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Basics of Petrochemicals Formulas

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List of 9 Basics of Petrochemicals Formulas

Basics of Petrochemicals

1) Aniline Point

Open Calculator

fx $$AP = \frac{DI \cdot 100}{^\circ API}$$

ex $$268.2927^\circ F = \frac{110 \cdot 100}{41}$$

2) API Gravity

Open Calculator

fx $$^\circ API = \left(\frac{141.5}{SG}\right) - 131.5$$

ex $$41.06098 = \left(\frac{141.5}{0.82}\right) - 131.5$$

3) BMCI Number

Open Calculator

fx $$BMCI = \left(\frac{48640}{T}\right) + (473.7 \cdot SG) - 456.8$$

ex $$109.7047 = \left(\frac{48640}{273.15K}\right) + (473.7 \cdot 0.82) - 456.8$$

4) Characterisation Factor

Open Calculator

fx $$C_f = \frac{(T_{BP})^{\frac{1}{3}}}{SG}$$

ex $$14.11192 = \frac{(1549.53\,^\circ Ra)^{\frac{1}{3}}}{0.82}$$

5) Diesel Index

Open Calculator

fx $$DI = {}^\circ API \cdot \left(\frac{AP}{100}\right)$$

ex $$109.47 = 41 \cdot \left(\frac{267\,^\circ F}{100}\right)$$

6) Melt Flow Index

Open Calculator

fx $$MI = \frac{M_p}{10}$$

ex $$0.077 = \frac{0.77g}{10}$$

7) Molal Average Boiling Point Based on Characterisation Factor

Open Calculator

fx $$T_{BP} = (C_f \cdot SG)^3$$

ex $$1549.535\,^\circ Ra = (12.55 \cdot 0.82)^3$$

8) Saybolt Method Viscosity

Open Calculator

fx $$v = (0.219 \cdot t) - \left(\frac{149.7}{t}\right)$$

ex $$6.528333\text{cSt} = (0.219 \cdot 45\text{s}) - \left(\frac{149.7}{45\text{s}}\right)$$

9) Viscosity Index Mixture

Open Calculator

fx $$VI = \left(\frac{L - U}{L - H}\right) \cdot 100$$

ex $$99.58799 = \left(\frac{711.24\text{cSt} - 310\text{cSt}}{711.24\text{cSt} - 308.34\text{cSt}}\right) \cdot 100$$

Variables Used

- **°API** API Gravity
- **AP** Diesel Aniline Point *(Fahrenheit)*
- **BMCI** Bureau of Mines Correlation Index (BMCI) Number
- C_f Characterisation Factor
- **DI** Diesel Index
- **H** Paraffinic Viscosity *(Centistokes)*
- **L** Aromatic's Viscosity *(Centistokes)*
- M_p Weight of Polymer *(Gram)*
- **MI** Melt Flow Index
- **SG** Specific Gravity
- **t** Time *(Second)*
- **T** Temperature *(Kelvin)*
- T_{BP} Molal Average Boiling Point *(Rankine)*
- **U** Lube Oil Viscosity *(Centistokes)*
- **v** Saybolt Method Viscosity *(Centistokes)*
- **VI** Viscosity Index

Constants, Functions, Measurements used

- Measurement: **Weight** in Gram (g)
  Weight Unit Conversion
- Measurement: **Time** in Second (s)
  Time Unit Conversion
- Measurement: **Temperature** in Fahrenheit (°F), Kelvin (K), Rankine (°Ra)
  Temperature Unit Conversion
- Measurement: **Kinematic Viscosity** in Centistokes (cSt)
  Kinematic Viscosity Unit Conversion

Check other formula lists

- **Basics of Petrochemicals Formulas**

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