SteelEquivalents.com

Material datasheet
As of Aug 20, 2026

MATERIAL NUMBER 1.4031 · CLASS 1.4

4C13

Material no. 1.4031

also listed as X38Cr13

Chemical composition, mechanical and physical property values, and 56 standard designations from 17 regions.

DENSITY	OTHER DESIGNATIONS	PROPERTY VALUES
7.7 g/cm³	56 in 17 regions	10 on file

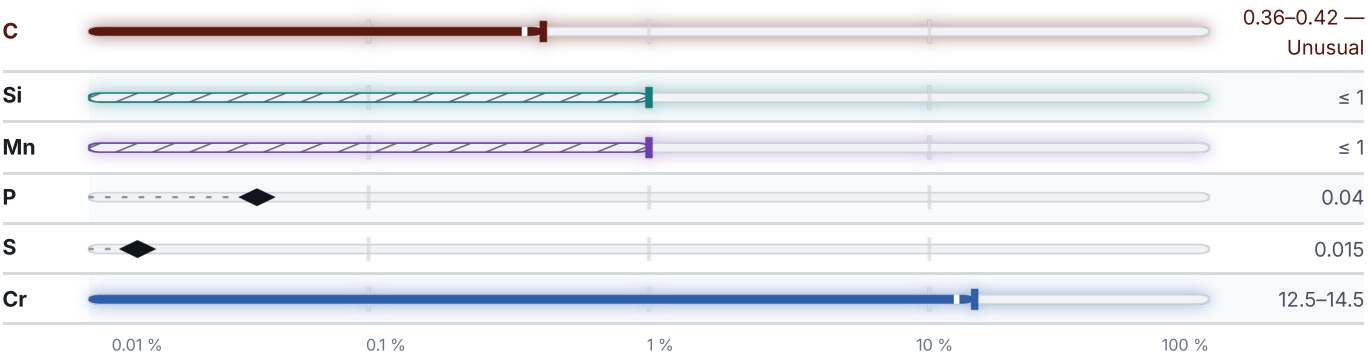
Chemical composition

Mass fraction in %

What this alloy is

Iron — the balance, never listed by a standard — 84.1 % · Cr — 13.5 % · Si — 1 % · Mn — 1 % · Traces & impurities · 0.4 %

Logarithmic scale, 0.01 % to 100 % — every value here compares directly, decade by decade.



The scale is logarithmic, not the element's raw share of the alloy — the only honest way to fit 0.01 % and 100 % in one picture, and it means every value here can be compared with every other.

Predicted transformation temperatures

Not enough recorded composition to predict a transformation temperature for this grade — missing: Ni, Mo.

Mechanical properties

10 values across 4 conditions

CONDITION · DIMENSION	RM N/mm²	A5 %	HB
Bar, GOST 18907-73	590–810	10	–
Wire, GOST 18143-72	640–880	10–14	–
40KH13 (40X13) (quenching, tempering)	–	–	460–550
40KH13 (40X13) (annealing) , Bar GOST 5949-75	–	–	143–229
SOFT ANNEALED			**HV**
Soft annealed			200–250
QUENCHED AND TEMPERED			**HV**
Quenched and tempered			520–560

CONDITION · DIMENSION	RM N/mm²	A5 %
Sheet, GOST 5582-75	550	15

Physical properties

4 values

CONDITION · DIMENSION	RHO g/cm³	E GPa	ALPHA 10^-6/K	LAMBDA W/(m·K)	CP J/(kg·K)	RHO_EL nΩ·m
20	7.65	218	–	25	461	590
100	7.63	214	10.8	26	482	650
200	7.6	206	11.9	27.2	523	710
300	7.57	198	12.3	28.3	565	790
400	7.54	188	13	29.1	607	860
500	7.51	176	13.6	29.1	674	940
600	7.48	163	13.5	29.1	775	1000
700	7.45	148	13.8	28.3	988	1120
800	7.42	140	14.6	27.9	825	1180
900	–	–	–	28.5	691	1160

PROPERTY	VALUE	UNIT
Density	7.7	g/cm³
Transformation point Ac1	800	°C
Transformation point Ar1	780	°C

Technological properties

PROPERTY	VALUE	UNIT
Weldability	is not used.	

Designations across standards

56 designations · 3 documented as identical

United States — 16

S42000	uns
S42080 This grade's own name	uns
420	aisi-sae
51420	aisi-sae
S42000	aisi-sae
S42080	aisi-sae
Type420	aisi-sae
A1049	astm
A176	astm
A182	astm
A276	astm
A314	astm
A473	astm
A580	astm
F1079	astm
F2215	astm

France — 8

X40Cr14	afnor
Z33C13	afnor
Z38C13M	afnor
Z40C13	afnor
Z40C14	afnor
Z40Cr14	afnor
Z44C14	afnor
Z50C14	afnor

Spain — 5

F.3404	une
F.3404-X40Cr 13	une
F.3405	une
X40Cr13	une
X45Cr13	une

Russia / CIS — 5

40Ch13	gost
40KH13	gost
40X13	gost
4X13	gost
ст.40Х13	gost

Italy — 3

X40Cr14	uni
X41Cr13KU	uni
X46Cr13	uni

Sweden — 3

2304	ss
2314	ss
SIS 2304	ss

Europe — 2

X38Cr13 This grade's own name	din-en
X39Cr13 This grade's own name	din-en

United Kingdom — 2

420S45	bs
X39Cr13	bs

United States / Aerospace — 2

5506	ams
5621	ams

Czechia — 2

17024	csn
19435	csn

Poland — 2

4H13	pn
4H14	pn

International — 1

X40Cr14	iso

Japan — 1

SUS 420J2	jis

China — 1

4C13	gb

Slovakia — 1

17 024	stn

Brazil	1
420	abnt

former Yugoslavia	1
Č.41731	jus

Note on use. The data is compiled to the best of our knowledge from publicly available standards and manufacturer documentation. It replaces neither material testing nor an inspection document to EN 10204. Please request a mill certificate to EN 10204 2.1, 3.1 or 3.2 together with your enquiry. The standard in its current valid edition always prevails.

DATASHEET ONLINE	GRADE SEARCH	MATERIAL NO.	ISSUED
View the material page	Search all grades	1.4031	Aug 20, 2026