

# Rene 41

Smiths Advanced Metals

Rev: SAM/datasheets/high-temperature-sheet/rene-41/feb-2022

Page: 1 of 1

## High Temperature Nickel Sheet

For severely stressed high-temperature applications.

Rene 41 is a precipitation-hardenable nickel-chromium alloy with additions of titanium and aluminium to promote increased strength.

The nickel-based high-temperature alloy maintains high strength at temperatures ranging from 649 to 982 °C (1200 to 1800°F). The alloy finds use in severely stressed high-temperature applications while promoting high corrosion and oxidation resistance. Applications include rocket engines, turbine blades, combustion chambers, and afterburners. The mechanical properties of the alloy may be adjusted by cold working or utilising different heat treatments. Overall strength is achieved by various solution annealing and ageing heat treatments.

Rene 41 sheet is marketed under various names, including Haynes® R-41 and Udimet Alloy® R41.

We stock [Rene 41 alloy sheets](#) in various sizes and process them in-house via our dedicated guillotining service.



### Grades / Specifications

- AMS5545
- 2.4973
- UNS N07041

### Benefits

- Excellent high-temperature strength
- Excellent oxidation resistance
- Good forming characteristics

### Chemical Composition (weight %)

	Ni	Cr	Mo	Co	Al	Ti	B	C	Fe	Mn	Si	S	Cu
min.		18.00	9.00	10.00	1.40	3.00	0.003						
max.	Bal	20.00	10.50	12.00	1.60	3.30	0.010	0.12	5.00	0.10	0.50	0.015	0.50

\* As per per AMS 5545

### Mechanical Properties

	21°C	427°C	538°C	649°C	760°C	871°C	982°C
Ultimate Tensile Strength /MPa	1261.7	-	-	1117	1048	710.2	-
0.2% Yield Strength /MPa	820.5	-	-	765.3	751.5	579.2	-
Elongation %	21	-	-	14	14	11	-
Coefficient of Thermal Expansion $\mu\text{m}/\text{m}^\circ\text{C}$	-	13.3	13.7	14.3	15.1	15.5	16.7
Thermal Conductivity /kcal/(hr.m.°C)	-	14.4	16.1	17.9	19.6	21.4	-
Modulus of Elasticity / $\times 10^5$ MPa	-	2	1.93	1.79	1.72	1.65	1.52

[www.smithsadvanced.com](http://www.smithsadvanced.com)

[info@smithsadvanced.com](mailto:info@smithsadvanced.com)



Stratton Business Park,  
London Road, Biggleswade,  
Bedfordshire SG18 8QB  
Tel: **+44 (0) 1767 604710**

