

# POLLUTEv10

Version 10.00  
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## Case 8: Diffusion with initial concentration profile

THE DARCY VELOCITY (Flux) THROUGH THE LAYERS  $V_a = 0$  m/a

### Layer Properties

Layer	Thickness	Number of Sublayers	Coefficient of Hydrodynamic Dispersion	Matrix Porosity	Distribution Coefficient	Dry Density
Clay	0.1 cm	1	0.648 cm <sup>2</sup> /day	0.39	2.68 cm <sup>3</sup> /g	1.68 g/cm <sup>3</sup>
Clay	4.3 cm	10	0.648 cm <sup>2</sup> /day	0.39	2.68 cm <sup>3</sup> /g	1.68 g/cm <sup>3</sup>
Clay	0.1 cm	1	0.648 cm <sup>2</sup> /day	0.39	2.68 cm <sup>3</sup> /g	1.68 g/cm <sup>3</sup>

### Boundary Conditions

Finite Mass Top Boundary

Initial Concentration	400 mg/L
Rate of increase	0 mg/L/yr
Volume of Leachate Collected	0 m/a
Reference height of Leachate	6 cm

Zero Flux Bottom Boundary

### INITIAL CONCENTRATION PROFILE

Time = 0 year  
Flux into Soil = 0 m<sup>2</sup>/a  
Flux into Base = 0 m<sup>2</sup>/a

Top Depth	Bottom Depth	Concentration
0 cm	4.5 cm	10 mg/L

### Laplace Transform Parameters

TAU	7
N	20
SIG	0
RNU	2

### Calculated Concentrations at Selected Times and Depths

Time day	Depth cm	Concentration mg/L
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3	0.000000E+00	2.90955E+02
	1.000000E-01	2.56892E+02
	5.300000E-01	1.16390E+02
	9.600000E-01	3.77863E+01
	1.390000E+00	1.42573E+01
	1.820000E+00	1.03752E+01
	2.250000E+00	1.00188E+01
	2.680000E+00	1.00005E+01
	3.110000E+00	1.00000E+01
	3.540000E+00	1.00000E+01
	3.970000E+00	1.00000E+01
	4.400000E+00	1.00000E+01
	4.500000E+00	1.00000E+01
6	0.000000E+00	2.59633E+02
	1.000000E-01	2.39770E+02
	5.300000E-01	1.49143E+02
	9.600000E-01	7.57338E+01
	1.390000E+00	3.39129E+01
	1.820000E+00	1.66387E+01
	2.250000E+00	1.13976E+01
	2.680000E+00	1.02221E+01
	3.110000E+00	1.00266E+01
	3.540000E+00	1.00024E+01
	3.970000E+00	1.00002E+01
	4.400000E+00	1.00000E+01
	4.500000E+00	1.00000E+01
9	0.000000E+00	2.39353E+02
	1.000000E-01	2.25274E+02
	5.300000E-01	1.58615E+02
	9.600000E-01	9.69008E+01
	1.390000E+00	5.27328E+01
	1.820000E+00	2.75780E+01
	2.250000E+00	1.60245E+01
	2.680000E+00	1.17152E+01
	3.110000E+00	1.04047E+01
	3.540000E+00	1.00790E+01
	3.970000E+00	1.00128E+01
	4.400000E+00	1.00023E+01
	4.500000E+00	1.00021E+01
12	0.000000E+00	2.24326E+02

	1.000000E-01	2.13455E+02
	5.300000E-01	1.60961E+02
	9.600000E-01	1.08827E+02
	1.390000E+00	6.68208E+01
	1.820000E+00	3.85908E+01
	2.250000E+00	2.25557E+01
	2.680000E+00	1.48020E+01
	3.110000E+00	1.15967E+01
	3.540000E+00	1.04613E+01
	3.970000E+00	1.01175E+01
	4.400000E+00	1.00368E+01
	4.500000E+00	1.00344E+01
15	0.000000E+00	2.12429E+02
	1.000000E-01	2.03610E+02
	5.300000E-01	1.60498E+02
	9.600000E-01	1.15768E+02
	1.390000E+00	7.69906E+01
	1.820000E+00	4.81423E+01
	2.250000E+00	2.94831E+01
	2.680000E+00	1.89140E+01
	3.110000E+00	1.36487E+01
	3.540000E+00	1.13378E+01
	3.970000E+00	1.04525E+01
	4.400000E+00	1.01956E+01
	4.500000E+00	1.01873E+01

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