

6.3.7.6 Specific Cost of Fuels per Gigajoule [RC/GJ]

Description

Specific cost of fuels per Gigajoule corresponds to the cost of traditional fuels coal, pet coke, natural gas and other traditional fuels consumed in clinker production, excluding preparation and handling costs, per Gigajoule [GJ].

Reference to Process

This indicator refers to:

- Main cost center 'Clinker production'
- Product sub-segment Clinker and Cement

Purpose

To measure the cost of fuel per Gigajoule and per the traditional fuel types: coal, pet coke, natural gas and other traditional fuels.

To facilitate comparison/benchmarking of fuel costs by the main fuel types at plant gate between different plants.

Calculation

Coal

Specific cost of coal per Gigajoule [RC/GJ] = Cost of coal [RC] / Thermal energy coal [GJ].

Thermal energy coal [GJ] = Coal consumed in the kiln system [t] x Net Calorific Value of coal [MJ/t] / 1'000

Pet coke

Specific cost of pet coke per Gigajoule [RC/GJ] = Cost of pet coke [RC] / Thermal energy pet coke [GJ].

Thermal energy pet coke [GJ] = Pet coke consumed in the kiln system [t] x Net Calorific Value of pet coke [MJ/t] / 1'000

Natural gas

Specific cost of natural gas per Gigajoule [RC/GJ] = Cost of natural gas [RC] / Thermal energy natural gas [GJ].

Thermal energy natural gas [GJ] = Natural gas consumed in the kiln system [t] x Net Calorific Value of natural gas [MJ/t] / 1'000

Other traditional fuels

Specific cost of other traditional fuels per Gigajoule [RC/GJ] = Cost of other traditional fuels [RC] / Thermal energy other traditional fuels [GJ].

Thermal energy other traditional fuels [GJ] = Other traditional fuels consumed in the kiln system (by fuel type) [t] x Net Calorific Value of other traditional fuels (by fuel type) [MJ/t] / 1'000

For details on the Net calorific value calculation, refer to [Specific Thermal Energy Consumption \[MJ/t clin\]](#)

Note: 1 Gigajoule [GJ] = 10⁹ Joule

The Joule [J] is a derived unit of energy, work, or amount of heat in the International System of Units.

Comments and Examples

Note: If any of the above fuels' categories is a sum of several types, one must measure the volume and the NCV of each type individually. For example if diesel and heavy fuel oils are consumed in a kiln, the indicator Thermal energy other traditional fuels [GJ] = (Diesel consumed in the kiln system [t] x Net Calorific Value of diesel [MJ/t] + Heavy fuel oil consumed in the kiln system [t] x Net Calorific Value of heavy fuel oil [MJ/t]) / 1'000

Gigajoules (GJ) are calculated by the volume of each type of fuel consumed (family, classes) according to the PCS classification (detailed) and the relevant Net Calorific Value. The net calorific value has to be determined for all fuels. It can be determined in own laboratory, by third parties, by literature reference or consider the one specified on the invoice. If measured, it has to be measured after preparation (at the burner pipe or entrance of the kiln and not at the plant gate).

NOTE:

These indicators must not to be confused with [Specific actual cost of traditional thermal energy per Gigajoule \[RC/GJ\]](#)

Related operational performance indicators include: [Specific thermal energy consumption \[MJ/t clin\]](#) and [Thermal substitution rate - TSR \[%\]](#).

3.6 GJ (3'600 MJ/t clin) is an approximate amount of thermal energy required to produce one ton of clinker.

Reporting Requirements

The indicators are reported in SAP FC.