FLUIDAT®on the Net

Interactive Flow Calculations and routines generating Physical Properties

> Introduction

During the manufacture of the Bronkhorst High-Tech range of mass flow and pressure instrumentation, many physical properties of fluids are used. For example, the density and heat capacity at atmospheric conditions are used for calibration of thermal mass flow controllers. Information on the fluid is also necessary to configure an instrument, for instance the vapour pressure is needed to detect whether a fluid is in a gas or in liquid state at certain conditions. Therefore an easy and flexible access to the physical data of a fluid is very important. For this purpose, computer routines were developed, which generate physical fluid properties based on theoretical calculation methods. The collection of calculation routines is called FLUIDAT®.
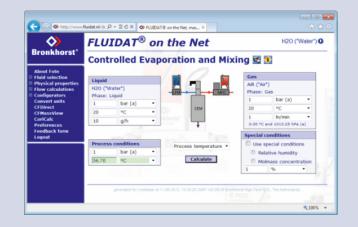
> Description

FLUIDAT® is a collection of routines to calculate physical properties of gases and liquids. These routines are made available at the FLUIDAT® on the Net website, which is accessible via **www.fluidat.com** The FLUIDAT® calculation routines make use of intrinsic data of a fluid like molecular mass, critical properties, boiling point, dipole momentum, etc. Pure component properties can be calculated at certain conditions of temperature (T) and pressure (p). Also, properties of mixes consisting of up to 15 components can be derived. Over 1800 fluids are available in the FLUIDAT® software, these fluids are mainly hydrocarbons complemented with most well-known inorganic fluids (gases) such as air, argon and helium.

Searching for a fluid is very flexible. The search can be performed by chemical formula or by the name of the fluid. Also, a filter can be set to narrow the search.
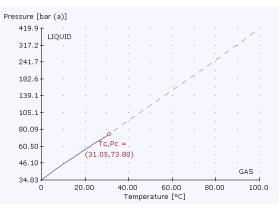
> Registration

FLUIDAT® on the Net is free to use, but only registered users have full access to fluids and functionality. Registration is possible at the FLUIDAT® website (**www.fluidat.com**). In a few days, you will be provided with a personal username and password. Alternatively it is possible to login as "guest" to try out FLUIDAT® on the Net with a limited number of preselected fluids.

> General features

◆ Selection from a database of over 1800 fluids
◆ Find fluid by name, formula or CAS number
◆ Create / edit / save mixtures
◆ Intrinsic properties of fluids
◆ Calculation of fluid properties
◆ Vapour pressure line generation
◆ Gas and liquid conversion factors
◆ Orifice calculation for mass flow controllers
◆ Pressure drop across M-400 series filters
◆ Calculation of operating conditions for CEM vapour generation system

Example of vapour pressure line for CO_2 calculated using