THE GUNT LEARNING CONCEPTS IN THERMAL PROCESS ENGINEERING

What does thermal process engineering involve?

The basis of thermal process engineering is thermal separation methods. In mixtures made up of at least two components, heat and material transfer processes are used to selectively change the composition (concentration) of the mixture. The motive forces for these transfer processes (temperature and concentration differences) are created by adding an opposite phase selectively for one or more components in the mixture. Both the mixture of substances to be separated and the opposite phase can be in either solid, liquid or gaseous form. The processes are referred to as phase equilibrium processes and classified based on the combination of phases.

How can thermal separation methods be classified?

PHASE EQUILIBRIUM PROCESSES

LIQUID / GASEOUS	LIQUID / LIQUID	SOLID / LIQUID	SOLID / GASEOUS
■ Evaporation ■ Distillation / Rectification ■ Absorption	■ Extraction ■ Membrane Separation Methods / Reverse Osmosis	■ Extraction ■ Crystallisation ■ Adsorption	■ Drying ■ Adsorption

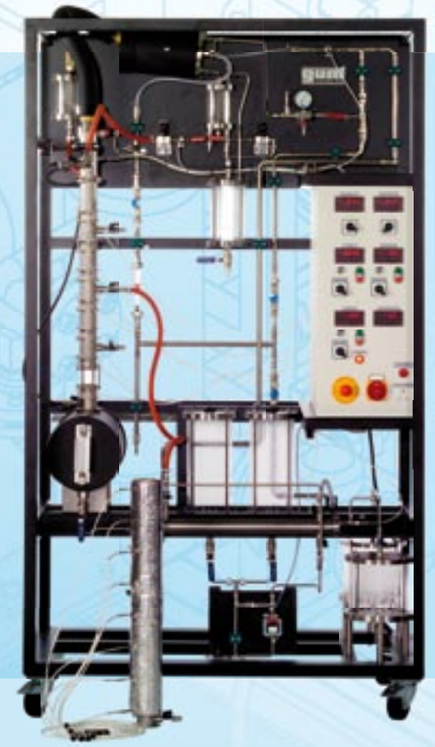
Why are practical experiments indispensable for training purposes?

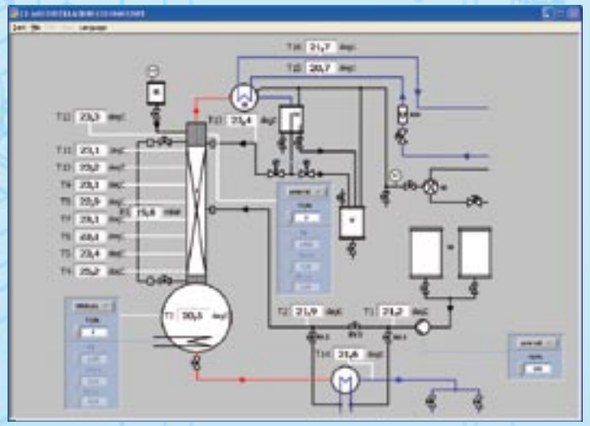
Modelling of thermal separation processes is based on the absolute laws of conservation for mass, energy and momentum, as well as phase equilibrium and kinetic methods for modelling heat and material transfer flows. The parameters in the kinetic methods must be measured and the heat and material transfer flows optimised. Practical experiments are essential to obtain a comprehensive understanding of the basic recurring process engineering principles such as parallel and countercurrent flow, multistage processes, design of active surfaces and uniform progression of motive forces. Planning, setting up and performing experiments to determine modelling parameters is communicated most clearly and comprehensibly through the use of experimental systems.

Prof. Dr.-Ing. habil. Kurt Gramlich (Anhalt University), our technical adviser on thermal process engineering

Prof. Gramlich advised us when we were setting up this range and contributed his many years of experience in the area of thermal process engineering. The text on this page was written by Prof. Gramlich.

THERMAL SEPARATION METHODS…		…AND THE APPROPRIATE GUNT UNIT
Evaporation	▶	CE 715 *Rising Film Evaporation*
Distillation / Rectification	▶ ▶	CE 600 *Continuous Rectification* CE 602 *Discontinuous Rectification*
Absorption	▶	CE 400 *Gas Absorption*
Extraction	▶ ▶	CE 620 *Liquid-Liquid Extraction* CE 630 *Solid-Liquid Extraction*
Membrane Separation Methods	▶	CE 530 *Reverse Osmosis*
Crystallisation	▶	CE 520 *Cooling Crystallisation*
Adsorption	▶	CE 540 *Adsorptive Air Drying*
Drying	▶	CE 130 *Convection Drying*





Training for specialists and engineers in process engineering:

Reliable learning success with training systems from GUNT