

Instruction manual

VWR® Homogeniser L and compatible accessories

EU cat. no 431-0292



LEGAL ADDRESS OF MANUFACTURER

EUROPE

VWR International bv,
Researchpark Haasrode 2020
Geldenaaksebaan 464 B-3001 Leuven
+3216385011
be.vwr.com

UK IMPORTER

VWR International Ltd
Hunter Boulevard, Magna Park
Lutterworth, Leicestershire, LE17 4XN
uk.vwr.com

COUNTRY OF ORIGIN

Switzerland

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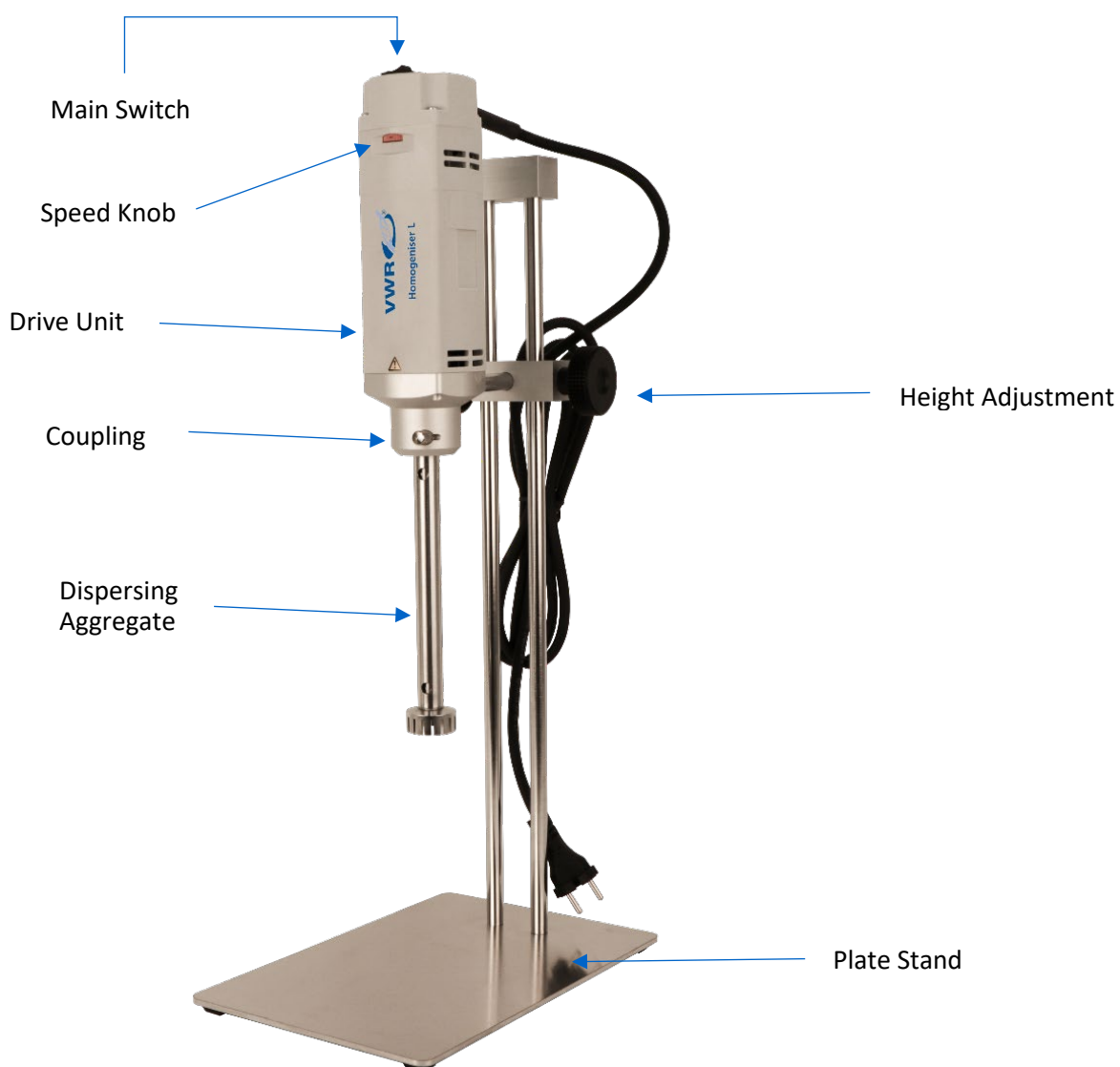
INTRODUCTION

This chapter gives information on the structure of this document. It will assist you in making use of it and show how to find the required information quickly.

EQUIPMENT INCLUDED IN THIS MANUAL

Description	EU cat. No.
VWR Homogeniser L Drive Unit	431-0292
Stand for VWR Homogeniser M&L	431-0276
Stand Upgrade for VWR Homogeniser M&L	431-0274
Aggregate Tool VWR AT-2035	431-0288
VWR Aggregate A-12	431-0280
VWR Aggregate A-20	431-0281
VWR Aggregate A-25	431-0282
VWR Aggregate A-30	431-0283
VWR Aggregate A-35	431-0284

OVERVIEW



OPERATING INSTRUCTIONS

Please read through these operating instructions before switching on or attempting to use the equipment. They describe the use of the VWR Homogeniser L, its installation and maintenance and the appropriate replacement parts and accessories.

They will help you avoid erroneous use and consequent damage. Although VWR Homogeniser machines are designed for ease of service, this does not release you from the obligation to inspect your equipment carefully and to clean it thoroughly.

An important objective of these operating instructions is to fully inform you, the user, about the correct and safe use of our equipment.

In order to achieve this, it is essential that you should carefully study chapter “Safety” and follow the instructions in this book.

TARGET AUDIENCE

These operating instructions are intended for all authorised users of our machines/equipment. We distinguish different user roles, taking account of the different demands placed on the user by the activity to be carried out.

You will find the definitions of user roles with the demands on the user in chapter “Safety”. You can fulfil one or more of these roles, provided that you meet the corresponding demands.

ORGANISATIONAL MATTERS

If you are unable to find the answer to any question in the operating instructions, please contact the equipment manufacturer directly.

LOCATION OF THE OPERATING INSTRUCTIONS

The operating instructions can only be of use to you if you always have them to hand. They should, therefore, always be kept at the place where the equipment is used.

WARNING NOTICES

Please be aware of the meaning of the following warning signs:

Sign	Description
	Safety instructions must be observed to ensure safe operation.
	This symbol indicates high voltage, with risk to health and environment.

SAFETY

This chapter is directed at all users of VWR Homogeniser equipment. It includes information on safe and optimum use.

SUMMARY

Any incorrect use of the installed equipment can be dangerous. Inadequately trained users can cause material damage and personal injury. This chapter informs you of the safety concept and the requirements for safe and optimum use of the equipment.

All those authorised to operate, service and repair the equipment are required to study chapter “Safety”.

SAFETY CONCEPT

The safety concept sets down the entitlement to use the equipment and the responsibilities of the individual users.

The machines and equipment are designed and constructed according to the state of the art and the recognised safety rules.

INTENDED USE OF THE EQUIPMENT

The equipment is designed and constructed for the following use:

- Dispersion and homogenisation of pumpable fluid products in accordance with the technical specifications and compatibility with the materials coming into contact with the products.

If you use the equipment for any purpose other than those listed, the manufacturer cannot be held liable for any resulting damage.

IMPROPER USE

Any use other than the “proper use” without the written approval of the manufacturer or operation outside the technical limits of use is improper use.

USER ROLES

To guarantee safety, we place requirements on the users of the equipment that must be met without fail. Only persons meeting the requirements are authorised to work with the equipment.

We describe all those who work with the equipment as users. Since the requirements of these users are very much dependent on their activity, we distinguish the following user roles.

Operating company:

The operating company ensures that the equipment is properly used and authorises persons who are entitled to work with the equipment in any one of the defined user roles. He is under the obligation to instruct the users.

Service technician:

The service technician is an employee of the operating company and looks after the equipment in special operating mode(s). He is a specialist with mechanical, electrical and electronic professional training. The service technician undertakes commissioning, decommissioning service and repair of the equipment and must be appropriately trained to be able to carry out the service work required. **Contact Avantor before any service work is started - please check chapter “Service”.**

Operator:

The operator turns the equipment on and off. In the event of an alarm signal he informs the service technician.

DANGER AREA

System/equipment

The system danger area includes the whole system/equipment including the connecting lead and controls.

Proximity danger area

This refers to all areas within a defined distance of the equipment.

User danger area

This danger area includes all persons working with the equipment.

AREAS OF RESPONSIBILITY

In order that the system/equipment can be used safely and without risk, the users in various roles bear the responsibility for particular danger areas.

Contract partner:

The contract partner bears the responsibility for the “proximity danger area”.

Operating company:

The operating company bears the responsibility for the “user danger area”. Only those users may be authorised to operate the system/equipment who fulfil all requirements of the user roles concerned. In so doing, attention must be paid to the following points:

- It is to be ensured that all users of the system/equipment have fully read and understood chapter “Safety” and act accordingly in a safety-conscious manner.
- It is to be ensured that no unauthorised person carries out work with the system/equipment.
- It is to be ensured that users are informed of the possible risks and dangers connected with the system/equipment.
- It is to be ensured that those being trained or engaged in general training are under the permanent supervision of a trained and authorised person.

Service technician:

The service technician bears the responsibility for the “system/equipment danger area”. He ensures that the system/equipment is at all times free from technical faults, safe and functions correctly and takes appropriate measurements if a technical problem occurs (please check chapter “Service” or contact VWR representative).

GENERAL SAFETY RULES

Observe the following general safety rules:

- follow these operating instructions,
- in addition, observe the legal obligations and requirements for accident prevention and environmental protection of the country in which you operate the equipment,
- do not make any modifications to the equipment without the written authorisation of the manufacturer,
- only original replacement parts may be used for repairs,
- before any service work on the equipment, it must be ensured that the electrical supply is switched off,
- after any service, maintenance or repair work has been carried out on the system/equipment, it must be given a test run by the service technician.
- depending on the place at which it is installed, circumstances may require that hearing protection is worn when remaining in the vicinity of the equipment for long periods.

RESIDUAL DANGERS

When the system/equipment is used in accordance with rules and regulations, residual dangers are minimal.

Residual danger	Countermeasures
Tripping over feed or return lines	These should be appropriately laid
Noise	Wear hearing protection
Breakage of glass containers	Wear protective clothing (goggles etc.)
Tipping of the equipment	Stand it on a slip-proof, stable horizontal surface
Spitting of the product	Wear protective clothing (goggles etc.)
Rotating coupling	Never operate without attachment, never attempt to touch coupling or rotor

WARNINGS

Attention



- Ensure that the rated voltage of the equipment matches the supply.
- The equipment may only be opened by VWR authorised service specialists.
- The equipment may not be operated in areas where there is a danger of explosion.
- The VWR Homogeniser L drive may only be operated using the VWR Homogeniser L power pack.
- The VWR Homogeniser L is not qualified for continuous duty
- VWR Homogeniser dispersion attachments may not be operated dry – the lower sleeve bearing is cooled and lubricated by the medium being processed. Running dry will destroy the sleeve bearing.
- Dispersion attachments may only be changed with the power source disconnected.
- Ensure that the venting will never be covered by dust or any other objects. The efficiency of the motor will decrease.
- Ensure that dispersion attachments are thoroughly cleaned after every use.
- In the event that hazardous chemicals or materials that endanger health can influence the surroundings or use of the equipment, appropriate countermeasures must be taken.
- Ensure that before starting up, no foreign objects are in the product.
- When the power supply is connected, **never** bring hands or tools within the vicinity of the coupling of the coupled dispersion attachment. Danger of injury by the rotating shaft and rotor.
- During operation, the coupling bolt may not be actuated; otherwise, the attachment may fall from the coupling.
- After longer use (15 min) the coupling could get very hot (over 40°C)
- Never turn your VWR Homogeniser L upside down, if a dispersing unit with remains of fluid is clutched in. The fluid may damage the bearing of the motor.
- In the event of any power cut, the equipment must be switched off; otherwise, it may start again without proper supervision.
- The stator saw teeth present a danger of injury, as they are very sharp.

VWR HOMOGENISER DISPERSING ATTACHMENTS

Dispersing units with diameters of 12, 20, 25, 30 and 35 mm are available for the VWR Homogeniser L drive motor.



The quick release coupling makes it very easy to connect the dispersing unit to the VWR Homogeniser L drive motor.

Simply press the coupling bolt, push the dispersing unit into the coupling and then release the coupling bolt. The dispersing unit is securely held in place.

You can check by pulling out or rotating the dispersing unit if it is securely held in place. If the dispersing unit does not move, it is securely fastened. If you can pull out or rotate the unit without pressing the coupling bolt, repeat the above steps until the dispersing unit gets fastened.

Follow the reverse sequence to remove the unit, press the coupling bolt and pull the dispersing unit out of the coupling.

Attention



- The drive motor must be disconnected from the power supply when removing, exchanging or connecting a dispersing unit.
- Ensure that the dispersing unit is well fixed in the coupling before activating the drive motor.

SPECIFICATIONS / TECHNICAL DATA

VWR Homogeniser L drive motor unit	
Type of motor	universal-motor with carbon brushes
Voltage	230 V ~
Frequency	50 – 60 Hz
Speed at no-load-operation	Approx. 30'000 rpm
Input Power	1'000 W
Softstart	yes
Noise Level	85 dB(A) at 30'000 min-1
Rotating Direction	clockwise (viewed from above)
Ambient Temperature on duty	RT to 40°C
Relative Humidity	Max. rel. 80 %
Max. period of continuous operation	Approx. 30 min at maximum load. Could be even more, dependent upon load and temperature.
Dimensions	253 x 75 x 75 mm
Weight	2'200 g
Max. working volume	10'000 mL
IP class	IP 20
EMC Standards	IEC/EN 61000-3-2 / IEC/EN 61000-3-3 / IEC/EN 55014-1 / IEC/EN 55014-2
Safety standard	IEC/EN 61010-1 / EN 61010-2-51

VWR Dispersing Aggregates					
	A-12	A-20	A-25	A-30	A-35
Shaft length, mm	160	195	195	200	200
Diameter Ø in mm	12	20	25	30	35
Processing volume	approx. 5 – 250 ml	approx. 50 – 2'000 ml	approx. 100 – 4'000 ml	approx. 300 – 7'000 ml	approx. 500 – 20'000 ml
Temperature	up to about 90 °C processing temperature				
Pressure	not pressurised				
Materials	stainless steel 1.4435 (316L) and PTFE compound				
Cleaning	can be sterilised by all the usual methods, e.g. autoclave				
Product requirements	The product to be dispersed must be pumpable and fluid and must not contain any solid particles that might destroy the attachment.				

INSTALLATION

UNPACKING

Open the dispatch box and check that the contents agree with the delivery note.

Attention	
	Check all parts for possible transport damage. Inform us immediately of any disagreement or fault.

MECHANICAL INSTALLATION

- The drive unit is completely assembled and has to be fixed to a suitable stand (to be ordered separately).
- The VWR Homogeniser L unit (drive and stand) has to be evenly and vibration-free placed on a suitable, flat working area. No vibrations are allowed to be transmitted onto the unit. Sufficient air circulation must be assured.
- Connect a chosen VWR Homogeniser L Dispersing Aggregate (to be ordered separately) to the drive unit by means of the coupling at the drive as described above.
- An appropriate and suitable dispersing vessel has to be installed and fixed below the dispersing aggregate.

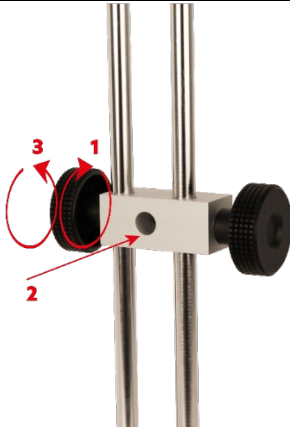
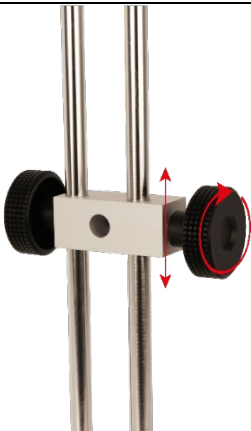
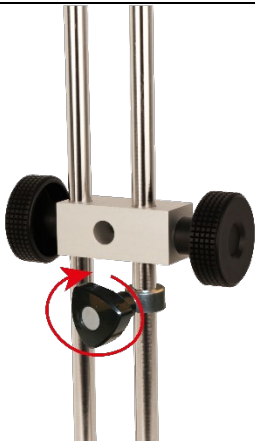
ELECTRICAL INSTALLATION

- The mains cable (included in scope of supply) has to be plugged into the drive unit on its backside. The mains plug to be connected to a suitable power socket / power supply by customers.

Attention	
	All electrical work must be carried out by authorized persons only. For connection data see specification and electrical nameplates.

PLATE STAND

How to install the Stand for Homogeniser L:

Plate Stand		
Mount Plate Stand		
Mount Drive Unit		
Height Adjustment		
Stand Upgrade (Safety positioning ring)		

START UP

- Immerse the dispersing aggregate into the product properly. For this purpose lift/lower the drive unit by using the stand.
 - Note: In some cases it can be advantageous to place the vessel eccentric in order to get more turbulences for better mixing of the product.
- Switch on the unit by using the main switch.
- Set the appropriate speed level by using the speed knob.

Attention



- Never allow the VWR Homogeniser dispersion attachment to run without a liquid phase. Running dry will destroy the sleeve bearing.
- Never touch the rotor of a VWR Homogeniser dispersion attachment when rotating. There is great danger of injury.

SHUT-DOWN

- Turn the speed knob to “One” position to stop the drive unit.
- Turn off the drive unit by using the main switch.

Attention



Ensure that the dispersion attachment is thoroughly cleaned after every use.

SERVICE

Your VWR Homogeniser unit is designed for easy service. Nevertheless, it is essential to inspect your equipment carefully and to clean it thoroughly.

Attention	
	The equipment must be disconnected from the electrical supply: • During any work on the equipment, in order to avoid any personal injury or other damage. • When changing or removing the dispersion attachment.

DRIVE

Under normal working conditions, the VWR Homogeniser L drive requires no servicing. Parts such as the motor armature and bearings are subject to natural wear.

The following are standard values for wear parts of the drive:

- bearing: several 1000's of operating hours.
- brushes: Approx. 150 hours of operating at rated power.

We strongly recommend that service work and repairs are carried out only by authorised VWR service centres or by VWR directly, where original replacement parts are available.

Any unauthorised modification or manipulation of the unit or its equipment leads to immediate annulment of the guarantee.

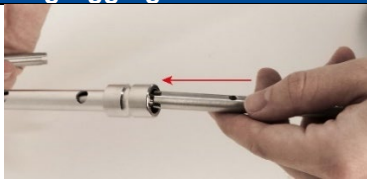
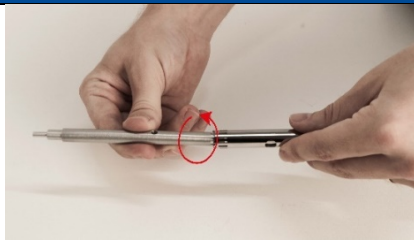
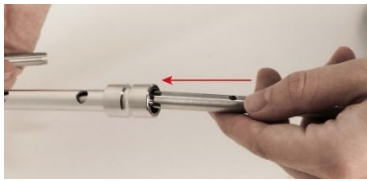
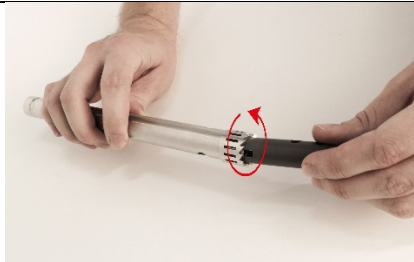
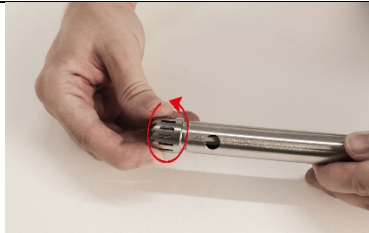
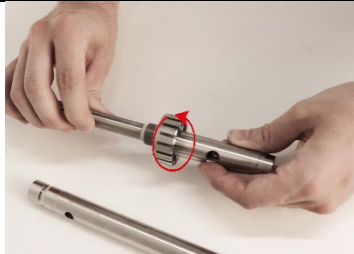
HOUSING

For cleaning the housing and any other outside surface please assure that the cleaning agent is in compliance with the following materials:

- Polyamide (housing and membrane keyboard)
- Stainless steel 304 / 316 L
- Aluminium

Any unauthorised modification or manipulation of the unit or its equipment leads to immediate annulment of the guarantee.

DISASSEMBLY OF DISPERSING UNITS

Disassembling Aggregate			
12 mm			
	1	2	
20 mm			
	1	2	3
25 – 35 mm			
	1	2	3

Criteria for changing the bearings:

Basically, it is the operating company that determines when and how often the bearings are to be changed. They should, however, be changed, at the latest, if:

- the rotor and stator come into contact,
- there is an increase in vibration,
- the rotor projects above the edge of the stator.

For a replacement of the ball bearings please contact a certified VWR service center or VWR directly.

Any unauthorized modification or manipulation of the unit or its equipment leads to immediate annulment of the warranty.

TROUBLE SHOOTING

Problem	Cause	Corrective measures
Unusual noises	Damaged drive bearings Damaged attachment bearings Rotor/stator interference	Change ball bearings Change bearings Trace and replace defective parts (shaft, bearings)
Runs hot	Inadequate ventilation Damaged bearings Overload	Check ventilation slits are clear Change ball bearings Check manner of use
Vibrations	Bent shaft Worn bearing(s) Defective coupling	Replace shaft Replace bearing(s) Trace and replace defective parts
Drive is heating up after longterm use.	Heating of electronics and motor	Turn the speed-controller to min so that drive can cool down.
Drive turns off during work.	Overload Electronic control causes automatic power shut-off to protect the drive.	Check dispersing unit. Check product. Turn off and on the drive. (RESET)
Drive is heating up and turns off and cannot be restarted anymore.	Thermal fuse has been released. Overheating caused by longterm overload use and insufficient cooling.	Send the equipment to the nearest authorised VWR service centre or directly to VWR
Drive runs stutteringly.	Carbon brushes burnt Short circuit at motor anchor Defective speed-controller	Send the equipment to the nearest authorised VWR service centre or directly to VWR

TECHNICAL SERVICE

WEB RESOURCES

Visit the VWR website at www.vwr.com for:

- Complete technical service contact information
- Access to the VWR Online Catalogue, and information about accessories and related products
- Additional product information and special offers

Contact us For information or technical assistance contact your local VWR representative or visit. www.vwr.com.

WARRANTY

VWR warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of delivery. If a defect is present, VWR will, at its option and cost, repair, replace, or refund the purchase price of this product to the customer, provided it is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. If the required maintenance and inspection services are not performed according to the manuals and any local regulations, such warranty turns invalid, except to the extent, the defect of the product is not due to such non-performance.

Items being returned must be insured by the customer against possible damage or loss. This warranty shall be limited to the aforementioned remedies. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

COMPLIANCE WITH LOCAL LAWS AND REGULATIONS

The customer is responsible for applying for and obtaining the necessary regulatory approvals or other authorisations necessary to run or use the Product in its local environment. VWR will not be held liable for any related omission or for not obtaining the required approval or authorisation, unless any refusal is due to a defect of the product.

EQUIPMENT DISPOSAL



This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste.

Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate collection and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Thank you.

LOCAL VWR OFFICES IN EUROPE AND ASIA PACIFIC

Austria

VWR International GmbH
Graumanngasse 7
1150 Vienna
Tel.: +43 1 97 002 0
Email: info.at@vwr.com

Belgium

VWR International BV
Researchpark Haasrode 2020
Geldenaaksebaan 464
3001 Leuven
Tel.: +32 016 385 011
Email: vwr.be@vwr.com

China

VWR (Shanghai) Co., Ltd
Bld.No.1, No.3728 Jinke Rd,
Pudong New District
Shanghai, 201203- China
Tel.: +400 821 8006
Email: info_china@vwr.com

Czech Republic

VWR International s. r. o.
Veetee Business Park
Pražská 442
CZ - 281 67 Stránská Skalce
Tel.: +420 321 570 321
Email: info.cz@vwr.com

Denmark

VWR International A/S
Tobaksvejen 21
2860 Søborg
Tel.: +45 43 86 87 88
Email: info.dk@vwr.com

Finland

VWR International Oy
Valimotie 17-19
00380 Helsinki
Tel.: +358 9 80 45 51
Email: info.fi@vwr.com

France

VWR International S.A.S.
Immeuble Estréo
1-3 rue d'Aurion
93114 Rosny-sous-Bois cedex
Tel.: 0 825 02 30 30* (national)
Tel.: +33 (0) 1 45 14 85 00
(international)
Email: info.fr@vwr.com
* 0,18 € TTC/ min + prix appel

Germany

VWR International GmbH
Hilpertstrasse 20a
D - 64295 Darmstadt
Freecall: 0800 702 00 07
Tel.: +49 (0) 6151 3972 0 (international)
Email: info.de@vwr.com

Hungary

VWR International Kft.
Simon László u. 4.
4034 Debrecen
Tel.: +36 (52) 521-130
Email: info.hu@vwr.com

India

VWR Lab Products Private Limited
No.139. BDA Industrial Suburb,
6th Main, Tumkur Road,
Peenya Post,
Bangalore, India – 560058
Tel.: +91-80-28078400
Email: vwr_india@vwr.com

Ireland / Northern Ireland

VWR International Ltd / VWR
International (Northern Ireland) Ltd
Orion Business Campus
Northwest Business Park
Ballycoolin
Dublin 15
Tel.: +353 01 88 22 222
Email sales.ie@vwr.com

Italy

VWR International S.r.l.
Via San Giusto 85
20153 Milano (MI)
Tel.: +39 02-3320311/02-487791
Email: info.it@vwr.com

Korea

VWR International ~
17, Daehak 4-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do
Tel.: +82 31 645 7256
saleskorea@avantorsciences.com

Middle East & Africa

VWR International FZ-LLC
DSP Laboratory Complex
125, Floor 01
Dubai, United Arab Emirates
Tel.: +971 4 5573271
info.mea@vwr.com

The Netherlands

VWR International B.V.
Postbus 8198
1005 AD Amsterdam
Tel.: +31 020 4808 400
Email: info.nl@vwr.com

Norway

VWR International AS
Brynsalleen 4
0667 Oslo
Tel.: +47 22 90 00 00
Email: info.no@vwr.com

Poland

VWR International Sp. z o.o.
Limkowa 5
80-175 Gdansk
Tel.: +48 058 32 38 210
Email: info.pl@vwr.com

Portugal

VWR International - Material de
Laboratório, Lda
Centro Empresarial de Alfragide
Rua da Indústria, nº 6
2610-088 Amadora
Tel.: +351 21 3600 770
Email: info.pt@vwr.com

Singapore

VWR Singapore Pte Ltd
18 Gul Drive
Singapore 629468
Tel: +65 6505 0760
Email: sales.sg@vwr.com

Spain

VWR International Eurolab S.L.
C/ Tecnología 5-17
A-7 Llinars Park
08450 - Llinars del Vallès
Barcelona
Tel.: +34 902 222 897
Email: info.es@vwr.com

Sweden

VWR International AB
Fagerstagatan 18a
163 94 Stockholm
Tel.: +46 08 621 34 00
Email: info.se@vwr.com

Switzerland

VWR International GmbH
Lerzenstrasse 16/18
8953 Dietikon
Tel.: +41 044 745 13 13
Email: info.ch@vwr.com

UK

VWR International Ltd
Customer Service Centre
Hunter Boulevard
Magna Park
Lutterworth
Leicestershire
LE17 4XN
Tel.: +44 (0) 800 22 33 44
Email: uksales@vwr.com