

# Energy industry conversions

## OIL

### Cubic measures

1 cubic inch	=	16.387 cubic centimeters
1 kiloliter	=	1,000 liters
	=	6.2898 American barrels
1 liter	=	1,000 cubic centimeters
	=	0.035314 cubic foot
	=	61.024 cubic inches
	=	0.21997 Imperial gallon
	=	1.7597 pints
	=	0.26417 American gallon
1 hectoliter	=	100 liters
1 American gallon	=	231 cubic inches
	=	0.133681 cubic foot
	=	3.7854 liters
	=	0.0238095 American barrel
	=	0.83268 Imperial gallon
	=	0.0037854 cubic meter
1 cubic foot	=	28.317 liters
	=	0.17811 American barrel
	=	7.4805 American gallons
	=	0.028317 cubic meter
	=	6.2288 Imperial gallons
1 Imperial gallon	=	277.42 cubic inches
	=	1.20094 American gallons
	=	4.5461 liters
	=	0.028594 American barrel
	=	0.160544 cubic foot
	=	0.004561 cubic meter
1 American barrel	=	9.702 cubic inches
	=	34.9726 Imperial gallons
	=	158.99 liters
	=	5.6146 cubic feet
	=	42 American gallons
	=	0.15899 cubic meter
1 cubic meter	=	35.315 cubic feet
	=	219.97 Imperial gallons
	=	1,000 liters
	=	6.2898 American barrels
	=	264.17 American gallons
1 pint	=	0.5683 liter
1 gross ton (Shipping)	=	100 cu ft or 2.83 cubic meters of permanently enclosed space

### Power and heat units

1 horsepower (hp)	=	550 foot pounds per sec
	=	0.746 kilowatt
	=	1.014 PS
	=	(or Cheval Vapeur)
1 pferdestaerke (PS) or Cheval Vapeur (CV)	=	542 foot pounds per sec
	=	0.986 hp
	=	0.736 kW
1 kilowatt (kW)	=	1,000 watts
	=	1,340 hp
	=	1.359 PS or CV
	=	737 foot pounds per second
1 foot pound per sec	=	0.00136 kilowatt
	=	0.00182 hp
	=	0.00184 PS or CV
1 therm	=	100,000 Btu (British thermal units (Btu))
	=	25,200 kilocalories
	=	25.2 thermies
	=	29.3 kilowatt hours
1,000 kilocalories (large calories)	=	3,968 Btu
	=	1.163 kilowatt hours
	=	1 thermie
1 kilowatt hour	=	3,411 Btu
	=	1.340 hp hours
	=	859.6 kilocalories

### Heat and energy

1 megajoule	=	238.8 kilocalories
	=	947.8 Btu
	=	0.278 kilowatt hours
1 kilocalorie	=	3.968 Btu
1 kilowatt hour	=	859.8 kilocalories
	=	3411 Btu
1 million Btu	=	1055 megajoules
	=	2520 megacalories
	=	293.1 kilowatt hours

### Liquefied Natural Gas (LNG)

1 metric ton LNG	=	approximately 1,380 cubic meters (48,700 cubic feet) of natural gas
	=	approximately 52 million Btu

### Pressure

1 psi	=	6.89476 kpascal
1 kg per cm <sup>2</sup>	=	14.223 psi
1 bar	=	0.987 atmospheres
	=	750.1 mm Hg
	=	14.50 lbs per square inches
	=	1.020 kilogram force per square centimeters
1 pound per square inch	=	0.070 kilogram force per square inch

## Weight

1 ounce (oz)	=	28.35 grams
1 pound (lb)	=	0.453592 kilogram
	=	0.009 cwt
1 kilogram (kg)	=	2.20462 lbs
	=	0.01 quintal
1 hundredweight (cwt)	=	112 lbs
	=	50.802 kgs
1 metric ton	=	0.98421 long ton*
	=	1.10231 short ton*
	=	2,204.6 lbs
1 English or long ton	=	1.01605 metric ton*
	=	1.12 short ton*
1 short ton	=	0.892857 long ton*
	=	0.907185 metric ton*
	=	2,000 lbs

## Specific Gravity: volume per ton

Degrees API	Specific gravity	Barrels per metric ton <sup>†</sup>	Long ton
25	0.904	6.98	7.09
26	0.898	7.02	7.13
27	0.893	7.06	7.18
28	0.887	7.1	7.22
29	0.882	7.15	7.27
30	0.876	7.19	7.31
31	0.871	7.24	7.36
32	0.865	7.28	7.4
33	0.86	7.33	7.45
34	0.855	7.37	7.49
35	0.85	7.42	7.54
36	0.845	7.46	7.58
37	0.84	7.51	7.63
38	0.835	7.55	7.67
39	0.83	7.6	7.72
40	0.825	7.64	7.76
41	0.82	7.69	7.81
42	0.816	7.73	7.85

<sup>†</sup>Approximate figure 60°F

$$\text{Specific Gravity} = \frac{141.5}{131.5 + \text{°API}}$$

## Specific gravity ranges

	Specific gravity	Barrels per metric ton
Naphtha light	0.66 – 0.70	9.55 – 9.01
Naphtha medium	0.70 – 0.75	9.01 – 8.40
Naphtha heavy	0.75 – 0.80	8.40 – 7.88
Crude oils	0.80 – 0.97	8.0 – 6.6
Motor gasoline	0.71 – 0.79	9.0 – 8.1
Kerosene	0.78 – 0.84	8.2 – 7.6
Gas oil	0.82 – 0.90	7.8 – 7.1
Diesel oil	0.82 – 0.92	7.8 – 6.9
Lubricating oil	0.85 – 0.95	7.5 – 6.7
Fuel oil	0.92 – 0.99	6.9 – 6.31
Asphaltic bitumens	1.00 – 1.10	6.4 – 5.8

## Crude oil and products

Conv	* or /	to-UOM	Description
7.75	*	mt	Oman
7.232	*	mt	Dubai
7.598	*	mt	Brent
5.21	/	gal	Propane
4.53	/	gal	Butane
9	/	barrel	Naphtha
3.55	/	gal	MTBE
8.5	*	mt	Gasoline 92 Octane
8.4	*	mt	Gasoline 95 Octane
8.4	*	mt	Gasoline 97 Octane
7.62	*	mt	Gasoil 50ppm Sulfur
7.45	*	mt	Gasoil 0.5% Sulfur
7.9	*	mt	Jet/Kero
6.35	/	barrel	380CST Fuel Oil
6.35	/	barrel	180CST Fuel Oil
6.8	*	mt	LSWR

## Calorie value of fuels

Rough gross values in Btu per lb

Crude Oil	18,300 – 19,500
Gasoline	20,500
Kerosene	19,800
Benzole	18,100
Ethyl Alcohol	11,600
Gas Oil	19,200
Fuel Oil (Bunker)	18,300
Coal (Bituminous)	10,200 – 14,600
LNG	22,300
LPG (Butane)	21,300

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