

Zittau/Goerlitz University of Applied Sciences **Department of Technical Thermodynamics**

www.steamtables-iapws-if97.com

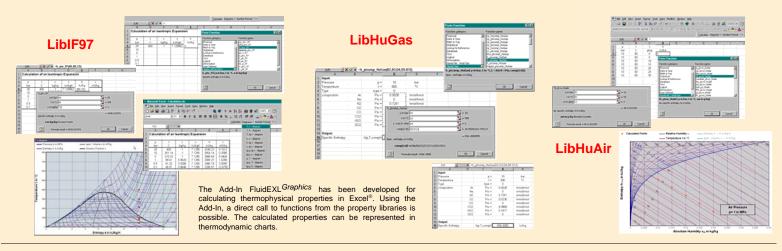
H.-J. Kretzschmar, I. Stoecker, K. Knobloch, I. Jaehne,

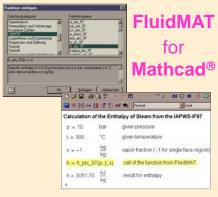


Electronic Steam Tables and Property Libraries for Calculating Heat Cycles, Boilers, and Turbines

Water and Steam		Humid Combustion Gases	Humid Air
Library LiblF97		Library LibldGas	Library LibldAir
Industrial formulation IAPWS-IF97 Supplementary backward equations		VDI-Guideline 4670 for low pressures, high temperatures	
IAPWS-IF97-S01 IAPWS-IF97-S03rev IAPWS-IF97-S04		Library LibHuGas	Library LibHuAir
Development of further backward equations for critical and supercritical regions (region 3)		Model: Ideal mixture of real fluids for high pressures, low temperatures	
Thermodynamic and Transport Property Calculations		Ideal mixture of the real fluids	Ideal mixture of the real fluids
Thermodynamic Properties Saturation pressure ps Saturation temperature Ts Density ρ Specific volume ν Specific internal energy u Specific internal energy u Specific internal energy v Specific isobaric heat capacity cp Specific isochoric heat capacity cv Isentropic exponent κ Speed of sound w Specific sergy e	Transport Properties • Dynamic viscosity η • Kinematic viscosity ν • Thermal conductivity λ • Prandtl – number Pr Thermodynamic Differential Quotients • All differential quotients can be calculated Backward Functions • T , v , x , s (ρ,h) • T , v , x , h	CO ₂ - Span and Wagner H ₂ O - IAPWS-95 N ₂ - Span et al. O ₂ - Schmidt and Wagner Ar - Tegeler et al. and the ideal gases: SO ₂ CO Ne • Consideration of - Dissociation from VDI-Guideline 4670 - Poynting effect	- dry air: Lemmon et al. - steam and water: IAPWS-IF97 • Consideration of - Dissociation from VDI-Guideline 4670 - Poynting effect

Add-In FluidEXL Graphics for Excel® including thermodynamic charts





Using the interface FluidMAT, the functions of property libraries can be called in Mathcad®

Software for **Pocket Calculators**

Software for calculating thermodynamic

- and transport properties for - Water and steam
- Combustion Gases and
- Humid air

on the following pocket calculators have been developed for daily use



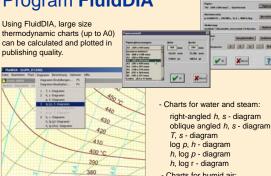




FluidCasio

420

Program FluidDIA



- Charts for humid air: h, x - diagram for several pressures
- Charts for Ammonia
- log p, h diagram