STANDARD PROPERTIES IN ADMS

CERC

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 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)