

JJF × × -2024

Guidelines on transforming energy consumption data into carbon
emission data for cement enterprises

2024-XX-XX

JJF()XX -2024

Guidelines on transforming energy consumption data
into carbon emission data for cement enterprises

XX XXXXXX

XXX XXXXXX

5.1.2

5.1.3

5.2.3

5.2.4

JJF × × -2024

1

2

GB 16780—2021

GB 17167

GB/T 21372

GB/T 27977

GB/T 32151.8

8

GB/T 35461

JJF 1356

JC/T

3

3.1 energy measuring

JJF 1356

3.3

3.2 fossil fuel combustion emission

GB/T 32151.8—2023

8

3.11

3.3 net calorific value

3.10

3.4 carbon oxidation rate

(

3.11)

3.5 emission from net purchased electricity

(

3.6)

3.6 fuel consumption per unit product of clinker

1 t

(GB 16780—2021

3.3)

3.7 electricity consumption per unit product of clinker

1t

(GB 16780—2021

3.4)

3.8 energy consumption per unit product of clinker

1t

(GB 16780—2021

3.1)

4

4.1

GB/T 27977

E_x — — tCO_2
 AD — — MWh
 EF — —
 $/ tCO_2/MW \cdot h$

5.2

5.2.1

GB16780—2021

8 GB/T32151.8

A

5.2.2

1)

3

$$= \quad / \quad \times \quad \dots\dots\dots (3)$$

E — — tCO_2
 FC — — tce 4

E — — tCO_2/t
 $tCO_2/10^4Nm^3$ 5
 — — tce/t
 $tce/10^4Nm^3$

$$= \frac{E_{sh}}{E_{he}} \times \frac{P_{sh}}{P_{he}} \times \frac{6}{21372} \times \frac{44}{12} \times \frac{kgce/t}{t} \quad (5)$$

$$\omega = \frac{0.1229}{2} \frac{\text{kgce}}{(\text{kW} \cdot \text{h})}$$

E — — tCO₂

FC_i — — i t 8

5

$$= \quad \times \quad / \quad \dots\dots\dots (8)$$

$$\begin{aligned} &FC_i - \quad \quad \quad i \quad \quad \quad t \quad \quad \quad 10^4 \text{Nm}^3 \quad t \\ &NCV_{i-} - \quad \quad \quad i \quad \quad \quad \text{GJ/t} \\ &NCV_{--} \quad \quad \quad \text{GJ/t} \\ &= \quad \times \quad \times \quad \times \frac{44}{12} \dots\dots\dots (9) \end{aligned}$$

$$\begin{aligned} &NCV_{i-} - \quad \quad \quad \text{GJ/t} \\ &CC_{i-\Theta} \quad \quad \quad 2; \quad \quad \quad ^a \quad 0 \quad \quad \quad l' \quad \text{tC/GJ} \\ &OF_{i-} - \quad \quad \quad \% \end{aligned}$$

5.2.3

$$\begin{aligned} &10 \\ &= (\quad - \quad) \times \quad \times \quad \times 10^{-3} \dots\dots\dots (10) \end{aligned}$$

$$\begin{aligned} &E_{--} \quad \quad \quad \text{tCO}_2 \\ &W_{sh} - \quad \quad \quad \text{kw} \cdot \text{h/t} \end{aligned}$$

5.2.4

11

$$= \quad + 0.1229 \times$$

c)

d)

e)

f)

g)

h)

A

			^{*1} GJ/t GJ/10 ⁴ Nm ³	tC/GJ	%	tce/t tce/10 ⁴ Nm ³
		t	23.076 ^{*7}	0.02618 ^{*3}		0.7874
		t	26.700 ^{*2}	27.4 ^{*3} × 10 ⁻³		0.9110
		t	25.909 ^{*9}	26.1 ^{*3} × 10 ⁻³		0.8840
		t	11.9 ^{*2}	28 ^{*3} × 10 ⁻³		0.4060
		t	26.344 ^{*5}	25.41 ^{*3} × 10 ⁻³	99 ^{*3}	0.8989

