

The Dortmund Data Bank

The Dortmund Data Bank (DDB) is a factual data bank for thermodynamic and thermophysical data compiled from primary sources like scientific publications, theses, company reports, deposited documents, and private communications. Only experimental data from the original publications are stored.

Besides the easily accessible thermophysical properties from scientific literature DDB contains a great part of data not available via the open literature (systematic measurements for the development of predictive tools, private communications, confidential data from industry, BSc., MSc and Ph.D. theses, ... from all over the world). These data will not be provided by online services and are not made available to competitors of DDBST GmbH. The DDB offers vast amounts of information for a wide variety of applications in chemical engineering, environmental protection, and plant safety. It is especially valuable for the design of separation processes, e.g. distillation, extraction, absorption, crystallization, evaporation, ...

Besides covering the most common components the DDB contains data for e. g. ionic liquids, biofuel components, amines used in gas treating, polymers, electrolytes, and more.

Distribution Channels

The DDB is distributed as an in-house data bank together with a software for data retrieval, visualization, regression and export to other applications like spreadsheets or chemical process simulators. In addition, this software package includes many state-of-the-art property estimation models for pure component and mixture properties like UNIFAC, mod. UNIFAC, PSRK, VTPR, COSMO-RS(OI), COSMO-SAC as well as process synthesis tools and further utilities.

As a second distribution channel, the Dortmund Data Bank is used within our consulting services, either in form of simple data deliveries but more often in combination with advanced services like data regression (e. g. for g^E models like Wilson, NRTL and UNIQUAC or pure component vapor pressure equations like simple or extended Antoine, Wagner, heat capacity polynomial parameters, parameters for a variety of DIPPR and PPDS equations). Data are also bundled with specific available or custom-tailored software tools. In many cases, data are delivered together with property estimation results. In addition, missing data can be measured at our partner organisation LTP GmbH.

Major parts of the Dortmund Data Bank except e.g. adsorbent/adsorptive equilibria as well as many data supplied by the Gas Processors Association (GPA) are also included in DETHERM (i-systems.dechema.de).

The Online DDB Search

Online DDB Search has been developed to enable a world-wide access to the contents of the Dortmund Data Bank. The site allows checking for the availability of thermophysical data free of charge and in addition it offers qualified consulting beyond just data delivery upon request.

The screenshot shows the 'Online DDB Search' interface. It includes a search bar for 'DDB Component Search' with fields for DDB No., Name, CAS-RN, Formula, and SMILES, each with a 'Search' button. Below this is a 'Query' section with a note: 'A quote for experimental literature data about the system can be obtained via email.' A table displays search results:

DDB#	Name	CAS-RN	Formula	
11	Ethanol	64-17-5	C ₂ H ₆ O	Delete
110	Methanol	67-56-1	CH ₄ O	Delete

At the bottom, there are buttons for 'System Search (Exact Match)', 'As Subsystem', and 'New System/Query'. The footer contains version information: 'Dortmund Data Bank Version: January 2025' and copyright details for DDBST GmbH.

DDB Online Search is explicitly not a web shop and it is not possible to buy data through this service directly. DDB Online Search is designed as an information source only and request will always be answered by one of DDBST's employees.

Supported Data Banks

The online DDB search covers the complete list of data banks of the Dortmund Data Bank. Included are the data banks for

- Pure component properties
 - P-v-T related data (vapor pressures, critical data, densities, virial coefficients, and more)
 - Transport properties (viscosities, thermal conductivities, ...)
 - Enthalpies (phase change, formation, ...)
 - Heat capacities
 - Surface tensions
 - and more

- Mixture properties
 - Vapor-liquid equilibria
 - Liquid-liquid equilibria (miscibility gaps)
 - Solid-liquid equilibria (solubilities)
 - Activity coefficient at infinite dilution
 - Gas solubilities
 - Azeotropic and zeotropic data
 - Heats of mixing
 - Densities, volumes and excess volumes
 - Excess heats of mixing
 - Critical data of mixture
 - Salt solubilities
 - Vapor-liquid equilibria for electrolyte containing mixtures
 - Octanol-water partition coefficients
 - Adsorbent/adsorptive equilibria
 - Polymer related information (covering phase equilibria data and more)
 - Dynamic and kinematic viscosities
 - Thermal conductivities
 - Speeds of sound
 - Surface tensions
 - Dielectric constants

The screenshot shows the Dortmund Data Bank (DDB) website interface. At the top, there is a logo for DDB and the text 'DDBST GmbH'. Below this, the page is titled 'Online DDB Search'. A search query for 'Ethanol' and 'Methanol' has been performed, resulting in a table of data sets. The table has columns for 'DDB #', 'Name', 'CAS-#RN', and 'Formula'. Two entries are shown: '11 Ethanol 64-17-5 C₂H₅O' and '110 Methanol 67-56-1 CH₃O'. Below the search results, there is a section titled 'Mixture Data' which provides a detailed overview of available data types for the system. This section includes a table with columns for 'Databank', 'Sets', 'Points', 'Temperature Range', and 'Pressure Range'. The table lists various data types such as 'Vapor-Liquid Equilibria', 'Heats of Mixing', 'Activity Coefficients at Infinite Dilution', etc., along with their respective set and point counts and ranges. At the bottom of the page, there are navigation buttons for 'New System/Query' and 'Back', and a footer containing contact information and copyright details.

Changes and errors are possible regarding all information.

Terms and Conditions of Use

Prices

DDBST GmbH provides Online DDB Search free of charge. Please take a look at the price lists for data sets, complete or partial data banks and software for further information.

Copyright

Online DDB Search results can be distributed freely and no copyright is reserved for the search results as long as they are distributed together with a link or reference to the DDB or Online DDB Search.

Typical Outputs

A typical output includes details about the data types, the temperature and pressure ranges, and the number of sets and points (where available).

The example below shows all available data for the binary mixture of ethanol and methanol.