

$$GHG_i = \sum_{j=1}^n \left[\sum_{m=1}^z (F_{G,j} \times t_j) \times (1 - FG_j) \right] \times MF_i \times \left[\frac{T_{SC} \times P_{ca}}{T_{ca} \times P_{SC}} \right]_j \times \rho_i \times 0.001$$

Where:

GHG_i = Annual emissions of greenhouse gas i attributable to reciprocating compressor vents, in metric tons;

n = Total number of reciprocating compressors;

j = Reciprocating compressor;

z = Number of operating modes of reciprocating compressor j ;

m = Operating mode of reciprocating compressor j ;

F_{Gj} = Gas flow from the venting of reciprocating compressor j , in operating mode m , determined in accordance with QC.29.4.6, in cubic metres per hour;

t_j = Annual operating time of reciprocating compressor j , in operating mode m , in hours;

FG_j = Quantity of gas from the vent of reciprocating compressor j that is recovered using a vapour recovery system, determined in accordance with paragraph 4 of QC.29.4.5, expressed as a percentage;

MF_i = Molar fraction of greenhouse gas i in gas from reciprocating compressor vents, determined in accordance with paragraph 3 of QC.29.4;

T_{SC} = Temperature at standard conditions of 293.15 kelvin;

T_{ca} = Atmospheric temperature at the reciprocating compressor vent, in kelvin;

P_{ca} = Atmospheric pressure at the reciprocating compressor vent, in kilopascals;

P_{SC} = Pressure at standard conditions of 101.325 kPa;

ρ_i = Density of greenhouse gas i that is 1.893 kg per cubic metre for CO_2 and 0.690 kg per cubic metre for CH_4 at standard conditions;

0.001 = Conversion factor, kilograms to metric tons;

i = CO_2 or CH_4 .