

$$GHG_i = \left(\frac{H \times D^2 \times \pi \times P_{atm} \times G \times 365}{4 \times P \times t} \right) \times \left[\frac{T_{SC} \times P_d}{T_d \times P_{SC}} \right] \times MF_i \times \rho_i \times 0.001$$

Where:

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

H = Height of the dehydrator vessel, in metres;

D = Inside diameter of the dehydrator vessel, in metres;

π = Pi, namely 3.1416;

P = Natural gas pressure, in kilopascals;

P_{atm} = Atmospheric pressure, in kilopascals;

G = Fraction of packed vessel volume that is natural gas;

t = Time between refilling, in days;

365 = Number of days in the year;

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

T_d = Temperature at dehydrator vent, in kelvin;

P_d = Pressure at dehydrator vent, in kilopascals;

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

MF_i = Molar fraction of greenhouse gas *i* in natural gas, determined in accordance with paragraph 3 of QC.33.4;

ρ_i = Density of greenhouse gas *i* that is 1.893 kg per cubic metre for CO₂ and 0.690 kg per cubic metre for CH₄ at standard conditions;

0.001 = Conversion factor, kilograms to metric tons;

i = CO₂ or CH₄;