

MATERIAL NUMBER 1.4031 · CLASS 1.4

Type420

Material no. 1.4031

also listed as X38Cr13

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

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

Chemical composition

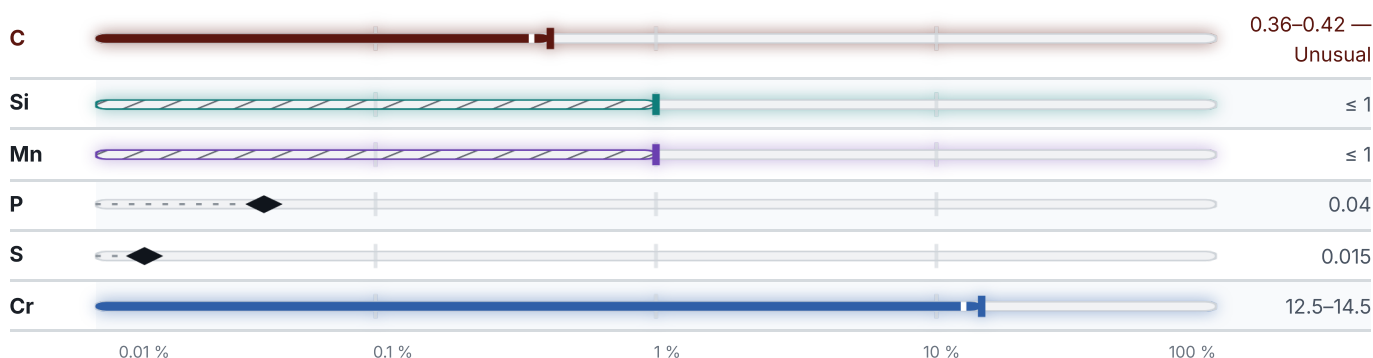
Mass fraction in %

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/mm ²	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/mm ²	A5 %	
Sheet, GOST 5582-75	550	15	

Physical properties

4 values

CONDITION · DIMENSION	RHO g/cm ³	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/cm ³			
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	Italy	3
S42000	uns	X40Cr14	uni
S42080	uns	X41Cr13KU	uni
420	aisi-sae	X46Cr13	uni
51420	aisi-sae		
S42000	aisi-sae	Sweden	3
S42080	aisi-sae	2304	ss
Type420	aisi-sae	2314	ss
A1049	astm	SIS 2304	ss
A176	astm		
A182	astm	Europe	2
A276	astm	X38Cr13	din-en
A314	astm	X39Cr13	din-en
A473	astm		
A580	astm	United Kingdom	2
F1079	astm	420S45	bs
F2215	astm	X39Cr13	bs
France	8	United States / Aerospace	2
X40Cr14	afnor	5506	ams
Z33C13	afnor	5621	ams
Z38C13M	afnor		
Z40C13	afnor	Czechia	2
Z40C14	afnor	17024	csn
Z40Cr14	afnor	19435	csn
Z44C14	afnor		
Z50C14	afnor	Poland	2
		4H13	pn
Spain	5	4H14	pn
F.3404	une		
F.3404-X40Cr 13	une	International	1
F.3405	une	X40Cr14	iso
X40Cr13	une		
X45Cr13	une	Japan	1
		SUS 420J2	jis
Russia / CIS	5		
40Ch13	gost	China	1
40KH13	gost	4C13	gb
40X13	gost		
4X13	gost	Slovakia	1
cr.40X13	gost	17 024	stn

Brazil	1	former Yugoslavia	1
420	abnt	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.

Enquiry about Type420

Quotation, availability, mill certificate or a technical question — directly on the material page.

[Start an enquiry](#)

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