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For a steel having a chemistry of: 0.16% carbon, 0.84% manganese, 0.09% nickel, 0.25% chromium, 0.052% copper, and 0.40% molybdenum, what is its Carbon Equivalent?
The formula for carbon equivalent is noted below.

Legend for the abbreviations are:

CE = Carbon Equivalent
C = Carbon
Mn = Manganese
Ni – Nickel
Cu = Copper
Mo - Molybdenum

Carbon Equivalent

$$CE = \%C + \frac{\%Mn}{6} + \frac{\%Ni}{15} + \frac{\%Cu}{13} + \frac{\%Mo}{14}$$

For a steel having a chemistry of: 0.16% carbon, 0.84% manganese, 0.09% nickel, 0.25% chromium, 0.052% copper, and 0.40% molybdenum, what is its Carbon Equivalent?

$$\left(CE = \%C + \frac{\%Mn}{6} + \frac{\%Ni}{15} + \frac{\%Cr}{5} + \frac{\%Cu}{13} + \frac{\%Mo}{4} \right)$$

- a. 0.23
- b. 0.34
- c. 0.37
- d. 0.41
- e. 0.46

To work the problem, 1st write the formula, then add the values to the formula, then perform the division, then finally perform the addition (see below):

$$CE = 0.16 + 0.84 / 6 + 0.09 / 15 + 0.25 / 5 + 0.052 / 13 + 0.40 / 4$$

$$CE = 0.16 + 0.14 + 0.006 + 0.05 + 0.004 + 0.1$$

$$CE = 0.46$$