

CONVERTION FACTORS, DENSITIES AND LOWER CALORIFIC VALUES

Average values for the year 2017

| Products and units | Conversion factor to boe | Density ¹ (t/m ³) | Lower calorific value (kcal/kg) |
|---------------------------|--------------------------------------|---|---------------------------------------|
| Anhydrous ethanol | m ³ 3,841 | 0,79100 | 6.750 |
| Hydrated ethanol | m ³ 3,666 | 0,80900 | 6.300 |
| Asphalt | m ³ 7,219 | 1,02500 | 9.790 |
| Pure biodiesel (B100) | m ³ 5,698 | 0,88000 | 9.000 |
| Green petroleum coke | m ³ 6,277 | 1,04000 | 8.390 |
| Dry natural gas | 10 ³ m ³ 4,685 | 0,00074 | 8.800 |
| Wet natural gas | 10 ³ m ³ 5,286 | 0,00074 | 9.930 |
| Refinery fuel gas | 10 ³ m ³ 4,714 | 0,00078 | 8.400 |
| Gasoline A | m ³ 5,552 | 0,74200 | 10.400 |
| Gasoline C | m ³ 5,101 | 0,75425 | 9.400 |
| Aviation gasoline | m ³ 5,536 | 0,72600 | 10.600 |
| LPG | m ³ 4,408 | 0,55200 | 11.100 |
| NGL | m ³ 4,469 | 0,58000 | 10.710 |
| Naphtha | m ³ 5,368 | 0,70200 | 10.630 |
| Bunker | m ³ 6,899 | 1,00000 | 9.590 |
| Diesel oil | m ³ 6,104 | 0,84000 | 10.100 |
| Fuel oil ² | m ³ 6,989 | 1,01300 | 9.590 |
| Lubricating oil | m ³ 6,370 | 0,87500 | 10.120 |
| Other energy products | m ³ 6,340 | 0,86400 | 10.200 |
| Other non-energy products | m ³ 6,340 | 0,86400 | 10.200 |
| Paraffin | m ³ 6,141 | 0,82000 | 10.410 |
| Oil | m ³ 6,229 | 0,84976 | 10.190 |
| Jet fuel | m ³ 5,978 | 0,79900 | 10.400 |
| Lamp kerosene | m ³ 5,978 | 0,79900 | 10.400 |
| Solvent | m ³ 5,624 | 0,74100 | 10.550 |

Source: ANP.

¹At 20 °C temperature and 1 atm for natural gas as well as oil and natural gas products. ²Fuel oil ATE e BTE.

Prefixes of SI Units

(k) quilo = 10³
 (M) mega = 10⁶
 (G) giga = 10⁹
 (T) tera = 10¹²
 (P) peta = 10¹⁵
 (E) exa = 10¹⁸

Relationships between Units

1 m³ = 6,28981 barrels
 1 barrel = 0,158987 m³
 1 joule (J) = 0,239 cal
 1 BTU = 252 cal
 1 boe = 1.390 Mcal
 1 toe = 10.000 Mcal