MULTIPLE SOURCES, SPECIES AND PARTICLE SIZES IN ADMS-ROADS

CERC

This document refers to ADMS-Roads 5.0 only.

1.   Sources and Groups

1.1   Sources

In ADMS-Roads, sources may be modelled explicitly as points, areas, volumes, lines or roads. 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.

The number of sources of each type that can be modelled depends on the licence type, as outlined in **Table 1**.

Source type		Maximum number available in ADMS-Roads		
		Package A	**Package B**	**Package C**
Road		150	600	3000
Point	Industrial	3	25	1500
Line		3	5	
Area		4	10	
Volume		25	25	

Table 1 – Limits on number of sources in ADMS-Roads

1.2 Groups

Up to 20 user-defined groups of sources may be created. 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. Each source may emit up to 80 pollutants.

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 2**.

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

Table 2 – Default dry and wet deposition parameters. *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**

Short-term output is available with both single and multiple source output. Line plotting output is only available with single source, short-term gridded output. Long-term output is not available with single source output.

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*.