

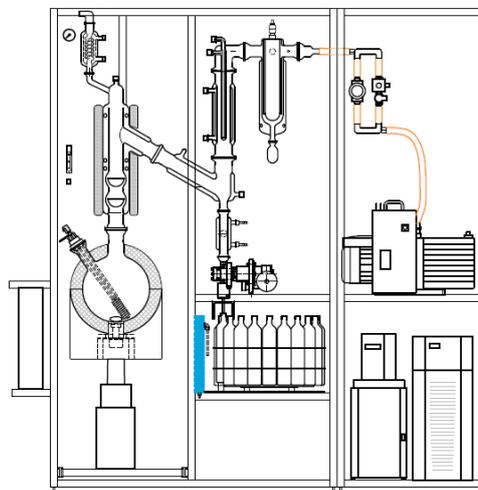
## Method compliance: ASTM D2892 and ASTM D5236.

### Scope D2892

- This test method covers procedures for the distillation of stabilized crude petroleum to a final cut temperature of 400 °C AET. The test method employs a fractionating column having an efficiency of 14 to 18 theoretical plates operated at a reflux ratio 5:1. Performance criteria for the necessary equipment is specified. Some typical examples of acceptable apparatus are presented in schematic form. This test method offers a compromise between efficiency and time in order to facilitate the comparison of distillation data between laboratories.
- The test method details procedures for the production of a liquefied gas, distillate fractions, and residuum of standardized quality on which analytical data can be obtained, and the determination of yields of the above fractions by both mass and volume. From the above information, a graph of temperature versus mass % distilled can be produced. This distillation curve corresponds to a laboratory technique, which is defined at 20/5 (20 theoretical plate column, 5:1 reflux) or TBP.
- This test method can also be applied to any petroleum mixture except liquefied petrol. gases, very light naphthas, and fractions having initial boiling above 400 °C.

### Significance and Use

- This test method is one of a number of test conducted on a crude oil to determine its value. It provides an estimate of the yields of fractions of various boiling range and is therefore valuable in technical discussions of a commercial nature.
- This test method corresponds to the standard laboratory distillation efficiency referred to as 20/5. The fractions produced can be analyzed as produced or combined to produce samples for analytical studies, engineering and product quality evaluations. The preparation and evaluation of such blends is not part of this test method.
- This test method can be used as an analytical used as an analytical tool for examination of other petroleum mixtures with the exception of LPG, very light naphthas, and mixtures with initial boiling points above 400 °C.



### Special Advantages of the NEW PETRODIST SYSTEM:

- User friendly operation
- Extremely reliable
- Distillation rate according to volume
- Online density measurement (option)
- Precision balance system outside the vapor area
- Double condenser system
- Possibility of manual operation (option)
- Non-contact sensor and switches
- New sophisticated safety- and alarm-system

- Receiver exchange during operation
- Easy and save cold trap cleaning

### ASTM D-2892 Key Features:

- Test method for stabilized crude oil
- Final Cut temperature 400 °C AET
- 20 theoretical plates
- Reflux ratio 5:1
- Liquefied gas, distillate fr, residuum
- Yields of fr. in mass and volume
- Graph of temperature versus mass

**VOLUME MEASURING DEVICE:**

- Distillate collection in tempered receiver
- Distillation rate control and volume detection
- No moving parts
- Complete continuous detection
- No risk of light barrier irritation and stepper motor collision
- No risk of flooding balance chamber and vacuum line
- Resolution 1% of receiver volume (ASTM 6.1.8)

**WEIGHT MEASUREMENT SYSTEM:**

- Precision Load Cell
- Outside of sample vapors
- Automatic determination of tare weights
- No additional balance electronic required
- high precision BECKHOFF 16-bit DMS board

**NEEDLE SYSTEM:**

- Reliable and robust inductive non-contact position sensor
- Available in different sizes according to Receiver type
- Exhaust system with glass foam trap

**DENSITY MEASUREMENT DEVICE:**

- Online measurement of each fraction
- Calibrated in a range from 10°C to 80°C
- Accuracy 0,001 g/cm<sup>3</sup> ( $\pm 1 \times 10^{-3}$  g/cm<sup>3</sup>)
- Automatic determination of density at 15°C
- All parameters for Petroleum Products integrated
- Automatic calculation of fraction volume at 15°C
- Volume-Temperature-Graph according to ASTM D-2892 (11.3)

**Scope D5236**

- This test method covers the procedure for distillation of heavy hydrocarbons mixtures having initial boiling points greater than 150 °C, such as heavy crude oils, petroleum distillates, residue, and synthetic mixtures. It employs a potstill with a low pressure drop entrainment separator operated under total takeoff conditions. Distillation conditions and equipment performance criteria are specified and typical apparatus is illustrated.
- This test method details the procedures for the production of distillate fractions of standardized quality in the gas oil and lubricating oil range as well as the product of standard residue. In addition, it provides for the determination of standard distillation curves to the highest atmospheric equivalent temperature possible by convention distillation.
- The maximum achievable atmospheric equivalent temperature (AET) is dependent upon the heat tolerance of the charge. For most samples, a temperature up to 620 °C can be attained. This maximum will be significantly lower for heat sensitive samples and might be somewhat higher nonheat sensitive samples.
- The recommended distillation method for crude oils up to cutpoint 400 °C AET is Test method D2892. This test method can be used for heavy crude oils with initial boiling points greater than 150 °C. However, distillation curves and fraction qualities obtained by these methods are not comparable.

**Significance and Use**

- This test method is one of a number of tests conducted on heavy hydrocarbon mixtures to characterize these materials for a refiner or a purchaser. It provides an estimate of the yields of fractions of various boiling ranges.
- The fraction made by this test method can be used alone or in combination with other fraction to produce samples for analytical studies and quality evaluations.
- Residues to be used in the manufacture of asphalt can also be made but may not always be suitable. The long heat soaking that occurs in this test method may alter some of the properties.
- Details of cut points must be mutually agreed upon before the test begins.

**Technical Data**

- Flask size-10L
- Flask charge-up to 60% of fl. Vol.
- Op.temp. – up to 620 °C AET
- Op.pres-vacuum to down 0,1torr
- Power consumption-5000 W
- Max.ambient temperature-25 °C
- Mains supply- 3x208-260 V