IKA

designed for scientists

Viscosity control for the standardization of crude oil

/// ROTAVISC for the petrochemical industry

By measuring their viscosity, batches of crude oil can be characterized and prepared for further processing. The ROTAVISC series of viscometers allow for the precise measurement of viscosity, and this with easy handling.

Petroleum differs depending on the extraction site. Rheological measurements and homogenizations are required in order to produce raw materials such as paraffin or bitumen, which are refined from crude oil. In this way, it is possible to determine the respective state of the fractional distillation of a batch of crude oil.

The ROTAVISC viscometer from IKA is perfectly suited for examining a sample under different shear loads. Their rheological properties can thus be detected in the flow curve.

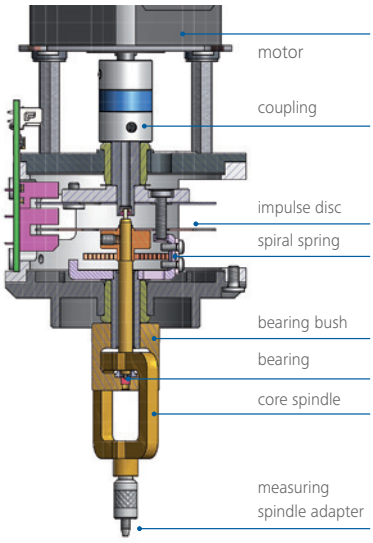
VISCOSITY MEASUREMENT OF CRUDE OILS AND CRUDE OIL DERIVATIVES

The ROTAVISC viscometer is suitable for quickly and reliably determining rheological parameters at different shear rates, both in the development lab and for purposes of quality control. ROTAVISC is able to measure the viscosity of these substances and is easy to use as part of daily laboratory routine. The results are directly comparable with the measurement results produced by other devices. With an accuracy of ±1% of the measuring range and a reproducibility of ±0.2%, ROTAVISC meets all the requirements for reliable quality control and reliable consistency monitoring for the entire range of crude oil products.

STEPLESS MEASUREMENT ACCORDING TO THE SEARLE PRINCIPLE

Viscosity measurement with ROTAVISC is based on the SEARLE principle. A measuring spindle rotates in the substance to be examined. The viscosity of the sample is determined based on the torque required to achieve a given speed, taking into account the spindle used. All this happens automatically, without users having to make manual adjustments to the settings.

However, often the viscosity of a substance is not constant, but rather depends on the shear. Therefore, different viscosity values will be recorded for the same substance at different shear rates. Since exact measurements and perfect products require an entire series of measurements, the fact that ROTAVISC is infinitely adjustable is extremely helpful within the context of everyday lab work.



USABILITY

The rheological properties serve to determine a constant quality and processability. The inclusion of a flow curve enables the right manufacturing procedure to be selected based on the raw material. The ROTAVISC viscometer is ideal for examining a sample, even at very low shear loads. In this way, viscoelastic properties that are shown in the flow curve can be detected.

In conjunction with the software labworldsoft® and a temperature-dependent viscosity measurement, statements regarding the general flow behavior and therefore regarding the pumpability of the oil in pipelines are possible.

TECHNICAL FEATURES

Measurements according to DIN 53019 and relative measurements according to ISO 2555 are possible with ROTAVISC and the corresponding measuring spindles. ROTAVISC detects the sample temperature, which is important for the viscosity measurement, from a PT 100 sensor that can be immersed in the substance. You can store measurement methods and automate processes, even without connecting to a computer. This makes it possible to define both step and ramp programs, which can then be standardized over and over again.

TEMPERATURE CONTROL

The viscosity of a sample is always dependent on its temperature. Therefore, the sample should always be measured isothermally. The IKA tempering equipment meets this requirement by using immersion circulators as well as cryostats for temperatures ranging from -30°C to 250°C. This widens ROTAVISC's field of application, since the IKA laboratory software (see below) for controlling the thermostats can be used to specify rheological temperature ramps and record the change in viscosity.

VERIFICATION

The ISO 17025 standard requires that measuring instruments be verified. ROTAVISC offers users the option of carrying out this verification themselves. Thanks to the extensive range of appropriate standard fluids, users are fully independent, i.e. able to check their device without external maintenance costs. This allows them to check whether all specified readings are within the specified measurement accuracy range.

LABWORLDSOFT® 6 VISC

Labworldsoft® software opens up completely new possibilities for the user. Thanks to this, the measurement data taken by ROTAVISC can be transferred to a computer and stored there. The software is also ideal for controlling ROTAVISC. Labworldsoft® can also use ROTAVISC to carry out continuous measurements. The measured data is saved and is then available for evaluation.

It is particularly interesting that, while the viscosity is being measured, other parameters such as the pH value, the temperature and many others can be read in and processed by various measuring instruments via the software. As such, any correlation that exists between the parameters can be checked directly.

Do you have any usability questions, or would you like a quote? Our team is at your disposal at all times.

Phone: +49 7633 8310
eMail: sales@ika.de

IKA-Werke GmbH & Co. KG
Janke & Kunkel-Straße 10, 79219 Staufen, Germany
Telefon: +49 7633 831-0, Fax: +49 7633 831-98
eMail: sales@ika.de