



RT7产品手册

RT7 PRODUCT MANUAL

锐拓仪器

RAYTOR INSTRUMENTS

药物溶出度仪与溶出解决方案专业提供商

Dissolution Device and Solution Professional Provider



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深圳锐拓仪器 (Raytor Instruments) 位于中国智造之都深圳，是国家高新企业、ISO9001认证企业。锐拓仪器致力于药物溶出仪器与解决方案的研发、生产、销售和服务，拥有多项技术专利。

Raytor Instruments is located in Shenzhen, the capital of Intelligent Manufacturing in China. It is a national high-tech enterprise and a ISO9001 certified enterprise.

Raytor Instruments is committed to the research and development, production, sales and service of drug dissolution instruments and solutions, with a number of technical patents.

锐拓仪器旗下的溶出产品包括：流池法溶出系统、往复筒法溶出系统、普通溶出自动取样系统、扩散池自动取样系统、溶出仪机械性能验证工具箱、溶媒制备仪等，全面覆盖国内外药典中各种溶出释放度测试装置。锐拓仪器同时能够为用户提供溶出度整体解决方案。

Raytor Instruments dissolution products include: flow-through cell dissolution system, reciprocating cylinder dissolution system, ordinary dissolution automatic sampling system, diffusion cell automatic sampling system, dissolution apparatus mechanical verification toolbox, dissolution medium preparation instrument, etc., which fully cover all kinds of dissolution release test devices in Pharmacopoeia. At the same time, Raytor Instruments can provide users with the overall solution of dissolution test.

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锐拓仪器
RAYTOR INSTRUMENTS

完善的产品线

Perfect Product Line

RT7

流池法溶出系统

Flow-Through Cell Dissolution System

药典流池法



RT3

往复筒法溶出系统

Reciprocating Cylinder Dissolution System

药典往复筒法、往复支架法



RT6

普通溶出系统

General Dissolution Series

药典篮法、浆法、小杯法、浆碟法、
转筒法、浸没池法.....



RT8

药物透皮扩散系统

Transdermal Diffusion System

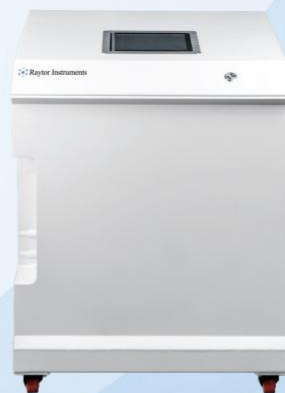
药典扩散池法

RT5

溶出介质制备脱气系统

Medium Preparation Degassing System

溶出介质的制备、脱气



RT2

溶出仪物理校准工具

Dissolution Mechanical Calibration Series

校准工作站、校准工具包

产品设计理念

Product Design Concept



合规性

Compliance

仪器性能指标符合中国药典、美国药典、欧洲药典等法规要求，计算机化系统符合21CFR Part 11 的要求。

The performance of the instrument meets the requirements of Chinese Pharmacopoeia, United States Pharmacopeia, European Pharmacopoeia and other regulations, and the computerized system meets the requirements of 21CFR Part 11.



清洁性

Cleanliness

应对GMP检查中检察官以观察细节作为突破口的思路，让设备在清洗的细节上无懈可击。

In response to GMP inspection, prosecutors should observe the details as a breakthrough, so that the cleaning details of the equipment are impeccable.



管理性 Management

卓越的计算机管理系统，国内独家的云管理系统，让实验室主管全面掌控设备。

Excellent computer management system, domestic exclusive cloud management system, let the laboratory director control the equipment.



方法开发 Method Development

我们不只是生产仪器，我们还能够提供溶出相关的专业技术支持。

We are not only producing instruments, we can provide professional technical support related to dissolution.

锐拓溶出软件系统

Raytor Dissolution Software System

锐拓溶出仪软件系统操作简单，容易上手，可以预存至少200条溶出实验方法，并具有至少三级权限管理和审计追踪功能、具有数据备份和PDF等不可更改的格式导出功能，完全符合美国 21CFR PART11，中国GMP，欧盟GMP等法规对数据完整性的要求。

The software system of Raytor dissolution apparatus is simple to operate and easy to use. It can store at least 200 dissolution test methods, and has at least three levels of permission level and audit track functions, data backup and PDF format export functions. It fully meets the requirements of data integrity of 21CFR PART 11.China GMP.EU GMP and other regulations.





用户权限管理 User Permissions Control

- 可分配至少3种权限等级：系统管理员、实验室主管、操作员。

At least 3 kinds of permission level can be allocated, including: system administrator, lab supervisor, general operator.

- 可由客户根据自身风险评估，定义权限等级的细则。

The detailed rules of each permission level can be customized by customers according to their own risk assessment.

- 可预设至少100个登陆账户、密码，用户操作权限分级管控。

At least 100 login accounts and passwords can be set up, and the user operation permission can be controlled by different levels.

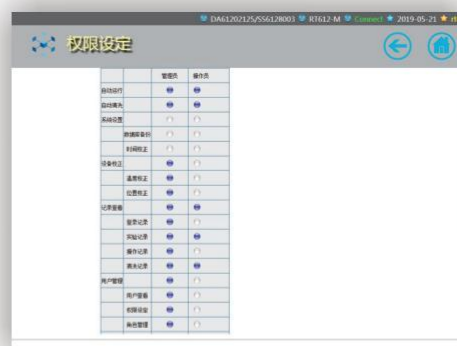
审计追踪 Audit trail

- 各个层面追踪到具体账号的审计追踪，包括登陆记录、实验记录、操作记录、清洗记录等。

All levels of audit tracking, including: landing records, experimental records, operating records, cleaning records, etc.

- 审计追踪记录可被检索、导出和打印。

Audit track records can be retrieved, exported and printed.



锐拓溶出软件系统

Raytor Dissolution Software System

方法建立和调用

Method Preset and Invokes

- 可以建立和保存至少200条溶出实验方法。
It can preset and store at least 200 dissolution test method.
- 溶出方法和UV/Vis检测方法同步设定。
Dissolution method and UV/Vis detection method are set synchronously.
- 用户可以调用已经保存的溶出实验方法进行自动溶出实验。
Users can call the saved dissolution experiment method for automatic dissolution experiment.
- 所有溶出方法的创建者和创建日期均可以被追溯。
Users can call the saved dissolution experiment method for automatic dissolution experiment.



水浴温度: 37.00 °C
 搅拌转速: 100 r/min
 溶出方法: 篮法
 溶出体积: 900 mL
 取样量: 10 mL
 补液量: 10 mL
 终级转速: 200 r/min
 持续时间: 0 分钟

实验员: rt01
 设备编号: DA61202125/SS6128003
 实验品名: SYSP
 溶媒类型: H2O
 调温搅拌: 否
 创建人: admin
 创建时间: 2019-04-18 17:25:37

取样点(分)	1	2	3	4	5	6	7	8	9	10
取样点(分)	30	0	0	0	0	0	0	0	0	0
取样点(分)	11	12	13	14	15	16	17	18	19	20
取样点(分)	0	0	0	0	0	0	0	0	0	0

开始实验

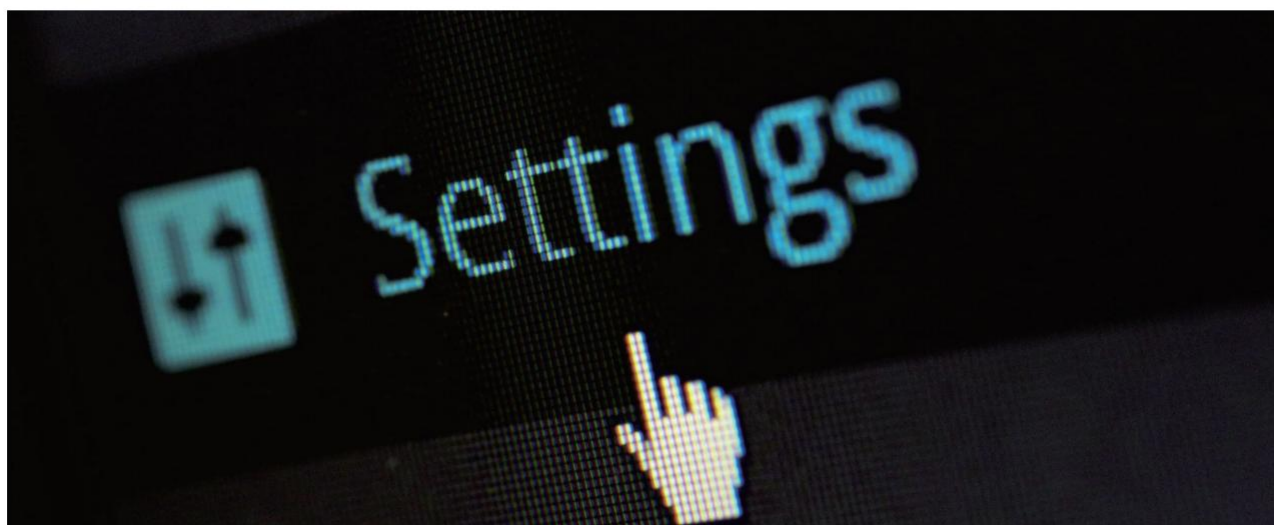


实验记录

实验时间从: 到: 点选

ID	实验名称	操作员	开始时间	结束时间	药品批次
1	SYSPLF	rt01	2019-05-21 15:04	2019-05-21 15:05	1

1/1 Total 1





电子数据完整性 Electronic Data Integrity

- 单机版配备数据库系统，系统存储容量可满足至少10年的记录存储。

The stand-alone version is equipped with a database system, the system storage capacity can meet at least 10 years of record storage.

- 实验期间能够实时显示实验参数，并能够同步生成准确、一致的电子数据。

During the experiment, the test parameters can be real-time display, accurate and consistent electronic data can be generated synchronously.

- 实时显示UV/Vis检测结果(选配在线UV/Vis检测时)。

Real-time display of the UV/Vis detection results (for online UV / Vis detection).

- 实验完成后，系统将自动生成实验报告。

After the experiment, the system will automatically generate the experiment report.

- 电子数据可以被检索、导出、备份和打印。

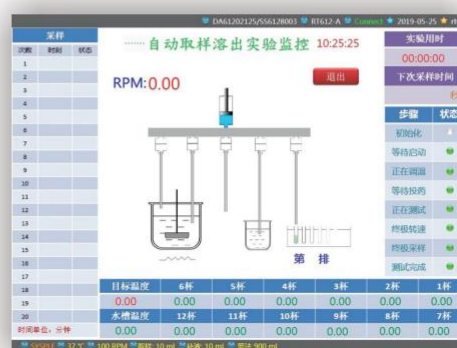
Electronic data can be retrieved, exported, backed up and printed.

- 系统数据库可以备份和还原。

The system database can be backed up and restored.

- 所有电子数据均受到保护，避免被随意篡改或删除。

Electronic data are protected from being tampered with or deleted.



锐拓溶出软件系统

Raytor Dissolution Software System

计算机化系统技术支持服务

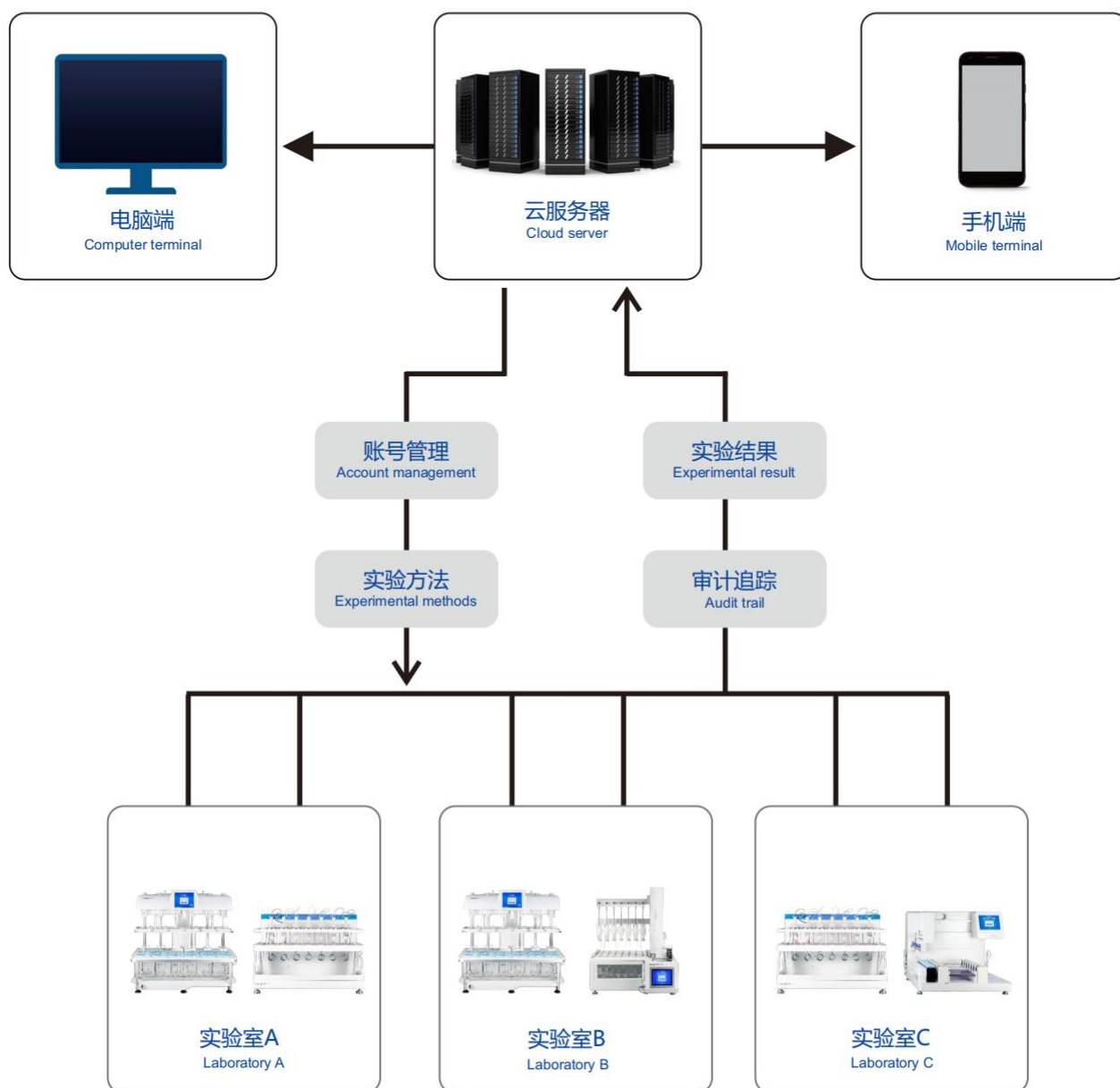
Computerized System Technical Support Services

- 溶出仪计算机化系统验证服务。
Validation service of dissolution apparatus computerized system.
- 电子数据云系统服务器架设服务。
Electronic data cloud system server setup service.
- 操作系统可以进行升级和根据用户需求进行定制。
The operating system can be upgraded and customized according to user requirements.



锐拓电子数据云系统

Raytor Electronic Data Cloud System



RT7 流池法溶出系统

Flow-Through Cell Dissolution System

RT7流池法溶出系统

RT7 Flow-Through Cell Dissolution System



锐拓RT7流池法溶出系统包括：流池法溶出装置、溶媒输送工作站和自动取样工作站。

Raytor RT7 Flow-Through Cell Dissolution System includes: Flow-Through Cell Dissolution Apparatus, Medium Conveying Workstation and Automatic Sampling Workstation.

锐拓RT7流池法溶出系统的设计和性能满足2020版中国药典溶出度与释放度测定第六法、美国药典溶出装置4、欧洲药典溶出装置4的要求。单套RT7溶出系统即可在闭环法和开环法之间简单切换，无需更换自动取样工作站，满足各种样品对应不同流池方法的需求。

The design and performance of RT7 Flow-Through Cell Dissolution System meet the requirements of the sixth method for determination of dissolution and release in Chinese Pharmacopoeia 2020, USP dissolution apparatus 4 and European Pharmacopoeia dissolution apparatus 4. A single RT7 Flow-Through Cell Dissolution System can simply switch between closed-loop method and open-loop method without replacing the automatic sampling workstation, so as to meet the needs of various samples corresponding to different flow-through cell methods.

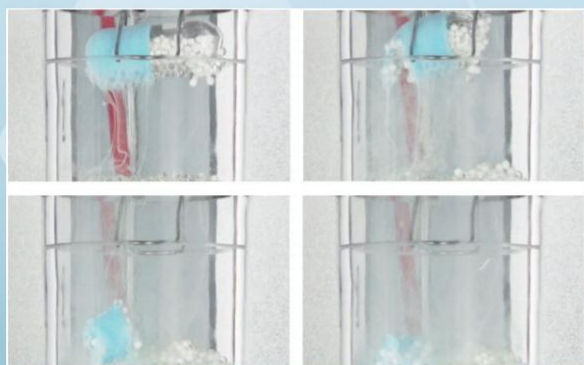
流通池溶出度方法 Flow-Through Cell Dissolution Method

流通池溶出度方法（流池法）是一种广泛使用的新型溶出度方法，中国药典、美国药典、欧洲药典、日本药典等均有收载。其用途广泛，适用于几乎所有药物剂型的释放度实验。特别是针对难溶性药物、控释/缓释制剂、植入剂、半固体制剂、微球、混悬剂、脂质体等特殊药物类型，能够提供比传统溶出方法更优秀的实验效果。

Flow-through cell method is a widely used new dissolution method, which is included in ChP, USP, EP and JP. It has a wide range of applications and is suitable for the release test of almost all drug formulations. Especially for insoluble drugs, modified/extended release drugs, implants, semi-solid preparations, microspheres, suspensions, liposomes and other special drug types, can provide better experimental results than traditional dissolution methods.

能够维持更好的漏槽条件，适用于大量溶出介质（>1000ml）或极少溶出介质（<100ml）的溶出释放度实验。

It can remain better sink conditions. It is suitable for dissolution experiments of large volume of dissolution medium (>1000ml) or very few dissolution medium (< 100ml).



能够在药物释放过程中，改变溶出介质的种类、流速和时间。例如：模拟胃肠道变化的pH环境和药物在胃肠道不同部位的停留时间。

It can change the type, flow rate and running time of dissolution medium in the process of drug release. For example, simulate the pH environment of gastrointestinal changes and the residence time of drugs in different parts of the gastrointestinal tract.

流池法能够提供比传统溶出方法提供更好的体内体外相关性和更好的区分力，更加适合研发阶段对药物体外释放度的研究，能更好地预测其生物利用度。

The flow-through cell method can provide better in vivo and in vitro correlation and better discrimination than the traditional dissolution method. It is more suitable for the study of drug release in vitro in the research and development stage, and can better predict its bioavailability.



流通池法是多种特殊剂型的药典推荐方法。

The flow-through cell method is a pharmacopoeia recommended methods for a variety of special dosage forms:

半固体制剂：USP<1724>Semi-Solid Drug Products Performance Tests

栓剂、软胶囊：EP 2.9.42 Dissolution Test for Lipophilic Dosage Forms

粉末、颗粒剂：EP2.9.43 Apparent Dissolution



RT7流池法溶出系统

RT7 Flow-Through Cell Dissolution System

锐拓RT7流池法溶出系统包括：七通道流通池溶出装置、溶媒输送工作站和自动取样工作站。

Raytor RT7 flow-through cell dissolution system includes: Seven Channels Flow-Through Cell Dissolution Apparatus, Medium Conveying Workstation and Automatic Sampling Workstation..



七通道流通池溶出装置

Seven Channels Flow-Through Cell Dissolution Apparatus

可以适配各种规格和类型的流通池，满足各种样品的溶出实验要求。

It can adapt to various specifications and types of flow-through cell, and meet the dissolution test requirements of various samples.

溶媒输送工作站

Medium Conveying Workstation

用于溶出介质预热和搅拌，并通过高精度恒流泵把溶出介质输送到流通池装置。

It is used to preheat and stir the dissolution medium, and transport the medium to the flow-through cell by a high-precision constant flow pump.



自动取样工作站

Automatic Sampling Workstation

一机即可以实现闭环法和开环法取样。开环法取样时，用户可以选择连续取样、间隔取样和分流比取样。

The closed-loop and open-loop sampling can be realized in one machine. In open-loop sampling, users can choose continuous sampling, interval sampling and split ratio sampling

RT7 流通池溶出装置

RT7 Flow-Through Cell Dissolution Apparatus

流通池安装底座

Flow-Through Cell Mounting Base

各类型流通池均可使用。锐拓专利设计，使得流通池安装方便快捷、密闭良好，减少漏液和堵塞的隐患。

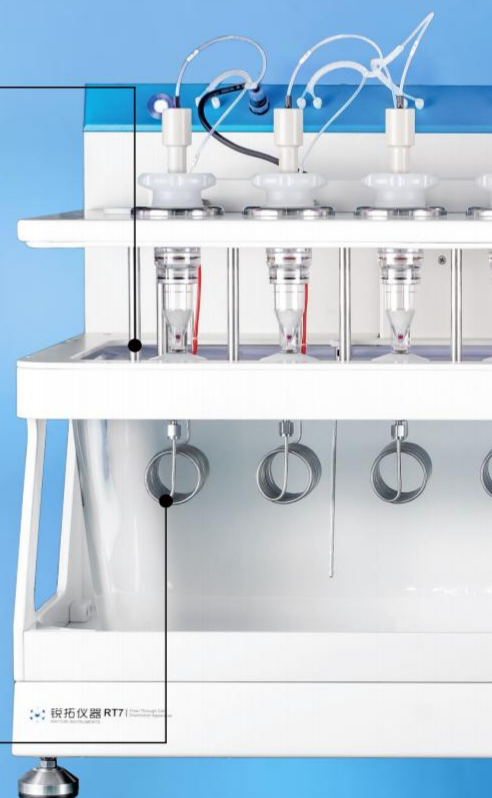
All types of flow-through cell can be used. The Raytor patent design makes the installation of the flow-through cell convenient, fast and good airtight, reduce the hidden danger of leakage and blockage.

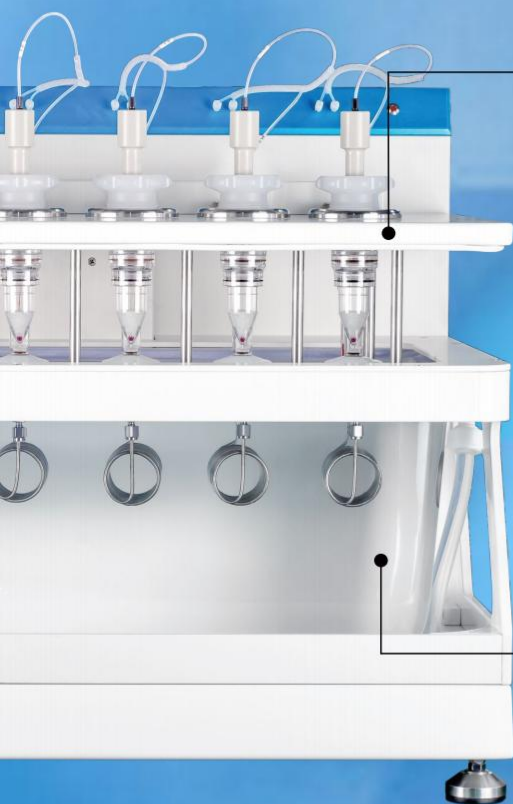
恒温管圈

Thermostatic Coil

在溶媒进入流通池前，精密恒温至设定温度。七个溶媒通道均有独立的温度传感器，连续记录各通道溶媒的温度。

Keep the temperature of medium precisely constant to the set value before entering into the flow-through cell. The seven medium channels have independent temperature sensors to continuously record the temperature of each channel.





自动升降平台

Automatic Lifting Platform

自动将流通池降入或升离恒温水浴，方便安装和更换流通池。

Automatically lower or lift the flow-through cell into or out of the constant temperature water bath, which is convenient for installation and replacement of the flow-through cell.

一体式水浴槽

Integral Moulding Water Bath

一体成型圆角设计，无清洁死角，水浴可以被彻底排干。

Integrated moulding and rounded angle design, no cleaning dead angle, water bath can be completely drained.

RT7 溶媒输送工作站

RT7 Medium Conveying Workstation

高精度恒流泵 High Precision Constant Flow Pump

流速误差 $< \pm 5\%$ ，可设定无脉动模式和脉动模式（120 Hz）。

The flow rate error is less than $\pm 5\%$, and the non pulsating mode and pulsating mode (120 Hz) can be set.

7个独立的溶媒输送通道。每个溶媒输送通道配备独立的超压保护和漏液检查装置。

7 independent medium delivery channels. Each medium delivery channel is equipped with independent over pressure protection and liquid leakage inspection device.



人机交互界面

User Computer Interface

8.4 寸触控屏，预装锐拓溶出操作系统，符合数据完整性要求。

8.4-inch touch screen, and pre installed with the Raytor dissolution operating system, meeting the data integrity requirements.



一体式水浴加热搅拌装置

Integrated Water Bath Heating & Stirring Device

8联磁力搅拌装置，能够满足闭环模式下7个样品溶媒瓶+1个补液溶媒瓶的实验需求。

The 8-position magnetic stirring device can meet the experimental requirements of 7 sample medium vessels + 1 replenishment medium vessel in closed-loop mode.

RT7 自动取样工作站

RT7 Automatic Sampling Workstation

高精度自动取样系统

High Precision Automatic Sampling System

自动取样系统同时集成闭环法取样和开环法取样的功能，且两种取样模式的切换十分方便。

The automatic sampling system integrates the functions of closed-loop sampling and open-loop sampling at the same time, and the switching between the two sampling modes is very convenient.

采用高化学稳定性，高抗吸附的Teflon管路。有效避免吸附和残留。

Teflon pipe with high chemical stability and high adsorption resistance is adopted. Effectively avoid adsorption and residue.



灵活的样品收集模式 Flexible Sample Collection Mode

开环法模式下，可以选择间隔取样、连续取样或分流比取样。

In open-loop mode, interval sampling, continuous sampling or split ratio sampling can be selected.

适配70mL样品瓶，10mL试管和液相小瓶的样品架。

The sample holders suitable for 70 ml sample vessel, 10 ml test tube and liquid phase vial.



RT7流池法溶出系统应用案例

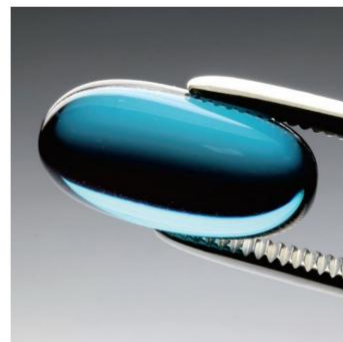
RT7 Flow-Through Cell Dissolution System Application Case

软胶囊

Soft Capsule

软胶囊在溶出时会在溶出介质上方形成油层，而溶出过程中产生的油滴也会悬浮在溶出介质中，导致传统溶出方法很难满足测定需求。而流池法则可以有效测定软胶囊的体外释放度。

When the soft capsule is dissolved, an oil layer will be formed above the dissolution medium, and the oil droplets produced in the dissolution process may also be suspended in the dissolution medium, which makes it difficult for the traditional dissolution method to meet the needs of determination. The flow-through cell method can effectively determine the in vitro release of soft capsules.



混悬注射剂

Suspension Injection

在FDA 溶出度方法数据库中，流池法被收载用于多种混悬注射剂的体外释放度测试。流池法能更好地体现混悬注射剂在平缓流体环境下的释放行为。

In the FDA dissolution method database, the flow-through cell method is included for the in vitro release test of a variety of suspension injections. The flow-through cell method can better reflect the release behavior of the suspension injection in a gentle fluid environment.



眼用凝胶

Ophthalmic Gel

使用流池法可以考察眼用凝胶由液体状态转变成非化学交联半固体凝胶并持续缓慢释放药物的过程，更加接近在人体环境中的释药状态。

The flow-through cell method can be used to investigate the process of ophthalmic gel changing from liquid state to non chemically crosslinked semi-solid gel and releasing drugs continuously and slowly, which is closer to the release state in human environment.



原料药

Active Pharmaceutical Ingredients

流池法是欧洲药典中测定原料药粉末或颗粒的表观溶出度的方法，无论是速释型原料药还是难溶性原料药，均有很好的测定效果。

Flow-through cell method is a method for determining the apparent dissolution of API powder or particle in European Pharmacopoeia. It has a good effect in both rapid-release API and insoluble API.

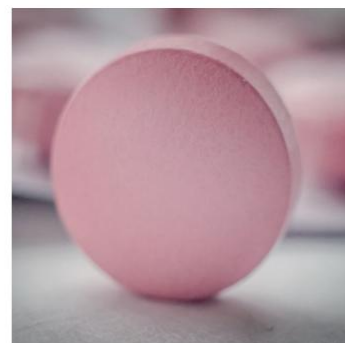


片剂

Tablet

无论是长效缓释片还是速释片，流池法都能够更好地模拟人体胃肠道的生理环境，测试结果拥有更好的区分力，而且能够更好地预测药物体内行为。

Whether it is long-term sustained-release tablets or rapid-release tablets, the flow-through cell method can better simulate the physiological environment of human gastrointestinal tract, the test results have better discrimination, and can better predict the behavior of drugs in vivo.



您可登录我们的官网：www.raytor.cn，或通过扫码右方的二维码关注我们的官方公众号，了解更多应用案例资讯。

You can log in to our official website: www.raytor.cn, or follow our official account by scanning the QR code on the right to learn more about application cases.



RT7系列溶出配件 RT7 Series Dissolution Accessories

标准大流通池

Large Flow-Through Cell

内径：22.6mm。尺寸符合中国药典<0931>、美国药典<711>和欧洲药典<2.9.3>的技术要求。套装包含：流通池、滤室、滤芯固定部件、O型密封圈、筛网部件、顶盖等。

Inner diameter: 22.6 mm. Meets the technical requirements of Chinese Pharmacopoeia < 0931 >, United States Pharmacopoeia < 711 > and European Pharmacopoeia < 2.9.3 >. The package includes: flow-through cell, filter chamber, filter element fixing parts, O-ring seal, screen parts, top cover, etc.



标准小流通池

Small Flow-Through Cell

内径：12mm。尺寸符合中国药典<0931>、美国药典<711>和欧洲药典<2.9.3>的技术要求。套装包含：流通池、滤室、滤芯固定部件、O型密封圈、筛网部件、顶盖等。

Inner diameter: 12 mm. Meets the technical requirements of Chinese Pharmacopoeia < 0931 >, United States Pharmacopoeia < 711 > and European Pharmacopoeia < 2.9.3 >. The package includes: flow-through cell, filter chamber, filter element fixing parts, O-ring seal, screen parts, top cover, etc.



亲脂性固体制剂测试用流通池

Flow-Through Cell for Lipophilic Solid Dosage Forms

流通池内拥有A、B两室。尺寸符合欧洲药典<2.9.42>的技术要求，适用于亲脂性固体制剂溶出度释放度测试。套装包含：流通池、滤室、滤芯固定部件、O型密封圈、筛网套件、顶盖等。

There are two chamber A and B in the flow-through cell. Meets the technical requirements of European Pharmacopoeia < 2.9.42 >, it is applicable to the dissolution test for lipophilic solid dosage forms. The package includes: flow-through cell, filter chamber, filter element fixing parts, O-ring seal, screen parts, top cover, etc.





粉末/颗粒测试用流通池

Flow-Through Cell for Powder / Particle

内径：12mm。尺寸符合欧洲药典<2.9.43>的技术要求，用于粉末、颗粒等表观溶出度测试。套装包含：流通池、滤室、滤芯固定部件、O型密封圈、筛网套件、顶盖等。

Inner diameter: 12mm. Meets the technical requirements of European Pharmacopoeia < 2.9.43 >, and is used for the test of apparent dissolution of powders, particles, etc. The package includes: flow-through cell, filter chamber, filter element fixing parts, O-ring seal, screen parts, top cover, etc.



5mm 红宝石球

5mm Ruby Ball

直径：5mm。材质：红宝石。根据药典技术要求，需要将一直径为5mm的红宝石球放置在流通池锥体下端，防止样品池中的介质倒流入管路中。

Diameter: 5mm. Material: Ruby. According to the technical requirements of the Pharmacopoeia, a ruby ball with a diameter of 5mm needs to be placed at the lower end of the cone of the flow-through cell to protect the fluid entry tube.



样品支架

Tablet Holder

大池支架长度：24mm。小池支架长度：13.5mm。材质：316L不锈钢。尺寸符合中国药典、美国药典、欧洲药典的技术要求，用于放置特殊制剂，如植入片。

Length of the tablet holder for large flow-through cell : 24 mm and for the small flow-through cell : 13.5 mm. Material: 316L stainless steel. The size meets the technical requirements of Chinese Pharmacopoeia, US Pharmacopoeia and European Pharmacopoeia. It is available for positioning of special dosage forms, e.g., inlay tablets.





锐拓仪器
RAYTOR INSTRUMENTS

RT7系列溶出配件 RT7 Series Dissolution Accessories

1mm 玻璃珠

1mm Glass Beads

直径：1mm。包装：500g / 袋。根据药典技术要求，流通池的锥形部分通常需要填充1mm直径的玻璃珠。

Diameter: 1mm. Package: 500g / bag. According to the technical requirements of the Pharmacopoeia, the conical part of the flow-through cell usually needs to be filled with 1mm diameter glass beads.



40目筛网部件 (25mm)

40 Mesh Screen Parts (25mm)

筛网：40目，线径：0.2mm。筛网外径：25mm。材质：316L 不锈钢。安装于流通池滤室中。

Screen: 40 mesh, wire diameter: 0.2mm. Outer diameter of screen: 25mm. Material: 316L stainless steel. It is installed in the filter chamber of the flow-through cell.



40目筛网部件 (15mm)

40 Mesh Screen Parts (15mm)

筛网：40目，线径：0.2mm。筛网外径：15mm。材质：316L 不锈钢。安装于流通池滤室中。

Screen: 40 mesh, wire diameter: 0.2mm. Outer diameter of screen: 15mm. Material: 316L stainless steel. It is installed in the filter chamber of the flow-through cell.





管状过滤器

Tubular Filter

孔径：5 μm ，20 μm 。包装：50 个/包。安装在流通池滤室中，用于拦截样品溶液中的较大颗粒。

Pore Size: 5 μm , 20 μm . Packing: 50 pieces / bag. It is installed in the filter chamber of the flow-through cell to intercept large particles in the sample solution.



滤膜

Filter Membrane

外径：25mm。可指定材质和孔径。安装于流通池滤室中，用于阻挡未完全溶解的样品颗粒。

Outer diameter: 25mm. Material and Pore Size can be specified. It is installed in the filter chamber of the flow-through cell to block the incompletely dissolved sample particles.



RT7技术参数

RT7 Technical Parameter

系统部件 System Components	技术参数 Technical Parameter
流通池装置 Flow-Through Cell Dissolution Apparatus	通道数量：7。 Number of channels: 7.
	可适配各种流通池。 It can be adapted to various flow-through cell.
	温度可调，温控误差 $< \pm 0.2^{\circ}\text{C}$ 。 The temperature is adjustable, and the temperature control error is less than 0.2°C .
	流通池之间的温度差异在设定温度 $\pm 0.5^{\circ}\text{C}$ 的范围内。 The temperature difference between the cell is within the range of setting value $\pm 0.5^{\circ}\text{C}$.
	适用于开环模式和闭环模式。 Both open-loop mode and closed-loop mode are available.
溶媒输送工作站 Medium Conveying Workstation	流速可调，流速误差 $< \pm 5\%$ 。 The velocity is adjustable, and the velocity error is less than $\pm 5\%$.
	流速模式可选择脉动模式（120Hz）或无脉动模式。 Pulsation mode (120Hz) or no pulsation mode can be selected for flow rate mode.
	温度可调，温控误差 $< \pm 0.5^{\circ}\text{C}$ 。 The temperature is adjustable, and the temperature control error is less than 0.5°C .
	搅拌转速可调。 The stirring speed is adjustable.
	搅拌工位：8。 The stirring working position: 8.
自动取样工作站 Automatic Sampling Workstation	通道数量：7。 Number of channels: 7.
	可适配70mL样品瓶，10mL试管和液相小瓶。 It can be adapted to 70 ml sample bottle, 10 ml test tube and liquid phase vial.
	适用于开环模式和闭环模式。 Both open-loop mode and closed-loop mode are available.
	开环模式下可选择：间隔取样、连续取样或分流比取样。 In open-loop mode, interval sampling, continuous sampling or split ratio sampling are available.
操作系统 Operating System	功能符合FDA 21 CFR Part 11 要求，包括：账号密码、权限管理、数据管理、审计追踪、数据备份等。 The functions meet the requirements of FDA 21 CFR Part 11, include: account password, authority management, data management, audit tracking, data backup, etc.



售后服务与技术支持

After Sales Service & Technical Support

验证与确认

Validation and Qualification

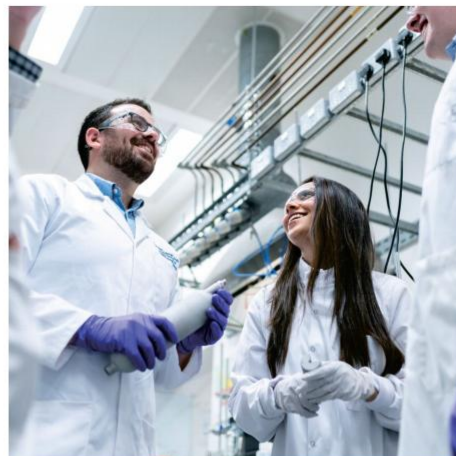
锐拓仪器能够为您的全系列溶出系统提供全面且专业的验证与确认服务。所有验证与确认服务都会附有符合法规要求的完整专业的文件报告。

Raytor Instruments can provide comprehensive and professional validation and qualification services for your dissolution systems. All verification and validation services will be accompanied by complete and professional documents meeting regulatory requirements.

我们能够提供的验证&确认服务包括且不限于：

The validation & qualification services we can provide include but are not limited to:

- 篮法、桨法 IQ/OQ/PQ
Basket Method, Paddle Method IQ/OQ/PQ
- 中国药典小杯法 IQ/OQ/PQ
ChP Mini Vessel Method IQ/OQ/PQ
- 桨碟法 IQ/OQ
Paddle over Disk Method IQ/OQ
- 转筒法 IQ/OQ
Dissolution Cylinder Method IQ/OQ
- 浸没池法 IQ/OQ
Immersion Cell Method IQ/OQ
- 流池法 IQ/OQ
Flow-Through Cell Method IQ/OQ
- 往复桶法、往复支架法 IQ/OQ
Reciprocating Cylinder and Holder IQ/OQ
- 扩散池法 IQ/OQ
Diffusion Cell Method IQ/OQ
- 计算机化系统验证
Computerized System Validation
- 溶出系统清洁验证
Dissolution System Cleaning Validation

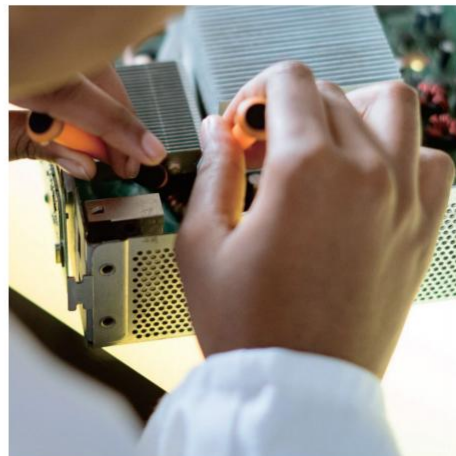


维修和预防性维护

Repair & Preventive Maintenance

锐拓仪器售后服务团队能够快速应对您的仪器维修需求。锐拓仪器提供涵盖维修，预防性维护和维修后再确认的服务，让您的仪器始终处于最佳状态。

Raytor Instruments after-sales service team can quickly respond to your instrument maintenance needs. Raytor Instruments provides services covering repair, preventive maintenance and requalification after repair, to keep your instrument at its best.



培训与交流

Training & Communication

锐拓仪器能够为您提供全系列溶出系统的使用操作培训。另外，锐拓仪器的专业技术团队能够根据您的实验需求，针对特定的技术细节进行更深层次的交流。

Raytor Instruments can provide you with a full series of training on the operation of dissolution system. In addition, the professional technical team of Raytor Instruments can conduct deeper communication for specific technical details according to your experimental needs.



应用技术支持

Application Technical Support

锐拓仪器拥有强大的应用技术实验室团队，能够承接客户的新颖溶出方法开发，例如流池法、往复筒法。并协助客户进行溶出结果异常调查。

Raytor Instrument has a strong application technology laboratory team, which can undertake the development of new dissolution methods from customers, such as flow-through cell method and reciprocating cylinder method. And assist the customer to investigate the abnormal dissolution results.

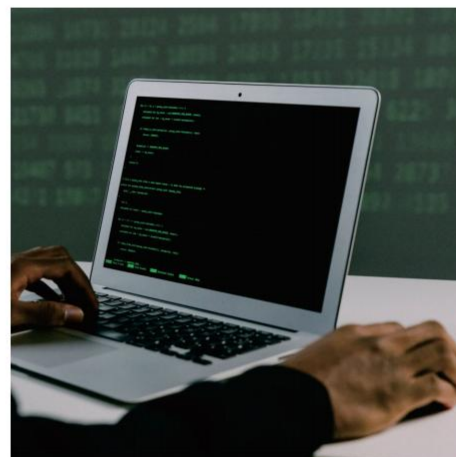


架设电子数据云系统服务器

Electronic Data Cloud System Server

通过架设电子数据云系统服务器，连接多个实验室中的全部溶出系统，实现所有溶出系统的记录、用户、方法等电子数据的统一管理和自动备份。

The electronic data cloud system server is to connect all dissolution systems in multiple laboratories to realize the unified management and automatic backup of electronic data such as records, users and methods of all dissolution systems.

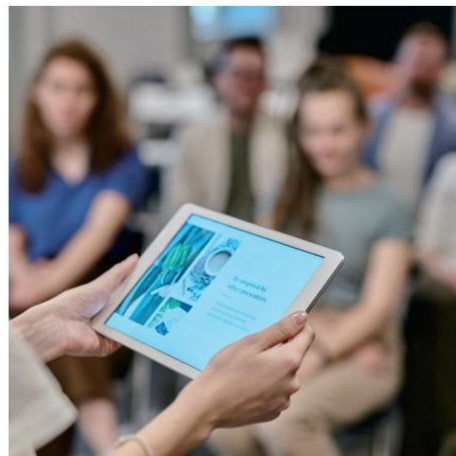


技术研讨会

Technical Seminar

锐拓仪器会在全国各种制药技术研讨会中分享最新溶出研究成果。您可以关注锐拓仪器的参会安排，在研讨会现场跟我们的技术专家进行交流。

Raytor Instruments will share the latest dissolution research results in various national pharmaceutical technology seminars. You can pay attention to the participation arrangement of Raytor and communicate with our technical experts at the seminar site.



锐拓线上大讲堂

Raytor Online Lecture Hall

锐拓仪器会定期在线上举办大讲堂，介绍最新的溶出前沿技术。您可以进入大讲堂的直播平台收看技术宣讲，并在线上与技术专家进行交流互动。

Raytor Instruments will regularly hold a lecture hall online to introduce the latest dissolution cutting-edge technology. You can enter the live broadcast platform of the auditorium to watch the technical lectures and interact with technical experts online.



微信公众号

WeChat Official Account

锐拓仪器的微信公众号会定期分享应用实验案例、公布锐拓线上大讲堂和技术研讨会的安排。您可以关注我们的公众号，以获得最新的资讯。

The official account of WeChat public of Raytor Instruments will regularly share the application experiment cases, announce the arrangement of the lecture hall and technical seminar. You can pay attention to our official account for the latest information.



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