

# titramax VT

## TAN/TBN

### Determination of total acid or base number of oils and fats

#### Product description

The **Titramax VT TAN/TBN** is suitable for determination of Total Acid Number (TAN) or Total Base Number (TBN) of oils and fats. The acid number expresses the quantity of base required to neutralize all acidic constituents of the sample. It is a quality feature for freshness of oils and fats. The base number indicates the quantity of acid which can be neutralized by additives in mineral oils.

The device is conform to standards **ASTM D 664**, **DIN 51558**, **IEC 62021-1**, **Pharmacopoeia** (TAN) and **ASTM D 2896**, **ASTM D 4739**, **ISO 3771**, **UOP 269** (TBN).

The measurement uses a potentiometric titration method in an anhydrous medium. The titration with titrant starts, once the oil sample is dosed into the reagent. The user has to enter the sample weight into the menu. The titration speed is precisely adjusted to the reaction rate by control algorithms.

The titration is performed automatically until the endpoint indication of measurement. At the end of the measurement, results are shown in mg KOH/g oil or several other units.

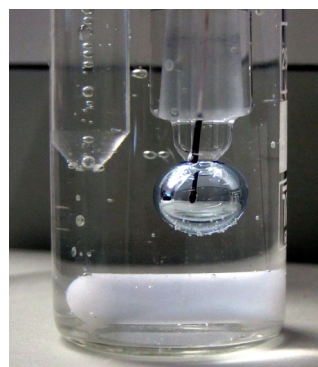


Titramax VT TAN/TBN

#### Applications

The value of TAN/TBN is an indication of age and quality of oils and fats. The device is suitable for analysis of

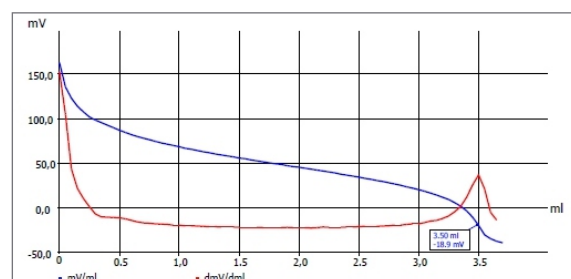
- transformer oils
- natural and artificial fats
- mineral oil products
- lubricants
- food fats (e. g. olive oil, butter)



Titration tip and pH-electrode in sample solution

#### Advantages

- Complete measuring system for the determination of TAN/TBN
- Fully-automatic volumetric titration
- Precise adjustment of the titration parameters by control algorithms
- Preset measurement method allows an immediate start
- The result output can be adjusted to your needs by using a formula generator



Titration graph of an oil sample

## Features

The **Titramax VT TAN/TBN** consists of

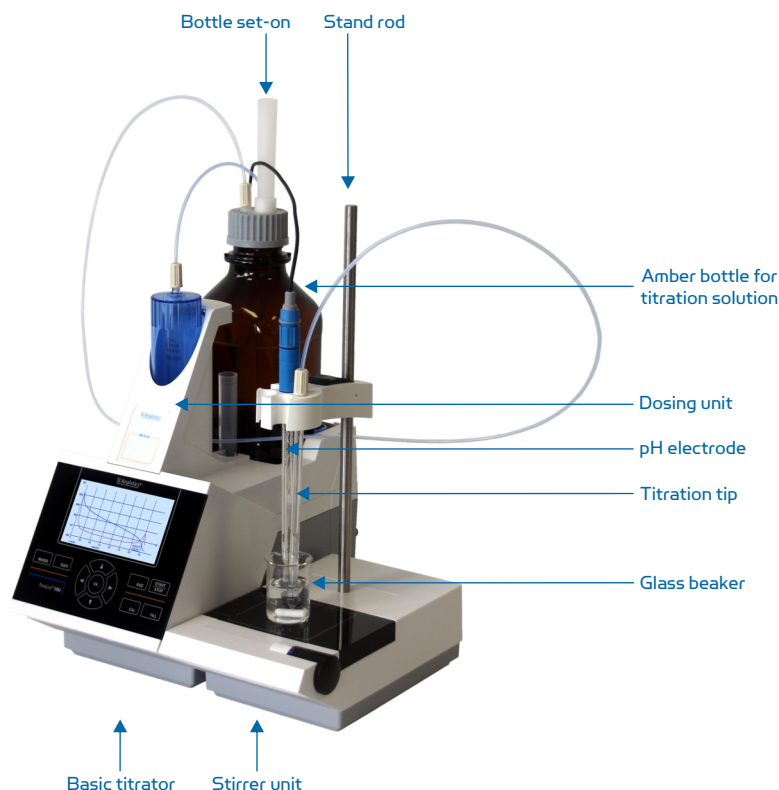
- an automatic volumetric titrator with potentiometric pH indication
- a titration vessel with stirrer unit

The determination of TAN/TBN value is based on

- an acid-base-titration in an anhydrous medium
- a precise indication by an electrode filled with anhydrous ethanol/LiCl

Steps of the analysis are

1. Calibration of the electrode
2. Determination of the blank value
3. Standardization of the titration solution
4. Titration of the oil sample



## Technical specifications

Measurement method:

Types of result:

Measuring range / Display resolution:

Measurement range pH / mV:

Display resolution pH / mV:

Accuracy pH / mV (without sensor):

Measurement range  $\mu$ A:

Display resolution  $\mu$ A:

Accuracy  $\mu$ A (without sensor):

Measurement range temperature  $^{\circ}$ C:

Amplifier input impedance:

Burette resolution:

Dosing accuracy according DIN EN ISO 8655, part 3: Accuracy 0.15 % / Precision 0.05 - 0.07 % (depending on the used exchange unit)

Filling time:

Power supply:

Power input:

Stirrer connection:

Dimensions:

Weight:

Volumetric titration

mg KOH/g oil or using the formula generator

0.01 ... 250 mg KOH/g oil / 0.01 mg

- 3.0 ... 18.00 / - 2000 ... 2000

0.001 / 0.1

0.002 / 0.1 mV  $\pm$  1 digit

0 ... 100

0.1

0.2  $\pm$  1 digit

- 75 ... 175

> 1  $\cdot$  10<sup>13</sup> ohms

10,000 steps for 10 mL / 20 mL  $\pm$  0.15 %

Dosing accuracy according DIN EN ISO 8655, part 3: Accuracy 0.15 % / Precision 0.05 - 0.07 % (depending on the used exchange unit)

20 sec

External plug-in power supply 100 - 240 V, 50/60 Hz

30 VA

12 V DC out, 500 mA

30 x 45 x 30 cm (W x H x D), height with exchange unit

Approx. 3.5 kg (with exchange unit and empty reagent bottle)

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