CLEARWATERBAY TECHNOLOGY, INC.
The Process Development Company

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AzeoDESK
Azeotropic Distillation Entrainer Selection Kit

New Software for VLE-based Separations: AzeoDESK

The design and optimization of the distillation sequence can have a significant impact on the economics of a process. A key step in the optimization process is to generate alternative distillation sequences. In the case of ideal mixtures, there are a large number of feasible sequences, synthesized based on only boiling points of the pure components. However in the case of azeotropic mixtures there are usually a few, if any, feasible sequences and synthesizing feasible sequences is a challenging task. In many cases it is frequently necessary to add an additional component, referred to as an entrainer or mass-separating-agent, to make the separation feasible.

CWB Tech has developed new software called **AzeoDESK**, *Azeotropic Distillation Entrainer Selection Kit*, which is an expert system to determine how to effect a certain continuous azeotropic distillation (homogeneous and heterogeneous), using a mass separating agent. A phase-diagram based methodology, namely *Residue Curve Map Technology* (RCM), is used to determine the feasibility of the given separation by a certain entrainer. Given the components to be separated, AzeoDESK performs an exhaustive search of entrainers and identifies the feasible ones along with the separation sequence and RCM.

A unique feature of AzeoDESK is the presence of a powerful database of pure components and binary and ternary azeotropes, compiled from various sources on azeotropic data. The database can also be specifically used to search for binary/ternary azeotropes between desired components.

On the other hand, the software provides a user-friendly interface, and advanced options for more case-specific scenarios, such as to search for user-specified entrainer characteristics or to test a user-specified entrainer package. AzeoDESK can also be used to test entrainers for user-specified components that do not exist in the database.

AzeoDESK can perform preliminary flow sheet sequencing without the need for an accurate thermodynamic model. The objective of AzeoDESK is to provide a user the capability to obtain a starting point for both experiments and detailed flow sheet synthesis for an entrainer-effected azeotropic distillation, with a selection of fewer and reliable entrainer options. Detailed experiments and modeling will then be necessary to determine the practical operability of the entrainer.

For more information about AzeoDESK, write to us at info@cwbtech.com.

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Key Features of AzeoDESK

- User-friendly interface
- Extensive Database (Pure Components and Azeotropes) with database search capability\
- Capability to add user-specified components/entrainers
- Entrainer Screening Tool to identify feasible entrainers
- Entrainer Feasibility Tool to test new components and entrainers
- Capability to identify preliminary flow sheet sequence and feed location
- Advanced options to specify desirable entrainer properties or an entrainer package of the user's choice