Important Simple Connections Formulas PDF

Formulas
Examples
with Units

List of 8
Important Simple Connections Formulas

1) Welded Connections Formulas

1.1) Carbon Content Formula

Evaluate Formula

Formula

$$C = C_{Eq} - \left(\left(\frac{Mn}{6}\right) + \left(\frac{Cr + Mo + V}{5}\right) + \left(\frac{Ni + Cu}{15}\right)\right)$$

Example

$$14.9967 = 21.68 - \left(\left(\frac{2.5}{6}\right) + \left(\frac{4 + 6 + 3}{5}\right) + \left(\frac{20 + 35}{15}\right)\right)$$

1.2) Carbon Equivalent of Structural Steel Formula

Evaluate Formula

Formula

$$C_{Eq} = C + \left(\frac{Mn}{6}\right) + \left(\frac{Cr + Mo + V}{5}\right) + \left(\frac{Ni + Cu}{15}\right)$$

Example

$$21.6833 = 15 + \left(\frac{2.5}{6}\right) + \left(\frac{4 + 6 + 3}{5}\right) + \left(\frac{20 + 35}{15}\right)$$

1.3) Chromium Content given Carbon Equivalent Formula

Evaluate Formula

Formula

$$Cr = \left(C_{Eq} - C - \left(\frac{Mn}{6}\right) - \left(\frac{Ni + Cu}{15}\right) - \left(\frac{Mo + V}{5}\right)\right) \cdot 5$$

Example

$$3.9833 = \left(21.68 - 15 - \left(\frac{2.5}{6}\right) - \left(\frac{20 + 35}{15}\right) - \left(\frac{6 + 3}{5}\right)\right) \cdot 5$$

1.4) Copper given Carbon Equivalent Formula

Evaluate Formula

Formula

$$Cu = \left(C_{Eq} - C - \left(\frac{Mn}{6}\right) - \left(\frac{Cr + Mo + V}{5}\right) - \left(\frac{Ni}{15}\right)\right) \cdot 15$$

Example

$$34.95 = \left(21.68 - 15 - \left(\frac{2.5}{6}\right) - \left(\frac{4 + 6 + 3}{5}\right) - \left(\frac{20}{15}\right)\right) \cdot 15$$

1.5) Manganese Content Formula

Evaluate Formula

Formula

$$Mn = \left(C_{Eq} - \left(C + \left(\frac{Cr + Mo + V}{5}\right) + \left(\frac{Ni + Cu}{15}\right)\right)\right) \cdot 6$$

Example

$$2.48 = \left(21.68 - \left(15 + \left(\frac{4 + 6 + 3}{5}\right) + \left(\frac{20 + 35}{15}\right)\right)\right) \cdot 6$$

1.6) Molybdenum given Carbon Equivalent Formula

Evaluate Formula

Formula

$$Mo = \left(C_{Eq} - C - \left(\frac{Mn}{6}\right) - \left(\frac{Ni + Cu}{15}\right) - \left(\frac{Cr + V}{5}\right)\right) \cdot 5$$

Example

$$5.9833 = \left(21.68 - 15 - \left(\frac{2.5}{6}\right) - \left(\frac{20 + 35}{15}\right) - \left(\frac{4 + 3}{5}\right)\right) \cdot 5$$

1.7) Nickel Content given Carbon Equivalent Formula

Evaluate Formula

Formula

$$Ni = \left(C_{Eq} - C - \left(\frac{Mn}{6}\right) - \left(\frac{Cr + Mo + V}{5}\right) - \left(\frac{Cu}{15}\right)\right) \cdot 15$$

Example

$$19.95 = \left(21.68 - 15 - \left(\frac{2.5}{6}\right) - \left(\frac{4 + 6 + 3}{5}\right) - \left(\frac{35}{15}\right)\right) \cdot 15$$

1.8) Vanadium given Carbon Equivalent Formula

Evaluate Formula

Formula

$$V = \left(C_{Eq} - C - \left(\frac{Mn}{6} \right) - \left(\frac{Ni + Cu}{15} \right) - \left(\frac{Cr + Mo}{5} \right) \right) \cdot 5$$

Example

$$2.9833 = \left(21.68 - 15 - \left(\frac{2.5}{6} \right) - \left(\frac{20 + 35}{15} \right) - \left(\frac{4 + 6}{5} \right) \right) \cdot 5$$

Variables used in list of Simple Connections Formulas above

- **C** Carbon Content
- **C_{Eq}** Equivalent Carbon
- **Cr** Chromium Content
- **Cu** Copper Content
- **Mn** Manganese Content
- **Mo** Molybdenum Content
- **Ni** Nickel Content
- **V** Vanadium Content

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