



Eppendorf Easypet® 4421

Instruction Manual · Mode d'emploi · Bedienungsanleitung
Istruzioni d'impiego · Manual de Instrucciones

eppendorf

Table of contents / Sommaire / Inhalt / Indice / Índice

Instruction Manual.....	3
Mode d'emploi	16
Bedienungsanleitung.....	29
Istruzioni d'impiego	42
Manual de Instrucciones	55
EC Conformity Declaration.....	68

eppendorf® is a registered trademark.

Easypet® is a registered trademark.

Registered trademarks are not marked in all cases with ™ or ® in this manual.

Technical specifications subject to change!

No part of this publication may be reproduced without the prior permission of the copyright owner
Copyright© 2005 Eppendorf AG, Hamburg

Table of contents

1	Safety precautions	4
2	Design principle.....	6
3	Operational limitations.....	6
4	Control elements / Individual components.....	7
5	Charging the batteries	8
6	Mode of operation	9
7	Storage	11
8	Cleaning / maintenance.....	12
8.1	Changing the filter / cleaning the adapter	12
8.2	Changing the batteries	12
8.3	Decontamination prior to dispatch.....	13
9	Checking for leaks	14
10	Troubleshooting.....	14
11	Ordering information.....	15

1 Safety precautions

General information




Before using the Easypet for the first time, please read the entire operating manual.

To guarantee problem-free, safe operation of the Easypet, it is essential to observe the following points:

- 1) Please act in accordance with all danger warnings and safety regulations (e.g. wear protective clothing, gloves and eye protection).
- 2) Observe the data of the reagent manufacturers. Here the Material Safety Data Sheet for the chemicals or preparation must be observed.
- 3) Observe extreme caution when dispensing caustic, poisonous, radioactive or hazardous chemicals.
Only chemicals or preparations that will not attack the plastic parts of the Easypet should be pipetted (see Sec. 3 Operational limitations).
Do not aspirate liquid into the device.
Only pipette solutions which can be removed by appropriate decontamination measures including after an application error. Decontamination of the device can only be performed by an authorized Service partner (see Sec. 8.3 Decontamination).
Before performing pipetting with hazardous solutions practice safe handling of the Easypet using a suitable pipette and water.
- 4) Do not operate or load the device in a hazardous or flammable environment.
- 5) Do not pipet highly flammable, extremely flammable and explosive liquids.
- 6) Avoid injuries caused by chemicals. Always ensure that the pipet is facing away from the body. After liquid has been aspirated, press the Dispensing button only when you are sure that the liquid shall be dispensed correctly.
- 7) Use only original manufacturer's parts and accessories. Repairs may be carried out by authorized service personnel only.
- 8) Always ensure that your work represents no danger to others.
- 9) In the event of disturbances, stop pipetting immediately and follow the instructions for maintenance and troubleshooting. Never use force on the device.
- 10) Do not autoclave the device!
- 11) When inserting glass pipettes protect your hands from glass breakage (see Sec. 6)!
- 12) Do not use Easypet without a filter or with a defective filter.

1 Safety precautions

Transformer and NiCd batteries

- 1) Only the original transformer may be used to charge the NiCd batteries. The power supply must only be connected to voltage sources that correspond to the information on the identification plate on the power supply. Do not use the device when signs of damage are evident, and particularly if the power cable is damaged.
- 2) The transformer may only be used together with this device.
- 3)  The three NiCd batteries in the grip should not be replaced by other types of battery (in particular **no primary cells**).
- 4) When disposing of the NiCd batteries, please observe the battery disposal regulations. Dispose of used batteries in accordance with legal regulations.
Batteries may not be disposed of with household waste!

Warning! Incorrect handling of the device or batteries (mechanical destruction, short circuiting, overheating etc.) can cause the device to explode!

Transfer

If the device is passed on to someone else, please include the instruction manual.

Disposal

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community

The disposal of electrical devices is regulated within the European Community by national regulations based on EU Directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

According to these regulations, any devices supplied after 13.08.05 in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste. They are marked with the following symbol to indicate this.



As disposal regulations within the EU may vary from country to country, please contact your supplier if necessary.

2 Design principle / 3 Operational limitations

2 Design principle

The Easypet 4421 facilitates pipetting with measuring pipets, volumetric pipets and blow-out pipets made of glass or plastic in the volume range 0.1 mL to 100 mL.

If handled correctly, the device itself does not come into contact with any liquid. The vacuum or excess pressure necessary for aspirating and dispensing liquid is generated by a pump.

The pipet is emptied by means of normal atmospheric pressure. Blow-out pipets are emptied with the aid of the pump.

The aspirating or dispensing speed of the pump can be set using the pump speed control. This accelerates the aspirating/dispensing speed of large-volume pipets and slows down the aspirating/dispensing speed of small-volume pipets.

3 Operational limitations

The Easypet must not be used with solvents whose vapors attack silicon, ABS + PC, POM, NBR or PVDF.

Warning! Do not pipet highly flammable, extremely flammable and explosive liquids.

Operational and storage temperatures: + 10 °C to + 35 °C.

Store in a cool, dry place.

4 Control elements / Individual components

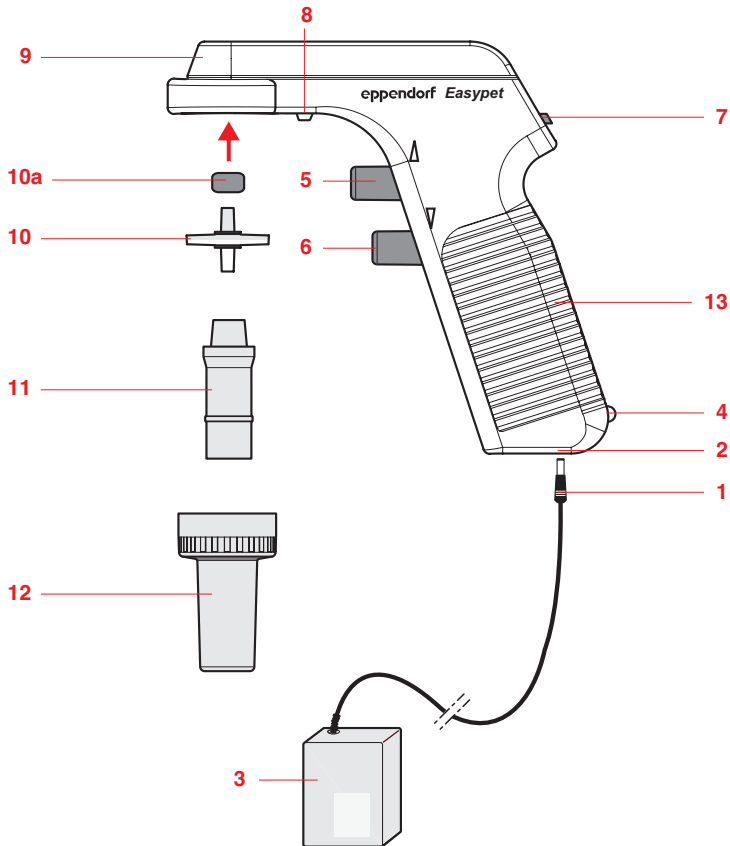


Fig. 1

- | | | | |
|---|------------------------------------|-----|--|
| 1 | Plug of the transformer | 9 | Pressure-adjustment inlet |
| 2 | Electrical connection | 10a | Seal for filter adapter (sealing is located in the filter adapter in the device) |
| 3 | Transformer | 10 | Membrane filter |
| 4 | Charging control lamp | 11 | Adapter |
| 5 | Aspirating button | 12 | Aspirating cone |
| 6 | Dispensing button | 13 | Battery compartment |
| 7 | Pump speed control | | |
| 8 | Release button for aspirating cone | | |

5 Charging the batteries

5

Charging the batteries

Remove the components from the shipping carton, examining them carefully for breakages, defects or shortages. Do not use the device when signs of damage are evident. Before the device is used for the first time, the NiCd batteries should be fully charged (for approximately 12 hours).

To insert the batteries, slide open the battery compartment located in the grip. The designation of the model (KR 15/30) can be found on the lid.

Insert the batteries into the battery compartment in accordance with the markings shown.

The duration of the charging process depends on the charge status of the NiCd batteries.

The charging time for a completely empty battery is 12 hours.

If using the device daily, do not charge the battery until the charge control lamp (4) has lit up. A residual charge of approximately 15 % is available when the lamp is lit.

The device can be operated during recharging.

Caution: The Easypet should only be used with the transformer supplied.

We do not honor any warranty or accept any responsibility in the event of damage caused by the use of other chargers.

Before plugging in the device, check that the input voltage listed on the transformer is identical to the main power supply at the outlet.

- Connect the plug of the transformer (Fig. 1 – 1) to the electrical connection on the grip (Fig. 1 – 2).
- Connect the transformer (Fig. 1 – 3) to the main power supply. The red charge control lamp (Fig. 1 – 4) will turn off.

Note: When fully charged, the device can be operated for approx. seven hours.

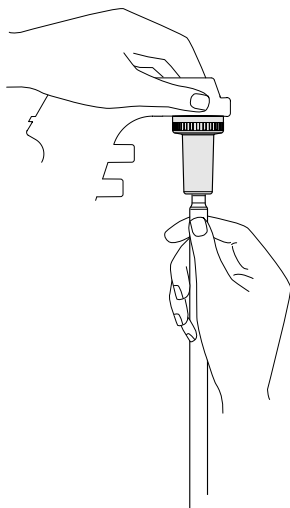


Fig. 2

When the pump is used to fill and empty the pipet, the aspirating- or dispensing speed can be selected using the pump speed control (Fig. 1 – 7) (I = slow, IIIII = fast).

Inserting the pipet

Holding the pipet at the top, push it into the aspirating cone until it is securely and tightly fastened.



Caution: Do not use force when inserting the pipet. Thin pipets in particular can break and cause injury. When inserting glass pipettes protect the hand you are using for insertion from glass breakage with a towel!

Filling the pipet

- Immerse the tip of the pipet into the liquid.
- Press the aspirating button \triangle (Fig. 1 – 5). Fill the pipet to just above the desired mark.
- Wipe the outer surface of the pipette to remove residual liquid. Place the tip of the pipet against the side wall of the container.
- Press the dispensing button ∇ (Fig. 1 – 6) slowly until the meniscus is exactly level with the desired mark.

6 Mode of operation

6

Mode of operation

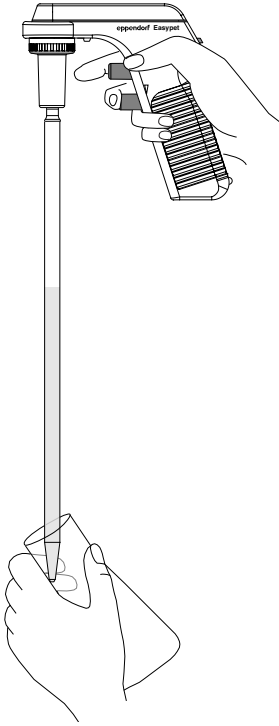


Fig. 3

Emptying the pipet (Fig. 3)

Flow out

- Place the pipet tip at an angle against the inside of a receiving vessel and press in the lower button without engaging the pump to allow the liquid to flow out. The dispensing speed can be regulated using various degrees of finger pressure.

Blow out

- Press in the lower button completely. This activates the pump and the liquid is blown out.
- The dispensing speed can be set using the pump speed control (Fig. 1 – 7).

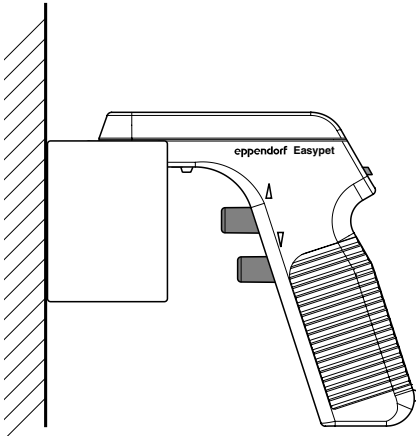


Fig. 4

The Easypet can be stored in a wall holder (Fig. 4).

To fasten the wall holder, remove the protective foil from the back and press the wall holder against a clean wall. Pull the wall holder to one side to remove it from the fastening strip. The fastening strip can then be removed from the wall with the aid of commonly-used solvents.

8 Cleaning / Maintenance

The Easypet is normally maintenance-free. The housing can be wiped occasionally using a moist cloth.

The filter (Fig. 1-10), adapter (Fig. 1-11) and aspirating cone (Fig. 1-12) are autoclavable.

8.1 Exchanging the filter / Cleaning the adapter

Caution: When cleaning and exchanging the filter, wear hand and eye protection to avoid the risk of splashes and contamination.

If liquid has entered the aspirating cone or if the aspirating efficiency has decreased, proceed as follows:

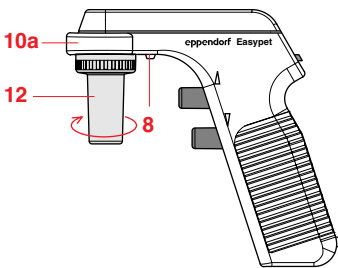


Fig. 5

- Hold the pipet over a container and remove the pipet. Allow any liquid to drain from the pipet.
- Hold down the release button (Fig. 5 – 8). Loosen the aspirating cone (Fig. 5 – 12) by turning it counterclockwise and pull down to remove.

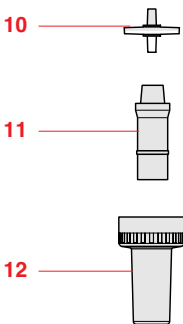


Fig. 6

- Remove the **membrane filter** and **adapter**.
- Rinse the **adapter** with demineralized water and allow to dry at room temperature.
- Push a new **filter** into the adapter and then reassemble the device (Fig. 6). Check the device for leaks (see Sec. 9).

Notes: Alternatively, you can also use a filter with a pore size of 0.2 µm and hydrophobic PTFE membrane, as for example the type Minisart-SRP 15 supplied by Sartorius AG. If the filter adapter seal in the device (Fig. 10a) is damaged, replace the seal (see Chapter 11).

8.2 Changing the batteries

Slide open the lid of the battery compartment in the grip (Fig. 1 – 13) and remove the batteries. Insert new batteries. Orient according to marking in the battery compartment.

Caution: When disposing of the NiCd batteries, replace the complete set of batteries. Please observe the latest regulations on battery disposal!

Batteries may not be disposed of with household waste!

8.3 Decontamination prior to dispatch



If the Easypet is to be tested or repaired by Eppendorf AG or other service partner, the Easypet must be free of hazardous substances and clean!

Hazardous substances are understood to refer to

- health-damaging solutions
- potentially infectious agents
- organic solvents and reagents
- radioactive substances
- health-damaging proteins
- and DNA.

Such decontamination is essential to prevent any risk to health for all persons who come into contact with the Easypet.

A form "Decontamination certificate for returned goods" and general information about decontamination can be found on our homepage www.eppendorf.com.

The decontamination certificate must be included with the Easypet in the event of return delivery.

The serial number of the Easypet must be entered in the decontamination certificate. For all other information required, please see the "Decontamination certificate for returned goods" on our home page at www.eppendorf.com.

The surfaces of the Easypet can be disinfected using alcohol (ethanol, propanol) or with a disinfectant containing alcohol.

The filter, adapter and aspirating cone are autoclavable.

If there has been an unexpected ingress of liquid into the Easypet through the filter, decontamination of the internal parts of the Easypet can only be carried out by the Service partner of Eppendorf AG.

Here the decontamination certificate attached must include the following information without fail:

- exact description of substances which have entered the device (for example copy of respective Material Safety Data Sheets)
- a description that is comprehensible to a layperson and can also be carried out by a layperson for decontamination and if necessary, for subsequent proper disposal of the decontaminated internal parts.

Service will use this information to decide whether it is possible to decontaminate the internal parts of the Easypet. To minimize costs it is recommended exchanging this information prior to shipment.

Please also bear in mind that the shipment of hazardous materials may be prohibited.

Easypet may not be opened by the user.

9 Checking for leaks / 10 Troubleshooting

9 Checking the leaks

When the pipet has been filled, no liquid should drip from the pipet unless the appropriate buttons are pressed. If this is not the case, remove the adapters and filter and carefully reassemble, or replace worn parts, if necessary.

10 Troubleshooting

Error	Cause	Solution
Reduced aspirating efficiency.	- Filter wetted.	- Replace filter.
	- Batteries discharged.	- Connect the Easypet to the transformer. Charge batteries.
Reduced operating time with fully-charged batteries.	- Batteries worn.	- Replace batteries.
Pipet drips.	- Pipet not inserted far enough.	- Carefully insert pipet further.
	- Adapter or pipet damaged.	- Replace adapter or pipet.
Pipet loose.	- Adapter damaged.	- Replace adapter.

If the problems cannot be solved with the aid of the recommendations above, send the Easypet to your appointed Eppendorf distributor. Before returning the device please take note of the information about decontamination included in Sec. 8.3.

11 Ordering information

Description	Order no. international	Order no. North America
Eppendorf Easypet with transformer 230 V / 50 Hz incl. wall holder and two spare membrane filters	4421 000.013	
Eppendorf Easypet with transformer 120 V / 60 Hz, USA incl. wall holder and two spare membrane filters		022230204
Easypet UK	4421 000.030	
Easypet Japan	4421 000.064	
Easypet Australia	4421 000.048	
Adapter	4420 801.004	022236008
Aspirating cone	4420 802.000	022236105
Membrane filter, 0.45 µm, sterile, hydrophobic, PTFE (pack of five)	4421 601.009	022231006
Seal for filter adapter (pack of five)	4421 602.005	
NiCd battery KR 15/30 (pack of three)	4420 810.003	022236202
Transformer, 230 V / 50 Hz	4850 868.005	
Transformer, 120 V / 60 Hz, USA		022236300
Transformer UK	4850 869.001	
Transformer Japan	4850 871.006	
Transformer Australia	0013 611.955	
Wall-mountable holder	4420 815.005	022230905

Caution: Please only use the accessories recommended by Eppendorf. Using spare parts and disposables which we have not recommended can reduce the precision, accuracy and life of the devices. We do not honor any warranty or accept any responsibility for damage resulting from the use of non-recommended parts.

Quality assurance

The Eppendorf Easypet has been manufactured and tested under stringent quality controls to ensure its accuracy and precision. It is guaranteed against defects in workmanship or faulty parts

for 12 months

after the date of delivery. Wear-and-tear parts such as NiCd batteries, filters and adapters are excluded from the warranty. Please refer to the notes in this instruction manual.

If the device is defective despite our extensive controls, please make a warranty claim by returning the Easypet to your Eppendorf distributor. Before returning the device please take note of the information about decontamination included in Sec. 8.3.

EG-Konformitätserklärung EC Conformity Declaration

Das bezeichnete Produkt entspricht den einschlägigen grundlegenden Anforderungen der aufgeführten EG-Richtlinien und Normen. Bei einer nicht mit uns abgestimmten Änderung des Produktes oder einer nicht bestimmungsgemäßen Anwendung verliert diese Erklärung ihre Gültigkeit.

The product named below fulfills the relevant fundamental requirements of the EC directives and standards listed. In the case of unauthorized modifications to the product or an unintended use this declaration becomes invalid.

Produktbezeichnung, Product name:

Easypet 4421


Produkttyp, Product type:

elektrische Pipettierhilfe / electronic pipette helper

Einschlägige EG-Richtlinien/Normen, Relevant EC directives/standards:

73/23/EWG, EN 61010-1

89/336/EWG, EN 55011/B, EN 61000-6-1, EN 61000-3-2, EN 61000-3-3



Vorstand, Board of Management:

06.08.2003

Hamburg, Date:



Projektmanagement, Project Management:

eppendorf



Eppendorf AG · Barkhausenweg 1 · 22339 Hamburg · Germany

Eppendorf Offices

ASEAN

Eppendorf AG
Regional Office in Malaysia
Tel. +60 3 8023 2769
Fax +60 3 8023 3720
E-Mail: eppendorf@eppendorf.com.my
Internet: www.eppendorf.com.my

AUSTRALIA / NEW ZEALAND

Eppendorf South Pacific Pty. Ltd.
Tel. +61 2 9889 5000
Fax +61 2 9889 5111
E-mail: Info@eppendorf.com.au
Internet: www.eppendorf.com.au

AUSTRIA

Eppendorf AG
c/o Schott Austria
Tel. +43 1 29017560
Fax +43 1 290175620
E-Mail: gilch.p@eppendorf.de
Internet: www.eppendorf.com

BRAZIL

Eppendorf do Brasil Ltda.
Tel. +55 11 30 95 93 44
Fax +55 11 30 95 93 40
E-Mail: eppendorf@eppendorf.com.br
Internet: www.eppendorf.com.br

CANADA

Brinkmann Instruments, Ltd.
Tel. +1 905 826 5525
Fax +1 905 826 5424
E-Mail: canada@brinkmann.com
Internet: www.brinkmann.com

CHINA

Eppendorf AG
Tel. +86 21 68760880
Fax +86 21 50815371
E-Mail: market.info@eppendorf.cn
Internet: www.eppendorf.cn

FRANCE

EPPENDORF FRANCE S.A.R.L.
Tel. +33 1 30 15 67 40
Fax +33 1 30 15 67 45
E-Mail: eppendorf@eppendorf.fr
Internet: www.eppendorf.fr

GERMANY

Eppendorf Vertrieb
Deutschland GmbH
Tel. +49 2232 418-0
Fax +49 2232 418-155
E-Mail: vertrieb@eppendorf.de
Internet: www.eppendorf.de

INDIA

Eppendorf India Limited
Tel. +91 44 52111314
Fax +91 44 52187405
E-Mail: info@eppendorf.co.in
Internet: www.eppendorf.co.in

ITALY

Eppendorf s.r.l.
Tel. +390 2 55 404 1
Fax +390 2 58 013 438
E-Mail: eppendorf@eppendorf.it
Internet: www.eppendorf.it

JAPAN

Eppendorf Japan Co. Ltd.
Tel. +81 3 5825 2363
Fax +81 3 5825 2365
E-Mail: info@eppendorf.jp
Internet: www.eppendorf.jp

NORDIC

Eppendorf Nordic Aps
Tel. +45 70 22 2970
Fax +45 45 76 7370
E-Mail: nordic@eppendorf.dk
Internet: www.eppendorf.dk

SPAIN

Eppendorf Ibérica S.L.
Tel. +34 91 651 76 94
Fax +34 91 651 81 44
E-Mail: iberica@eppendorf.de
Internet: www.eppendorf.es

SWITZERLAND

Vaudaux-Eppendorf AG
Tel. +41 61 482 1414
Fax +41 61 482 1419
E-Mail: vaudaux@vaudaux.ch
Internet: www.eppendorf.com

UNITED KINGDOM

Eppendorf UK Limited
Tel. +44 1223 200 440
Fax +44 1223 200 441
E-Mail: sales@eppendorf.co.uk
Internet: www.eppendorf.co.uk

USA

Eppendorf North America
Tel. +1 516 334 7500
Fax +1 516 334 7506
E-Mail: info@eppendorf.com
Internet: www.eppendorfna.com

OTHER COUNTRIES

see:
www.eppendorf.com/worldwide

eppendorf

In touch with life

Your local distributor: www.eppendorf.com/worldwide

Eppendorf AG · 22331 Hamburg · Germany · Tel. +49 40 538 01-0 · Fax +49 40 538 01-556
E-Mail: eppendorf@eppendorf.com

Eppendorf North America, Inc. · One Cantiague Road, P.O. Box 1019 · Westbury, N.Y. 11590-0207 USA
Tel. +1 516 334 7500 · Toll free phone 800 645 3050 · Fax +1 516 334 7506 · E-Mail: info@eppendorf.com

Application Support

Europe, International: Tel. +49 1803 666 789 · E-Mail: support@eppendorf.com
North America: Tel. 800 645 3050 ext. 2258 · E-Mail: support_NA@eppendorf.com
Asia, Pacific: Tel. +603 8023 2769 · E-Mail: support_Asia@eppendorf.com