User Manual

Based on the functionality provided with SLAMD, this document provides a guide of how to use the app.

The general workflow is as follows. First define base materials and processes. Then, you use the former as a basis to create blended materials. Next, a materials
formulations can be specified. For this purpose one selects a subset of all materials and processes created. The resulting data can but must not be enriched with targets (labels).
This specification of data can now used in the sequential learning for the prediction of new material properties.
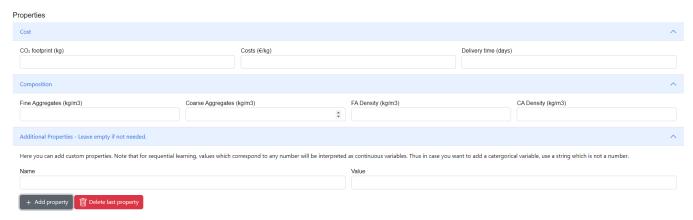
Base Materials and Processes

The starting point is the creation of base materials and processes. Here you can first select the type of base material or process you want to specify.

New material

Name	Material type / Process
	Powder ⌄

	Powder
	Liquid
	Aggregates
	Admixture
	Process
	Custom

Properties

Cost

Composition ⌄

Additional Properties - Leave empty if not needed. ⌄

Save material

Note that for all the types you can specify a name, costs and additional properties in the same way. The concrete composition, however, depends on the type (e.g. in the screenshow below, aggregates is shown.
You can open the cost / composition / additional properties input fields by clicking on the corresponding item below "Properties".

Properties

Cost	⌃

CO₂ footprint (kg)	Costs (€/kg)	Delivery time (days)

Composition	⌃

Fine Aggregates (kg/m3)	Coarse Aggregates (kg/m3)	FA Density (kg/m3)	CA Density (kg/m3)

Additional Properties - Leave empty if not needed.	⌃

Here you can add custom properties. Note that for sequential learning, values which correspond to any number will be interpreted as continuous variables. Thus in case you want to add a catergorical variable, use a string which is not a number.

Name	Value

+ Add property   🗑 Delete last property

Depending on the field, either only numerical or any alphanumeric input can be specified. Note that for later creation of blended materials, a base materials with
at least one field empty (in costs or composition) is considered incomplete and a warning is shown. Nevertheless blending can be still be performed as one might not want to create base materials
and blends consisting of all the possible features. More details on blending rules will be specified below.

The additional properties (at most 10!) allow defining additonal custom features for the material. In principle, you are free to specify any name and corrsponding value. Note however, that when blending
there are again certain rules which apply. For a complete description the names and corresponding value types must match across all base materials used for blending.

Having configured your material you can save it by clicking on the "Save material" button. The new item appears in the table showing all base materials and processes. In the left column you have functionalities
to delete or edit the chosen material. In case of clicking the edit button, the form will be populated by the previously configured data.

Blended Materials

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