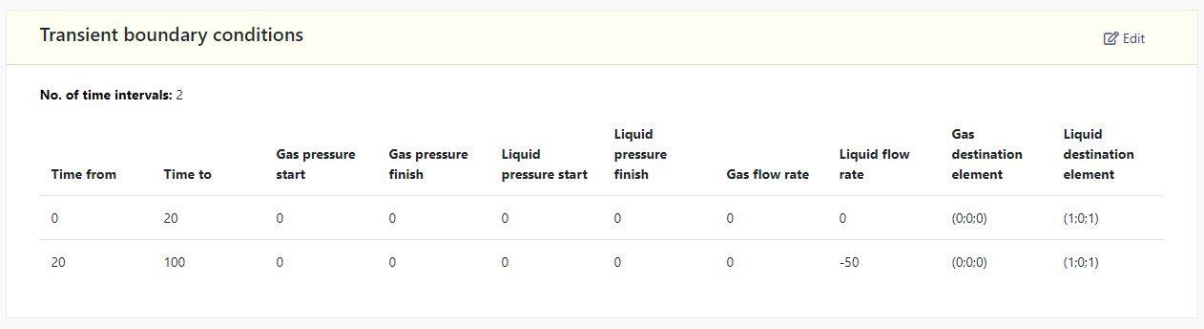
Editing a Case - Part 2

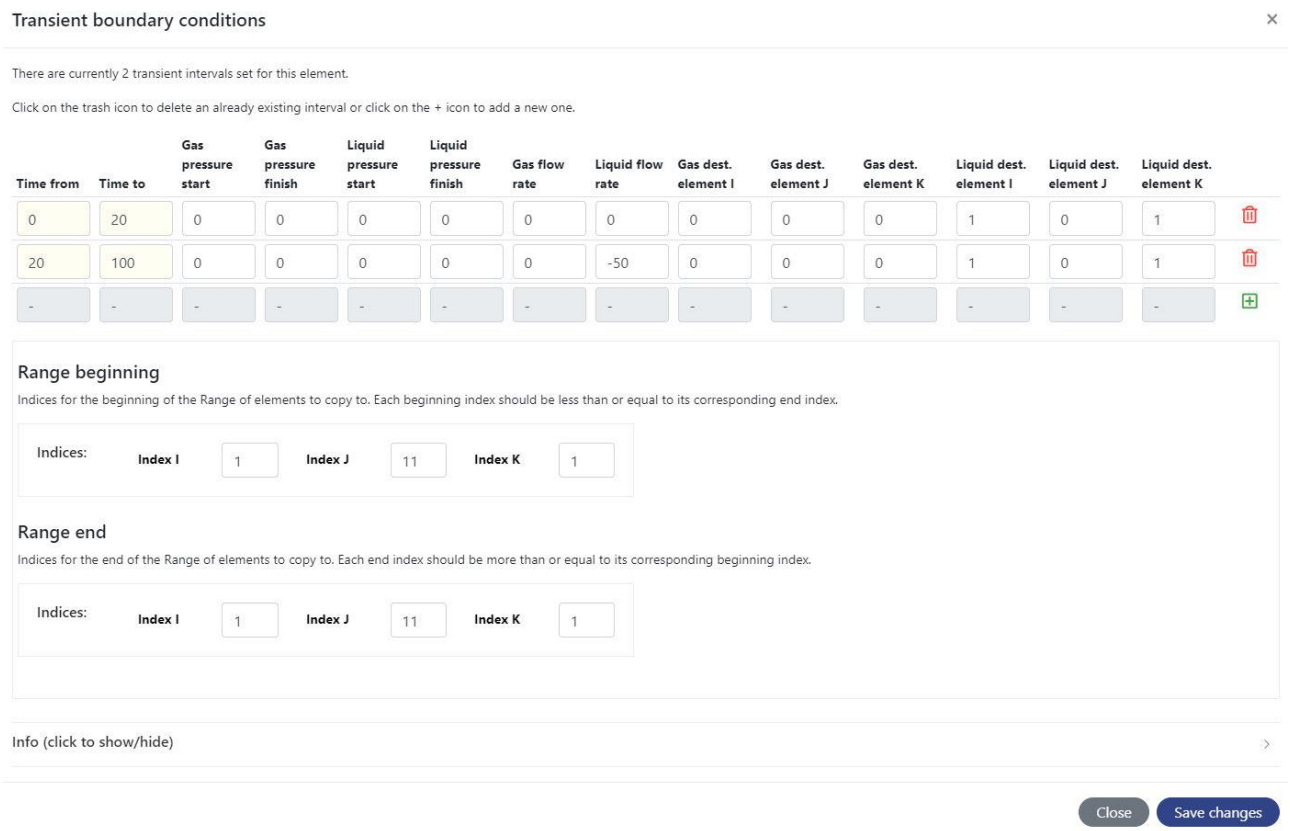
Apply time-dependent boundary conditions

Time dependent boundary conditions, which may be used to simulate waste treatment by leachate recirculation and aeration technologies may be linked to a boundary element. The data controlling transient condition takes the form of a table of time intervals. Clicking on the Edit settings **Boundary elements** Tab reveals the boundary condition parameter groups, one of which is **Transient boundary conditions** which displays how many transient time intervals have been set for that element, and a read only Table of the current settings (if any).



Time from	Time to	Gas pressure start	Gas pressure finish	Liquid pressure start	Liquid pressure finish	Gas flow rate	Liquid flow rate	Gas destination element	Liquid destination element
0	20	0	0	0	0	0	0	(0:0:0)	(1:0:1)
20	100	0	0	0	0	0	-50	(0:0:0)	(1:0:1)

Clicking on the Edit button shows a popup dialog containing an editable version of the transient Table for the element. You will be able to add and/or delete rows in the Table. For each row you can set the time intervals, the beginning and end of interval values for the element Gas and Liquid pressures, the Gas and Liquid flow rates out of the element and specify the destination elements that are to receive these flows.



Time from	Time to	Gas pressure start	Gas pressure finish	Liquid pressure start	Liquid pressure finish	Gas flow rate	Liquid flow rate	Gas dest. element I	Gas dest. element J	Gas dest. element K	Liquid dest. element I	Liquid dest. element J	Liquid dest. element K
0	20	0	0	0	0	0	0	0	0	0	1	0	1
20	100	0	0	0	0	0	-50	0	0	0	1	0	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-

You can also apply these settings to a Range of boundary elements by using the two Range element selectors.

Further details may be found in the reference: **Setting Transient BCs 04_08_17**

Change the solid waste characteristics

You use the **% Solid components** group of parameters shown by clicking on the Edit settings Tab **Waste type** to edit the percentage solid components that define the makeup of the solid phase of waste in terms of the percentages of **Green waste/wood**, **Food**, **Paper/card/cartons**, **Textile/carpets**, and **Inert non-degradable material**.

The percentages should add up to 100%.

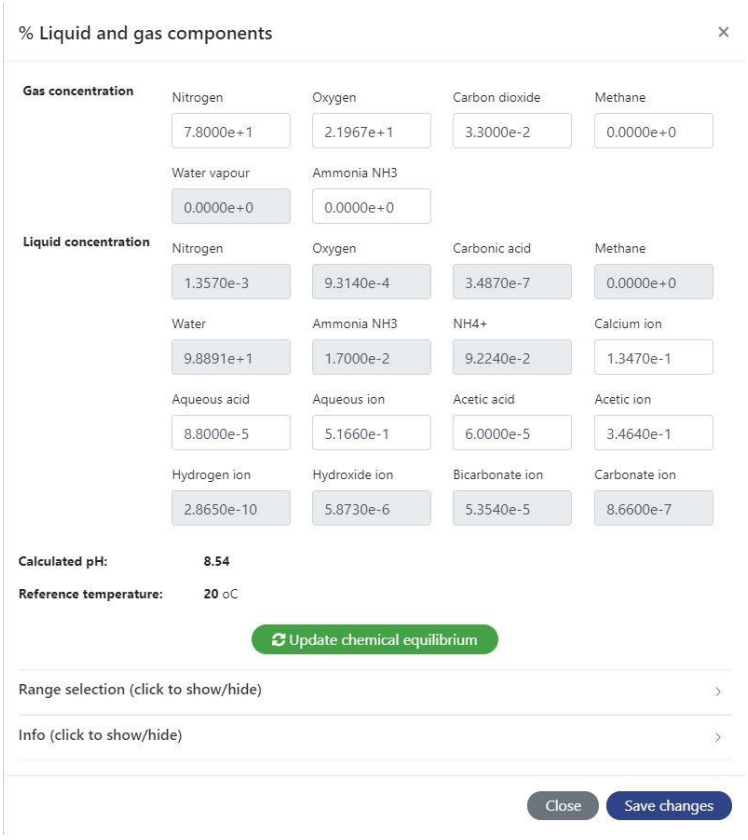
LDAT converts these percentages into the mass of the chemical compounds Protein, Fat, Carbohydrate and Glucose contained in the selected Element, using the LDAT Waste Converter Table. It also uses a UK Environment Agency Table to split each of these into Slow, Medium and Fast degradable classes, together with an inert residual. As a result the overall inert fraction of the waste becomes greater than the Inert Material percentage specified in the editor.

The parameters in these two Tables can be edited. See **Waste converter EA** and **Waste converter Compounds** in the Edit settings **Model** Tab.

Further details about how these parameters are used in the LDAT algorithm can be obtained by downloading this reference: **LDAT code Note - initial mass calculation**

Setup the initial chemical profile of the liquid and gas

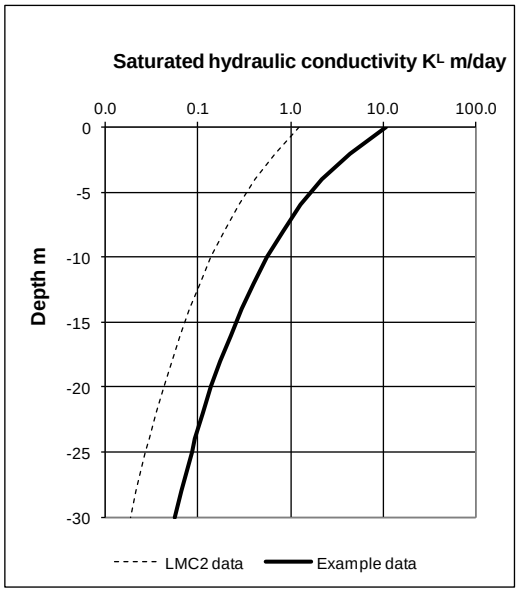
To setup the initial chemical profile of the liquid and gas contained in the pore space of the waste material contained in an element, use the **%Liquid and gas components** group of parameters shown by clicking on the Edit settings Tab **Waste type**.

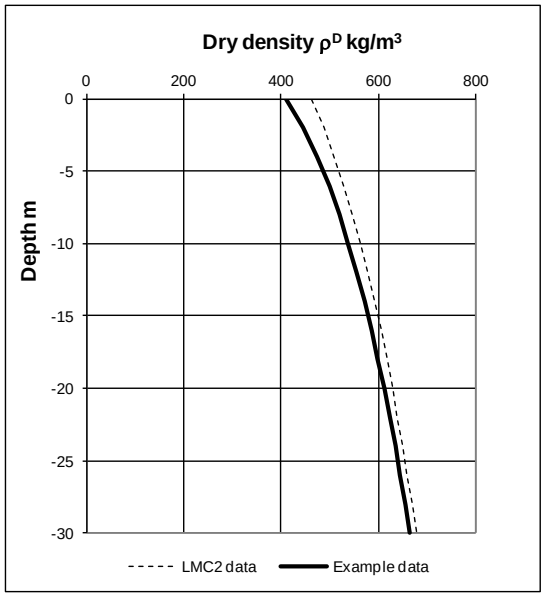


You only set the percentages in the text boxes with a WHITE background. When the Update chemical equilibrium button is clicked the percentages in the read-only GREY background boxes will be calculated and updated by LDAT's gas solubility and chemical equilibrium sub-model. The pH of the liquid phase will also be shown. Further details and advice are available on the 'Info' panel.

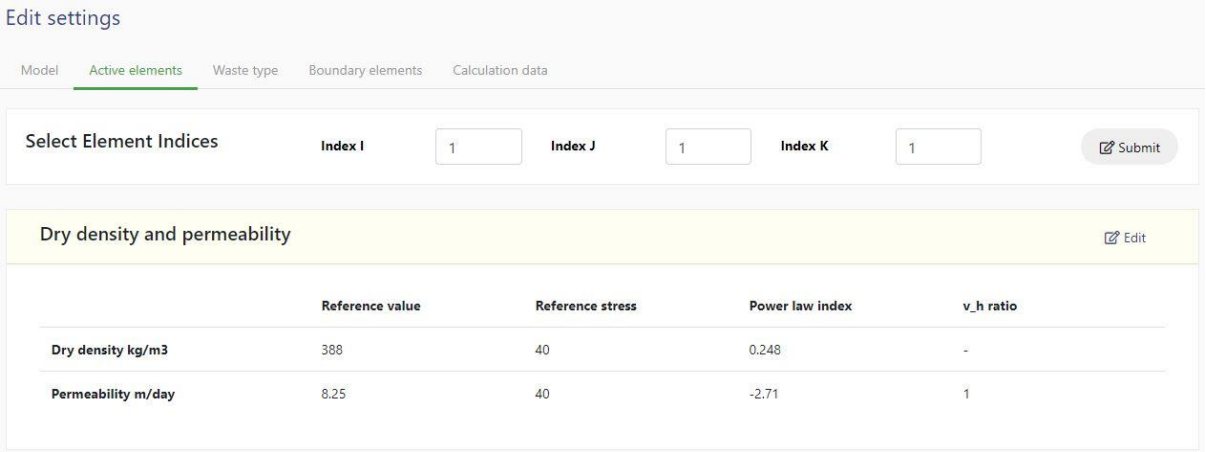
Set the permeability and dry density of the waste

Both the dry density and permeability properties of waste materials depend on the effective stress that is applied to the waste. This causes significant changes to occur with depth. The dry density will increase with depth. The permeability will decrease.





Setting the Reference value, Reference stress and Power law index parameter values in the editor group **Dry density and permeability,** found by clicking on the Tab **Active elements**, determines the relationship between the value of the two properties and effective stress. The relationships used in LDAT are the power law formulations derived by Powrie and Beaven.



Further information is contained in the references: **Liquid and gas permeability 07_08_17** and **Dry density and porosity 07_08_17**