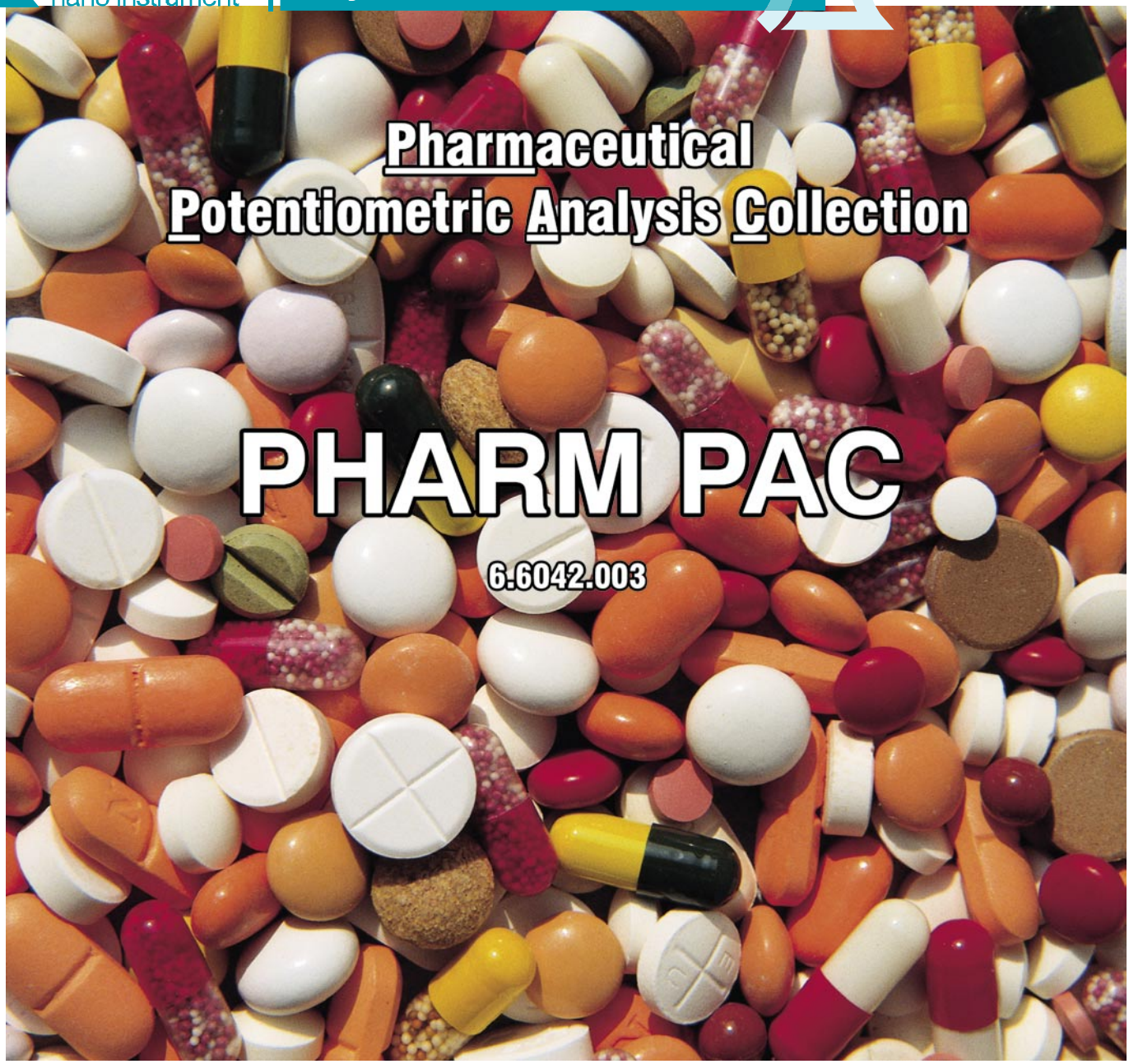


The know-how package for titrimetric/potentiometric analyses of pharmaceutical ingredients with Metrohm Titrinos or Titrandos.

Pharm PAC is indispensable for the analysis of active ingredients

Pharm PAC (**Pharm**aceutical **P**otentiometric **A**nalysis **C**ollection) presents all titrimetric methods that are described in the most important pharmacopeias. It takes into account the latest editions of:

- **European Pharmacopoeia,** 4th Edition plus Supplement 2002
- **U.S. Pharmacopeia** USP 26 NF-21, 2003

Pharm PAC contains analytical procedures for 733 individual substances. The procedures give detailed information about: sample weight, titrant and solvent to be used, electrode, titration and finally calculation of the results.

By taking over these methods directly as **SOPs** (**S**tandard **O**perating **P**rocedures) in you laboratory you will save both time and money.

The procedure couldn't be simpler:

- For the instruments: 798 MPT Titrino, 799 GPT Titrino, 785 DMP Titrino und 751 GPD Titrino (instrument software version 5.751.0020 or higher):

  Using the **method memory card** you load the Pharm PAC methods, i.e. the complete parameter sets, into your Titrino, equip it with the corresponding Exchange Unit and connect the required electrode. You then load the desired titration method into the working memory, prepare your sample and start the titration with the push of a key. After the sample weight has been entered and the titration is concluded, the Titrino issues the titration curve and a complete result report on the connected printer.

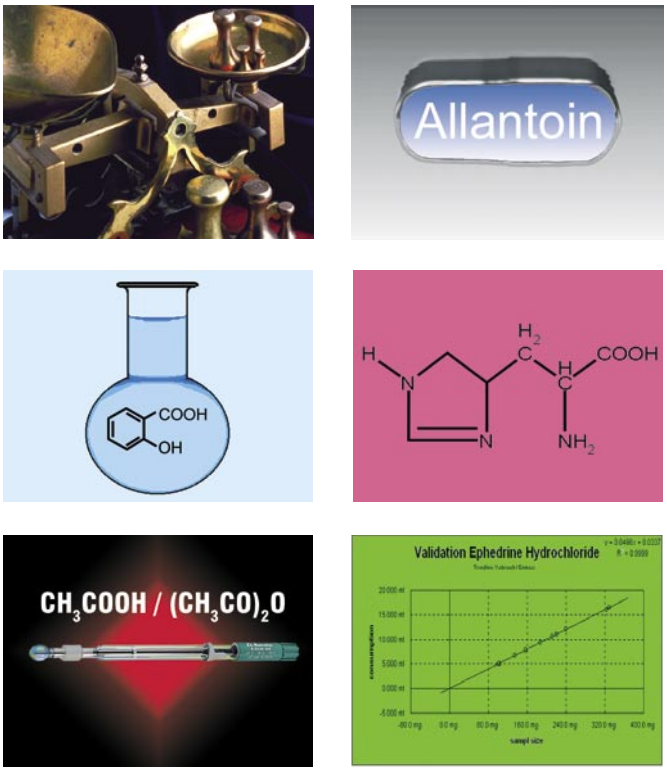
- For the instruments: 794 Basic Titrino, 716 DMS Titrino, 736 GP Titrino und 751 GPD Titrino (with instrument software version <5.751.0020):

  Using the demo version of **Metrodata VESUV 3.0,** which forms part of the delivery package, you load the methods into the Titrino with a PC. Then proceed as described above.

- 808 and 809 Titrando:

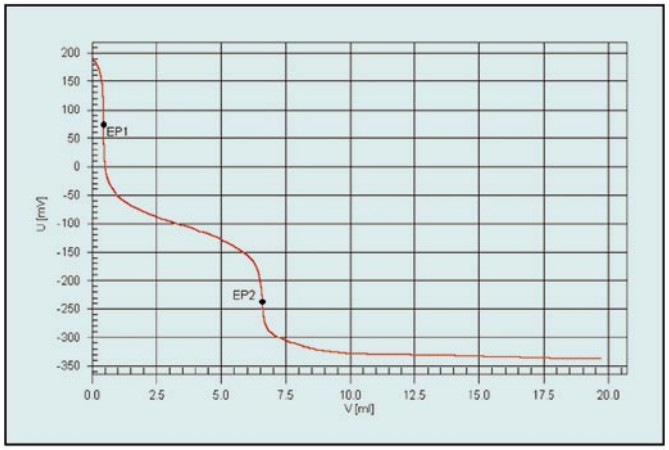
  You can easily take over the Titrino parameters into your Titrando by means of the **converter program** contained in the PC Control software.

The Pharm PAC know-how package comprises the application binder with detailed method descriptions, the method memory card, the Metrodoc CD-ROM with the Pharm PAC titration methods as well as the Metrodata CD-ROM.

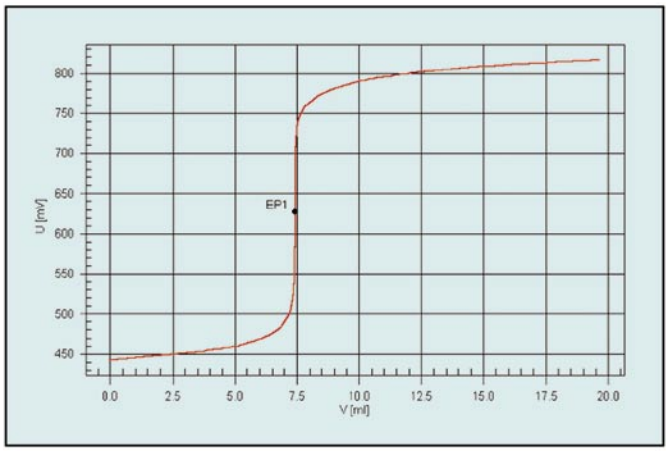


Method symbols facilitate orientation

Two titration examples for your Metrohm titrator



Titration curve for the determination of ephedrine hydrochloride according to method 6 (titration in ethanol with hydrochloride acid addition).
Electrode: 6.0229.100 Solvotrode
Titrant: c(NaOH) = 0.1 mol/L



Titration curve for the determination of acesulfame potassium according to method 13 (titration in glacial acetic acid)
Electrode: 6.0229.100 Solvotrode
Titrant: c($HClO_4$) = 0.1 mol/L in glacial acetic acid

List of methods

The 35 methods in the memory card are arranged in groups A to G and contain the titer determinations of the titrants plus the following titrations:

A. Aqueous acid-base titrations

A 1 Direct titrations

A 1.1 Titrations with bases
A 1.2 Titrations with acids

A 2 Indirect titrations (back-titrations)

B. Nonaqueous acid-base titrations

B 1 Alkaline titrants

B 1.1 In ethanol, with HCl addition
B 1.2 In dimethyl formamide (DMF)
B 1.3 In acetone
B 1.4 In pyridine
B 1.5 In ethanol or methanol
B 1.6 In special solvents

B 2 Acidic titrants

B 2.1 In glacial acetic acid, with $HClO_4$
B 2.2 In glacial acetic acid/acetic anhydride, with $HClO_4$
B 2.3 In acetic anhydride, with $HClO_4$
B 2.4 In glacial acetic acid plus Hg acetate, with $HClO_4$
B 2.5 In glacial acetic acid/MEK, with $HClO_4$
B 2.6 In formic acid/glacial acetic acid or acetic anhydride, with $HClO_4$
B 2.7 In other solvents or solvent mixtures

C. Redox titrations

C 1 Iodine/thiosulfate

C 2 Iodine/arsenite

C 3 Diazotization with $NaNO_2$

C 4 Cer(IV)

C 5 $KBrO_3$

C 6 $KMnO_4$

C 7 KIO_3

C 8 Determination of reducing sugars

D. Precipitation titrations

D 1 $AgNO_3$

D 2 Surfactant titrations

E. Photometric EDTA titrations

F. Characteristic values of fats and oils

F 1 Acid Value

F 2 Hydroxyl Value

F 3 Iodine Value

F 4 Peroxide Value

F 5 Saponification Value

G. Qualification of the titrator, validation of a titration method

Qualification of the titrator and validation of a titration method illustrated by way of two examples (ephedrine hydrochloride according to Pharm. Europe and USP)

Ordering information

Scope of delivery

6.6042.003 Pharm PAC, English version

6.6042.001 Pharm PAC, German version

each one containing:

- The printed collection with texts for the 35 methods. Each method is described in detail and comprises parameter sets and curve examples. The collection comes in an attractive application binder; method-specific images facilitate orientation.
- Memory card containing the 35 methods for loading into the Titrino.
- Two CD-ROMs with:
  - Contents of the above binder, i.e. with texts, parameter sets and curve examples (PDF).
  - The following Metrohm Application Bulletins:
    - No. 101 Complexometric titrations with the Cu ISE
    - No. 130 Chloride titrations with potentiometric indication
    - No. 141 Analysis of edible fats and oils
    - No. 188 pH measurement technique
    - No. 206 Titer determination in potentiometry
    - No. 210 Blank determination in titration
    - No. 228 Diazotization titrations
    - No. 233 Titrimetric/potentiometric determination of anionic and cationic surfactants
    - No. 252 Validation of Metrohm titrators (potentiometric) according to GLP / ISO 9001
    - No. 263 Titrimetric determination of pharmaceutical compounds with the NIO electrode
    - No. 269 Titrimetric/potentiometric determination of ionic surfactants by two-phase titration using the Metrosensor Surfactrodes
  - Demo versions of the Metrodata programs VESUV, TiNet, VA Database, IC Net etc., 6.6050.000 PC Control program (Titrandos) und Adobe® Acrobat® Reader for viewing and printing the PDF files.

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