MULTIPLE SOURCES, SPECIES AND PARTICLE SIZES IN ADMS 6

CERC

This document refers to ADMS 6.0 only.

1. Sources and Groups

1.1 Sources

In ADMS 6, sources may be modelled as points, areas, volumes, lines or jets. Each source is defined by its position, dimensions (e.g. diameter, length, depth), height and emission characteristics, namely:

- velocity, volume flow rate, mass and buoyancy fluxes or mass emission rate
- temperature or density
- molecular mass
- specific heat capacity
- mixing ratio.

Up to 300 sources may be modelled. A maximum of 30 is placed on the number of each of line, area and volume sources.

The release from a point or jet source may be continuous or discrete (plume or puff).

1.2 Groups

Up to 20 user-defined groups of sources may be output. Each group may contain any combination of the sources, so that a source may be a member of more than one group, but a source can only appear once in any one group. All of the defined sources can also be modelled together using the 'All sources' output option.

1.3   Emissions

A pollutant emission is defined by a mass emission rate (plume) or total mass emission, start time and duration (puff). Each source may emit up to 80 pollutants or parent isotopes.

1.4   Pollutant species

Particulate pollutant species may include up to 10 different particle size components, whereas gaseous pollutant species only include one component. The particles and gases are defined by their wet and dry deposition characteristics and conversion factor between $\mu g/m^3$ and parts per billion (gases only). (Note, however, that the wet and/or dry deposition characteristics are only taken into consideration if the appropriate deposition options are selected by the user.)

The default parameters are given in Table 1.

Table 1 Default dry and wet deposition parameters

Pollutant type	Deposition velocity (m/s)	Terminal velocity (m/s)	Washout coefficient (s^{-1})	Conversion factor
Gaseous	0	N/A	0	1
*Particulate	0	0	0	N/A

*1 particle size component

1.5   Output

The user has the choice of output due to a single source or due to any or all of the source groups.

2.   Limitations

The following model options are only available for a single point source:
  (i)   Gamma dose
  (ii)   Puff (also available for a single jet source)

(iii) Temperature and humidity output (temperature output is also available for a single jet source)

For details of other restrictions on using model options with different source types, using multiple model options together and producing different types of output, please refer to the *User Guide*.