

Typical stress-relieving temperatures for wrought coppers and copper alloys

Copper or copper alloy number	Name	Stress-relief temperature for						
		Sheet and strip		Rod and wire			Tube(d)	
		Flat products(a) °C (°F)	Parts °C (°F)	Rod(b) °C (°F)	Wire(c) °C (°F)	Parts °C (°F)	Tube(e) °C (°F)	Parts °C (°F)
Coppers								
C11000	Electrolytic tough-pitch	180 (355)	180 (355)	180 (355)	180 (355)	180 (355)	...	...
C12000	Phosphorus deoxidized DLP	...	...	...	...	...	220 (430)	200 (390)
C12200	Phosphorus deoxidized DHP	...	...	...	...	...	240 (465)	220 (430)
C14200	Phosphorus deoxidized DPA	...	...	...	...	...	260 (500)	240 (465)
Copper alloys								
C21000	Gilding, 95%	275 (525)	275 (525)	...	...	...	...	...
C22000, C22600	Commercial bronze and jewelry bronze	275 (525)	275 (525)	300 (570)	260 (500)	275 (525)	...	...
C23000	Red brass, low brass	275 (525)	275 (525)	300 (570)	260 (500)	275 (525)	330 (625)	275 (525)
C26000	Cartridge brass	260 (500)	260 (500)	290 (555)	250 (480)	260 (500)	320 (610)	260 (500)
C27000	Yellow brass, 65%	260 (500)	260 (500)	290 (555)	250 (480)	260 (500)	290 (555)	260 (500)
C31400	Leaded commercial bronze	...	...	300 (570)	260 (500)	275 (525)	...	...
C33000, C33200	High- and low-leaded brasses	...	...	...	...	...	320 (610)	260 (500)
C33500	Low-leaded brasses	...	...	290 (555)	250 (480)	260 (500)	...	...
C34000, C35000	Medium-leaded brasses	260 (500)	260 (500)	...	...	...	...	...
C35300, C35600, C36000, C37700	Leaded, free-cutting, and forging brasses	...	...	290 (555)	250 (480)	260 (500)	...	...
C43000	...	275 (525)	275 (525)	300 (570)	260 (500)	275 (525)	...	...
C43400	...	275 (525)	275 (525)	...	...	...	...	...
C44300–C44500	Admiralty brasses	...	...	...	...	...	320 (610)	260 (500)
C46200, C46400–C46700	Naval brasses	...	...	290 (555)	250 (480)	260 (500)	...	...
C51000	Phosphor bronze A	275 (525)	275 (525)	300 (570)	260 (500)	275 (525)	...	...
C52100	Phosphor bronze C	...	...	300 (570)	260 (500)	275 (525)	...	...
C54400	Phosphor bronze B-2	...	...	300 (570)	...	275 (525)	...	...
C65100, C65500	Silicon bronzes	...	...	300 (570)	275 (525)	275 (525)	...	...
C68700	Aluminum brass, arsenical	...	...	...	...	...	330 (625)	290 (555)
C69700	...	...	...	360 (680)	360 (680)	360 (680)	...	...
C70600	Copper nickel, 10%	420 (790)	420 (790)	...	...	...	480 (895)	420 (790)
C71500	Copper nickel, 30%	460 (860)	460 (860)	...	...	...	520 (970)	460 (860)
C73500	...	380 (715)	380 (715)	400 (750)	350 (660)	380 (715)	...	...
C74500	Nickel silver, 65–10	...	...	340 (645)	290 (555)	320 (610)	...	...
C75200	Nickel silver, 65–18	380 (715)	380 (715)	...	...	...	...	...
C75400	Nickel silver, 65–15	...	...	400 (750)	350 (660)	380 (715)	...	...
C75700	Nickel silver, 65-12	...	...	350 (660)	300 (570)	340 (645)	...	...
C77000	Nickel silver, 55-18	340 (645)	340 (645)	...	...	...	...	...

Note: Annealing time is 1 h with the exception of tube. (a) Extra hard. (b) ½ hard. (c) Spring. (d) Annealing time for tube is 20 min. (e) Hard drawn