STANDARD PROPERTIES IN ADMS

CERC

In this document 'ADMS' refers to ADMS 6.0, ADMS-Roads 5.0, ADMS-Urban 5.0 and ADMS-Airport 5.0. Where information refers to a subset of the listed models, the model name is given in full.

The values of commonly used physical parameters in ADMS are listed in Table 1.

Parameter	Value	Units
pi	3.141592653589793[*]	-
gravity	9.807	$m\ s^{-2}$
molar universal gas constant	8.3143	$J\ K^{-1}\ mol^{-1}$
density of air at 15°C	1.225	$kg\ m^{-3}$
density of air at 0°C	1.292	$kg\ m^{-3}$
molecular mass of air	28.966	$g\ mol^{-1}$
specific heat capacity of air at 15°C	1012	$J\ kg^{-1}\ K^{-1}$
specific heat capacity of air at 0°C	1004.6	$J\ kg^{-1}\ K^{-1}$
Pressure at screen height	1013	mb
density of water	1025	$kg\ m^{-3}$
molecular mass of water	18.015	$g\ mol^{-1}$
specific heat capacity of water	4200	$J\ kg^{-1}\ K^{-1}$

[*]Occasionally pi = 4×arctan(1) is used

The definition of 'Normal' temperature and pressure (NTP) used is

    pressure = 1013 mb
    temperature = 273.15 K
    density of dry air = 1.292 kg/m^3

If the user enters the release efflux rate 'at NTP' it is converted to actual variables as follows:

    actual exit velocity = (exit velocity 'at NTP') × (temperature of release)/273.15
    actual vol. flow rate = (vol. flow rate 'at NTP') × (temperature of release)/273.15
    actual mass flux = (mass flux 'at NTP') × ((temperature of release)/273.15)
                               × ((density of release)/1.292)

(Buoyancy and momentum flux, only available in ADMS 6, cannot be specified 'at NTP')

If the density of the release is entered, the temperature of the release is calculated using

        temperature of release = 273.15 × 1.292/(density of release)