-Å°F             |          |
|                        | @Temperature 20.0 Å°C       | @Temperature 68.0 Å°F        |          |
| Thermal Conductivity   | 14.0 W/m-K                  | 97.2 BTU-in/hr-ftÅ²-Å°F      |          |
|                        | @Temperature 20.0 Å°C       | @Temperature 68.0 Å°F        |          |

| Component Elements Properties | Metric          | English         | Comments     |
|-------------------------------|-----------------|-----------------|--------------|
| Carbon, C                     | 0.040 - 0.080 % | 0.040 - 0.080 % |              |
| Chromium, Cr                  | 23 %            | 23 %            |              |
| Iron, Fe                      | 63.17 - 63.96 % | 63.17 - 63.96 % | As remainder |
| Nickel, Ni                    | 13 %            | 13 %            |              |
| Silicon, Si                   | <= 0.75 %       | <= 0.75 %       |              |

| Electrical Properties  | Metric                | English               | Comments |
|------------------------|-----------------------|-----------------------|----------|
| Electrical Resistivity | 0.0000800 ohm-cm      | 0.0000800 ohm-cm      |          |
|                        | @Temperature 20.0 Å°C | @Temperature 68.0 Å°F |          |

## Contact Songhan Plastic Technology Co.,Ltd.

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