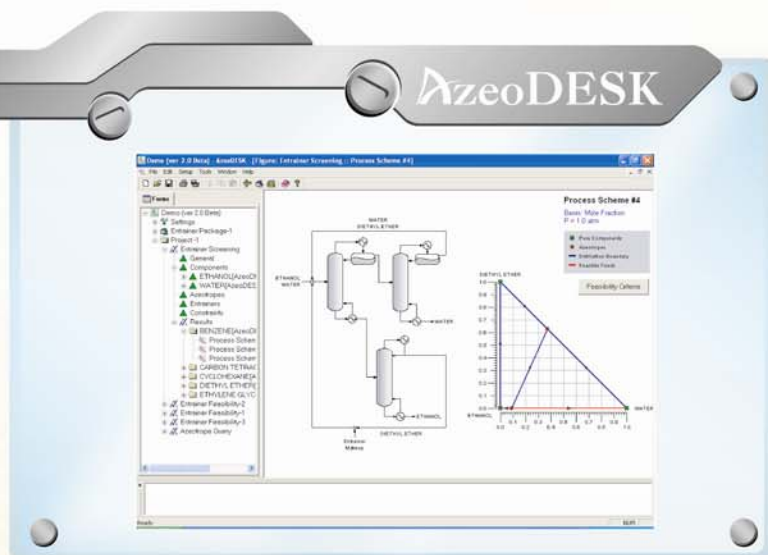


Introducing AzeoDESK

AzeoDESK is an expert system for selecting entrainers (or mass separating agents) for separating azeotropic mixtures. It couples a deep knowledge base derived from residue curve map (RCM) technology with an exhaustive database of binary and ternary azeotrope data to determine entrainer feasibility. For a user specified azeotropic mixture, AzeoDESK not only identifies a number of feasible entrainers, but it also synthesizes the corresponding separation sequences, frequently resulting in innovative solutions with significant competitive advantages. It is useful at any stage of the engineering workflow, ranging from early process development to the retrofit of an existing process, and results in a much faster and more cost effective development process.

1 AzeoDESK-Entrainer Screening



Product Highlights

- Expert system for selecting entrainers (mass separating agents) for separating azeotropic mixtures.
- Based on industrially proven Residue Curve Map technology.
- Identifies feasible entrainers and synthesizes the corresponding separation sequences.
- A fully searchable database containing over 5000 binary and 1400 ternary azeotrope data points.
- Capability to add user specified components and data.
- Identifies the key properties of a feasible entrainer - can be used to quickly determine what experiments are required to verify entrainer feasibility.
- Easy to use GUI with a full hierarchical case management system.

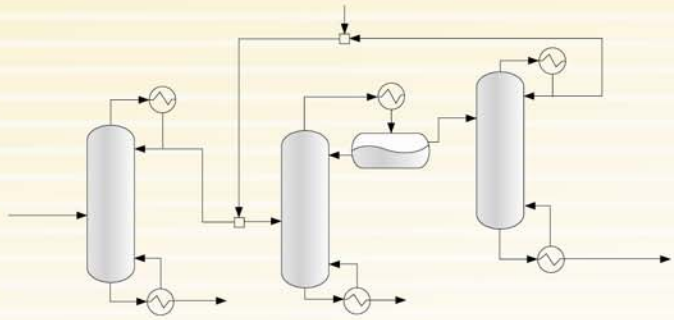
The Entrainer Screening tool in AzeoDESK is used to perform an exhaustive search to find feasible entrainers for separating a user specified binary azeotropic system. For each feasible entrainer AzeoDESK synthesizes a number of alternative separation sequences (i.e., number of distillation columns, decanters, interconnections and recycle streams). In addition, for each feasible entrainer - separation sequence pair, it also generates a list of conditions that the entrainer must satisfy if it is to be used to separate the desired azeotropic mixture. This list of conditions can be used to quickly determine what experiments might be required to verify entrainer feasibility.

- Search either the entire AzeoDESK database of over 1500 pure components, or limit the search to a user specified set of potential entrainers (called an entrainer package).

- Specify optional additional conditions (e.g., maximum boiling point, multiple liquid phases, etc.) that any feasible entrainer must also satisfy.

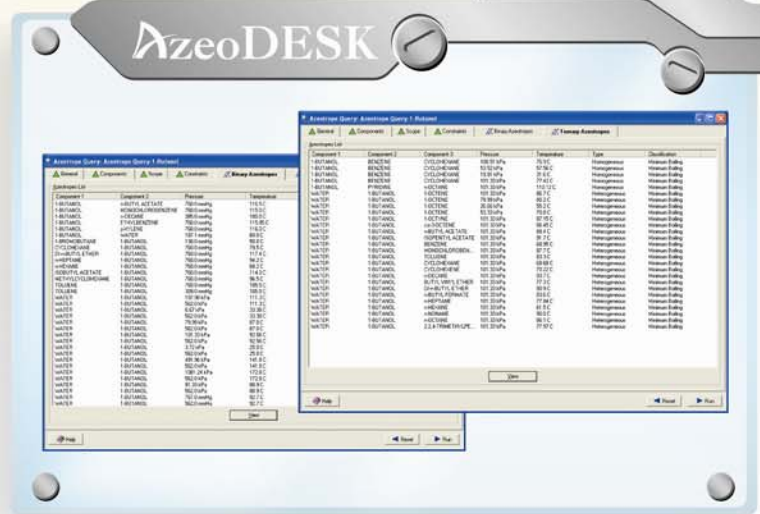
Entrainer Feasibility- AzeoDESK²

The Entrainer Feasibility tool is used to determine if a given component is a feasible entrainer for separating a user specified binary azeotropic system. This tool is particularly useful if desired entrainer and/or its properties are not already present in the AzeoDESK database. In addition, the Entrainer Feasibility tool can also be used to synthesize alternative separation sequences for a known feasible entrainer.



3 AzeoDESK - Azeotrope Database Query

The azeotrope database in AzeoDESK contains over 5000 data on binary azeotropes and 1400 data on ternary azeotropes. It is also possible to add user specified data to this database. In addition to being used to determine entrainer feasibility, the database can also be directly searched (with optional user specified constraints) using the Azeotrope Query tool, which is very useful for physical property model development and verification.



AzeoDESK - Workflow & Benefits

AzeoDESK offers significant value and benefit at any stage of the engineering work process, ranging from early process development studies to the retrofit of an existing process.

Since AzeoDESK does not require an accurate thermodynamic physical property model, it is ideally suited for early process development studies prior to conducting experiments and simulations. Using the Entrainer Screening tool, a process development engineer/chemist can conduct a quick preliminary screening of a large number of potential entrainers without the need for extensive experiments and/or simulations. The Entrainer Feasibility Conditions generated by AzeoDESK can then be used to determine which experiments might be necessary in order to verify entrainer and/or separation sequence feasibility.

During the later stages of the development of a new process or the retrofit of an existing process, the Entrainer Feasibility tool can be used to determine if a particular component is a good candidate for replacing an existing entrainer for separating an azeotropic system, or to synthesize alternative separation sequences for separating an azeotropic system using a desired entrainer.

The Azeotrope Query tool can be used at any stage of the process development and retrofit workflow for identifying required missing data, as well as physical property model development and verification.

To support these diverse uses in the workflow, AzeoDESK has a full hierarchical case management system with multiple workspaces, child/parent project, etc.

