

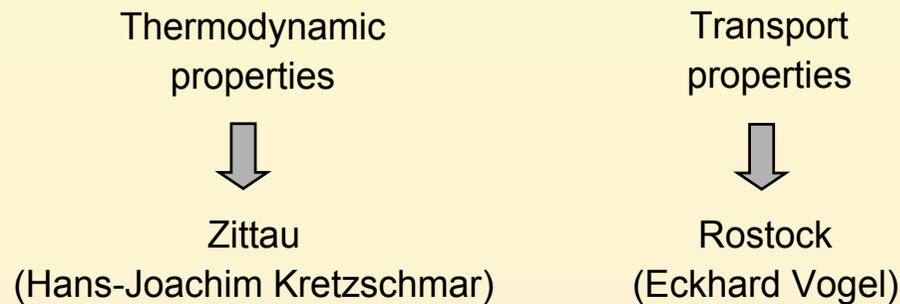
Task 4.2: Development of a Data Base

1 Purchase of the server (3500,- EUR planed)

- after receiving grant from EU

2 Installing FTP-server

3 Collecting experimental data from literature



Please send us data or other information you have already available for:

- Dry air
- Humid air
- Related mixtures (e.g. nitrogen + water)

as:

- PDF-file or printed copy of source
- Prepared data file
- Reference.



4 Installing SQL data bank

- Authors, title, substances, properties ...
- PDF-file of the source
- Excel-file for comparison calculations
- Data-file for application



Setting up a suitable data file structure

5 Collecting new experimental data

- Specifications for transfer

6 Assessment of data from literature

- Comparison with new data



Task 4.3: Identification/Development of Suitable Models, Exploitation of the Results

1 Assessment of different models

- Comparison with data from literature
- Comparison with new data

Models for thermodynamic properties of humid air:

- Ideal mixture of ideal gases
 - VDI-Guideline 4670
- Ideal mixture of real fluids
 - Dry air: Lemmon et al. (2000)
 - Steam and water: IAPWS-IF97, IAPWS-95
 - Nitrogen: Span et al. (2000)
 - Oxygen: Schmidt and Wagner (1987)
 - Argon: Tegeler et al. (1999)
- Real mixture of real fluids
 - Starting point: equation of Wagner et al. for natural gas

2 Recommendations

- Calculation of thermodynamic properties in process modelling

Assumption for the development of a new international standard for the thermodynamic properties

