STANDARD PROPERTIES IN ADMS

CERC[1]

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	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

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

pressure = 1013mb
temperature = 273.15K
density of dry air = 1.292kg/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)