

Inconel 600 (UNS N06600/W. Nr. 2. 4816)

Inconel 600 的化学成分：

Chemical composition of Inconel 600:

合金 Alloy	%	镍 Ni	铬 Cr	铁 Fe	碳 C	锰 Mn	硅 Si	磷 P	硫 S
600	最小 Min	72	14	6					
	最大 Max		17	10	0.15	1	0.5	0.015	0.015

Inconel 600 的物理性能：

Physical properties of Inconel 600:

密度 Density	8.4 g/cm3
熔点 Melting point	1370-1425 °C

Inconel 600 在常温下合金的机械性能的最小值：

Minimum mechanical properties of Inconel 600 alloy at room temperature:

合金 Alloy	抗拉强度 Tensile Strength Rm N/mm2	屈服强度 Yield strength RPO. 2N/mm2	延伸率 Elongation A5 %	布氏硬度 HB
退火处理 Annealing treatment	550	240	30	≤195
固溶处理 Solution treatment	500	180	35	≤185

Inconel 600 合金具有以下特性：

Inconel 600 alloy has the following properties:

1. 具有很好的耐还原、氧化、氮化介质腐蚀的性能。
It has good resistance to the corrosion of reduction, oxidation and nitriding media.
2. 在室温及高温时都具有很好的耐应力腐蚀开裂性能。
It has good resistance to stress corrosion cracking at room temperature and high temperature.
3. 具有很好的耐干燥氯气和氯化氢气体腐蚀的性能。
Good resistance to the corrosion of dry chlorine gas and hydrogen chloride gas.
4. 在零下、室温及高温时都具有很好的机械性能。
It has good mechanical properties at below zero, room temperature and high temperature.

5. 具有很好的抗蠕变断裂强度，推荐用在 700℃以上的工作环境。

It has good fracture strength against creep and is recommended for use in the working environment above 700℃.

Inconel 600 的金相结构:

Metallographic structure of Inconel 600:

600 为面心立方晶格结构。

600 is a face-centered cubic lattice structure.

Inconel 600 的耐腐蚀性:

Inconel 600 Corrosion resistance:

600 合金对于各种腐蚀介质都具有耐腐蚀性。铬的成分使该合金在氧化条件下比镍 99.2 (合金 200) 和镍 99.2 (合金 201, 低碳) 具有更好的耐腐蚀性。同时, 较高的镍含量使合金在还原条件和碱性溶液中具有很好的耐腐蚀性, 并且能有效地防止氯-铁应力腐蚀开裂。600 合金在乙酸、醋酸、蚁酸、硬脂酸等有机酸中具有很好的耐蚀性, 在无机酸中具有中等的耐蚀性。在核反应堆中一次和二次循环使用的高纯度水中具有很优秀的耐蚀性。600 尤其突出的性能是能够抵抗干氯气和氯化氢的腐蚀, 应用温度达 650℃。在高温下, 退火态和固溶处理态的合金在空气中具有很好的抗氧化剥落性能和高强度。该合金也能抵抗氨气和渗氮、渗碳气氛, 但是在氧化还原条件交替变化时, 合金会受到部分氧化介质的腐蚀 (如绿色死亡液)。

Alloy 600 has corrosion resistance to various corrosive media. The chromium composition gives the alloy better corrosion resistance under oxidation conditions than nickel 99.2 (alloy 200) and nickel 99.2 (alloy 201, low carbon). At the same time, the high nickel content makes the alloy have good corrosion resistance in reducing conditions and alkaline solution, and can effectively prevent the chlorine - iron stress corrosion cracking. Alloy 600 has good corrosion resistance in acetic acid, acetic acid, formic acid, stearic acid and other organic acids, and medium corrosion resistance in inorganic acids. High purity water used in primary and secondary cycles in nuclear reactors has excellent corrosion resistance. 600 in particular outstanding performance is able to resist dry chlorine gas and hydrogen chloride corrosion, application temperature up to 650℃. At high temperature, annealed and solution-treated alloys have good resistance to oxidation and high strength in air. The alloy is also resistant to ammonia and nitriding and carburizing atmospheres, but when the REDOX conditions change alternately, the alloy will be subjected to partial oxidation medium corrosion (such as green death liquid).

Inconel 600 应用范围应用领域有:

Application Scope and application areas of Inconel 600:

1. 侵蚀气氛中的热电偶套管。

Thermocouple casing in corrosive atmosphere.

2. 氯乙烯单体生产: 抗氯气、氯化氢、氧化和碳化腐蚀。

Production of vinyl chloride monomer: resistance to chlorine gas, hydrogen chloride, oxidation and carbonization corrosion.

3. 铀氧化转换为六氟化物: 抗氟化氢腐蚀。

Conversion of uranium oxidation to hexafluoride: Resistance to hydrogen fluoride corrosion.

4. 腐蚀性碱金属的生产和使用领域, 特别是使用硫化物的环境。

The production and use of caustic alkali metals, especially sulfides in the environment.

5. 用氯气法制二氧化钛。

Titanium dioxide was processed by chlorine gas.

6. 有机或无机氯化物和氟化物的生产：抗氯气和氟气腐蚀。

Production of organic or inorganic chlorides and fluorides: resistance to chlorine and fluorine corrosion.

7. 核反应堆。

Nuclear reactor.

8. 热处理炉中曲颈瓶及部件，尤其是在碳化和氮化气氛中。

Curved neck bottles and components in heat treatment furnaces, especially in carbonization and nitriding atmospheres.

9. 石油化工生产中的催化再生器在 700℃ 以上的应用中推荐使用合金 600 以获得较长的使用寿命。

For catalytic regenerators in petrochemical production, alloy 600 is recommended for longer service life in applications above 700°C.