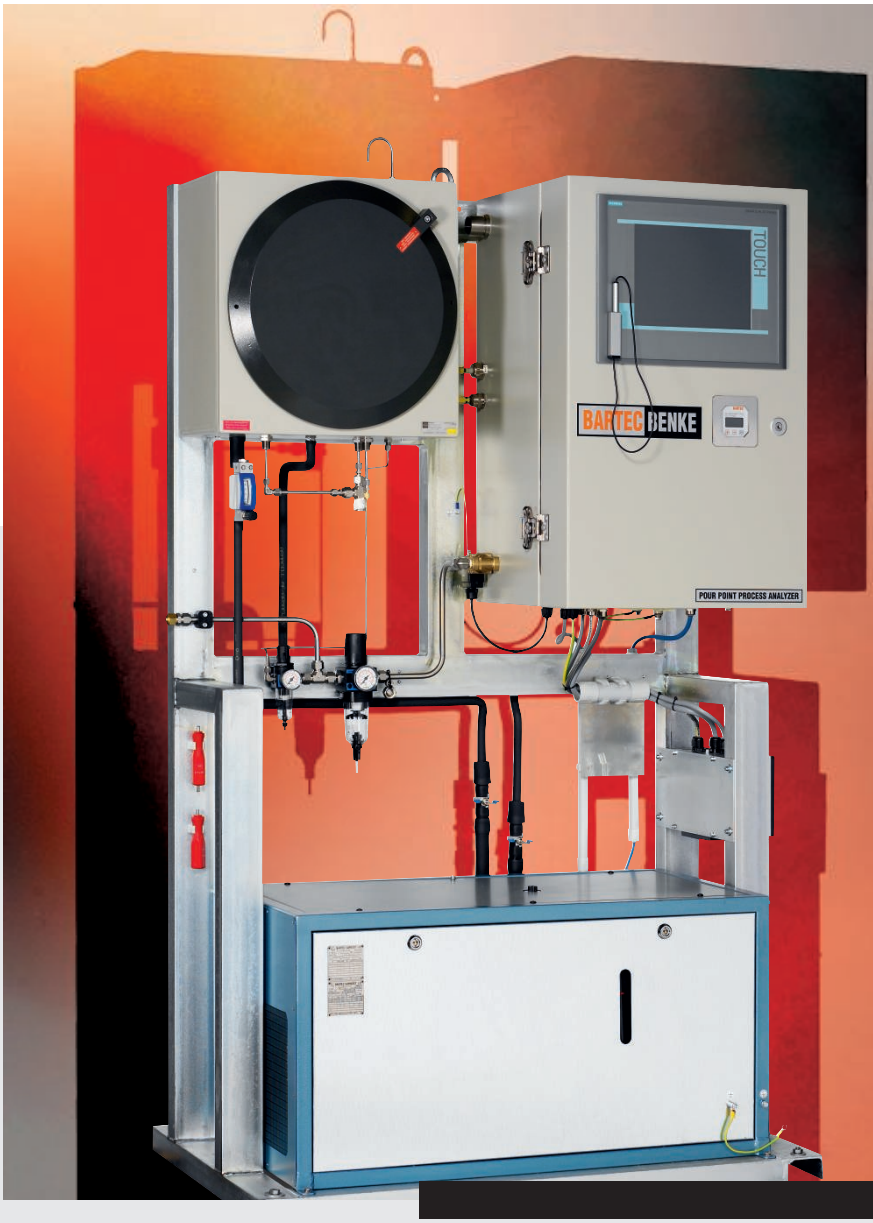
BARTEC BENKE



- ASTM D 97 compliance
- Customized solutions
- Low and High temperature application
- ATEX, CSA certified
- Network and Fieldbus communication

Process Analyzer

Pour Point Process Analyzer PPA-4

Pour Point Process Analyzer **PPA-4**

Application

The BARTEC BENKE Pour Point Process Analyzer (PPA-4) measures the pour point of petroleum products, hydrocarbons, chemical products and components. The PPA-4 operates online and fully automatic. Two layouts are available:

- **Low temperature** e.g. diesel and light gas oil or similar products
- **High temperature** e.g. fuel, lube and bunker oils or similar products

others on request.

BARTEC BENKE

YOUR competent partner for safe plants

The specialists from BARTEC BENKE have many years of experience in plant safety. They create solutions which you can rely on: economical, reliable and for the future.

Special Features

- Real tilting measuring cell
- Rugged design of measuring cell
- Optimized assembly – easy removal of complete cell
- Integrated failure diagnosis and self monitoring
- Available communication interfaces:
  - Modbus/RTU, Modbus/TCP
  - Remote Access via modem, ISDN, LAN, VPN

Make your decision for a strong partner!

Choose BARTEC BENKE also for

- Fast Loop Systems
- Sample Conditioning Systems
- Validation Systems
- Recovery Systems
- Chillers
- Air Conditioning Systems/HVAC
- Pre Commissioned Analyzer Shelters/Turn-Key Solutions

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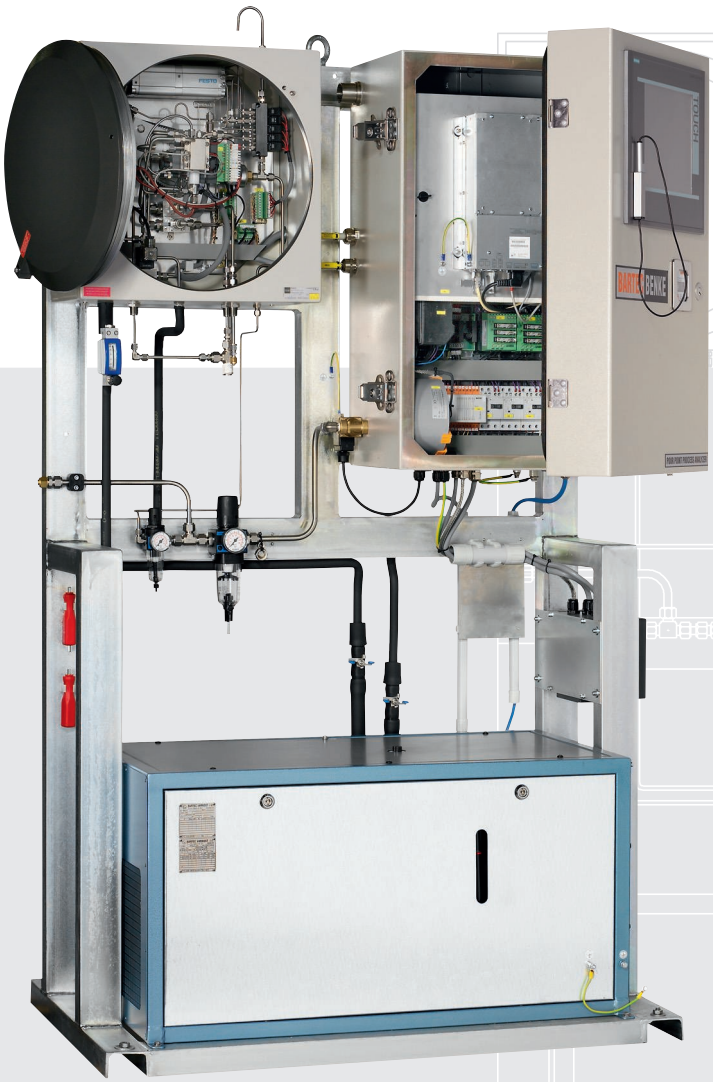

Norms and Standards

- ASTM D 97
- DIN ISO 3016
- IP 15

Method

The product sample is cooled under specified conditions. The pour point is the temperature at which the liquid sample becomes solid, detected in the tilting measuring cell of the PPA-4.

Note: Illustrations of this brochure show a typical PPA-4 Analyzer.

Oil and Gas Refineries **Petrochemistry** Chemistry

Pour Point Process Analyzer PPA-4

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Explosion protection

Ex protection type (Europe)	⟨Ex⟩ II 2G EEx dpe[ia] IIB T4 or ⟨Ex⟩ II 2G EEx dpe[ia IIB+H_2 T4
Certification	TÜV 99 ATEX 1463
Optional available classification (USA and CAN)	Class I, Div. 2, Groups B, C and D Class I, Zone 1, Groups IIB or IIB+H_2 Protection type depending on application
CSA certificate no.	1524800

Technical data

Method	ASTM D 97 DIN ISO 3016 IP 15 Automatic Tilt Method similar to ASTM D 5950 Results correlate with instruments designed according to ASTM D 5949
Measuring range	-30 to +33 °C (-22 to +91 °F) limited within a range of 30 K
Repeatability	≤ ISO/ASTM
Reproducibility	≤ ISO/ASTM
Measuring cycle	discontiniuous 15 to 90 min (depending on pour point temperature)
Product streams	1 x sample, 1 x validation (additional hardware required)
■ **Electrical data**	
Nominal voltage	AC 230 V ± 10 %, 1 phase; 50 Hz other rating on request AC 400 V/50 Hz; 3 phases (for chiller)
Maximum power consumption	approx. 600 W approx. 1100 W (for chiller)
Protection class	IP 54
■ **Ambient conditions**	
Ambient temperature	operation 5 to 40 °C (41 to 104 °F)
Ambient humidity	operation 5 to 80 % relative humidity, non-corrosive

Sample

Quality	clean and dry, according to standard method
Consumption	20 to 40 l/h
Pressure at inlet	1 to 3 bar
Temperature at inlet	normal 30 °C (86 °F), max. 50 °C (122 °F), min. 20 K above pour point temperature
Outlet	open to atmosphere

Utilities

■ **Instrument air**	
Consumption	min. 1.4 Nm³ per flushing cycle during start-up ~ 0.8 Nm³/h in normal operating mode only for leak compensation
Pressure at inlet	2 to 5 bar
Quality	dew point ≤ -40 °C (-40 °F) humidity class 2 or better according to ISO8573.1
■ **Coolant**	controlled and supplied by chiller

Signal outputs and inputs

Analog outputs	pour point temperature product
Digital outputs	sum alarm, ready signal, see options
Digital inputs	reset, see options

Electrical data of signal outputs and inputs

Analog outputs	4 to 20 mA 800 Ω out; active isolated on request
Digital outputs	DC 24 V; max. 0.5 A
Digital inputs	high DC 15 to 28 V low DC 0 to 4 V
Auxiliary power supply output	DC 24 V; max. 0.8 A

Control unit

Central control unit	Industrial PC
Operating system	Windows XP®
Control software	PACS

User interfaces

Display	TFT display with touch function 800 x 600 pixels
Keyboard	virtual keyboard, controlled via TFT display

Connections

Pipe fittings	Swagelok® 6 mm/8 mm/12 mm other fittings on request
Vent/Slop	open to atmosphere

Weight and dimensions

Weight	approx. 420 kg
Dimensions (W x H x D)	approx. 1140 x 1900 x 710 mm

Optional signal outputs and inputs

Digital outputs	identification of a validation cycle alarm chiller warning/low-priority error
Digital inputs	request for a validation cycle
MODBUS interface	MODBUS/RTU via RS485 or RS422 or fiber optic cable MODBUS/TCP via fiber optic cable
Remote access	via modem, ISDN, Ethernet via fiber optical or VPN

Important notice PPA-4 is subject to continuous product improvement, specifications may be subject to change without notice.

BARTEC BENKE GmbH
Germany
Borsigstraße 10
21465 Reinbek/Hamburg
Phone: +49 40 72703-0
Fax: +49 40 72703-228
info@bartec-benke.de
www.bartec-benke.de

UK-D-BBS020708-07/08-BARTEC WerbeAgentur-286420