

USP APPARATUS 3,7 Application Solution based on Reciprocating Cylinder/ Reciprocating Holder Method

USP apparatus 3 is usually used to test the release rate of control release products. USP apparatus 7 is usually used to test the release rate of transdermal patches, implants, arterial stents and conductor balloons.

SYSTEM ADR III-7

Reciprocating Cylinder/ Reciprocating Holder Method

The Automated DISSO III-7 Disso Rate Tester is Logan Instruments Corp.'s newest USP apparatus 3 & 7 dissolution tester (8x6 tube rows); two additional tubes in each row facilitate the running of a blank and standard concurrently with the samples. The built-in heater-circulator is designed to save bench space and is directly controlled by the DISSO III-7, which is designed with adjustable stroke length: the users are able to set the program to run either as USP apparatuses 3 or 7. For the drug research, the traditional basket method and paddle method can barely meet the demand. More discriminating dissolution methods are needed, while USP apparatus 3 (reciprocating cylinder method) and USP apparatus 7 (reciprocating holder method) are much more competitive in dissolution research.

USP apparatus 3 is usually used for control release of tablets, to test the release rate of the drug in different pH media.

USP apparatus 7 is usually used to test the release rate of transdermal patches, implants...etc.

Highly compatible and integrated

It is compatible with USP apparatuses 3 or 7, through convenient switch and simple operation.

Sampling control

Mobile reciprocating cylinder rack facilitates sampling probe and media replacement for multiple sampling points.

System expansion

Automated DISSO III-7 Disso Rate Tester can be online with UV, HPLC, PREMETRO, etc. for sample analysis.



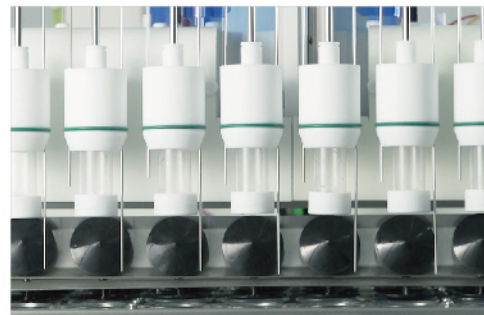
Reciprocating Cylinder/Holder

Reciprocating cylinders/holders of various specifications are provided.



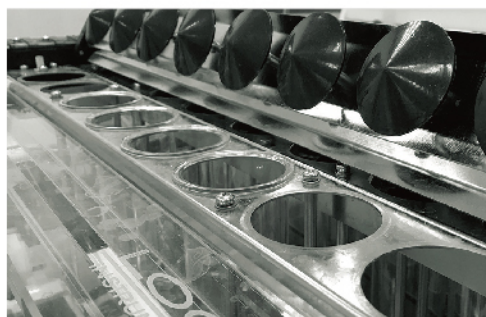
Samples Taken and Media Replacement

Individual sampling probe and individual media replacement probe.



Evaporation Cover

Each row of the media tube are covered.



Easy Operation

The standard reciprocating cylinder and all sampling holders are easy to install.



Sampling

Pre-rinse sample lines before taking samples.



Automatic Sampling

DSC - 800 dissolution system controller, SCR - DL auto sampler are provided to perform automatic sampling.



Camera System

An optional camera system is provided to observe and record the whole process of drug release.

Auto Cleaning

The sampling and media replacement tubing can be automatically cleaned by program.

Application of SYSTEM ADR III-7

Study on dissolution application of control release tablets

The traditional basket method and paddle method can barely be used to obtain discriminable dissolution rate for the determination of certain matrix control release or sustained-release tablets, while the reciprocating cylinder method can better simulate the in-vivo environment and obtain discriminable dissolution rates more easily.

Study on dissolution application of control-release and substance-release tablets

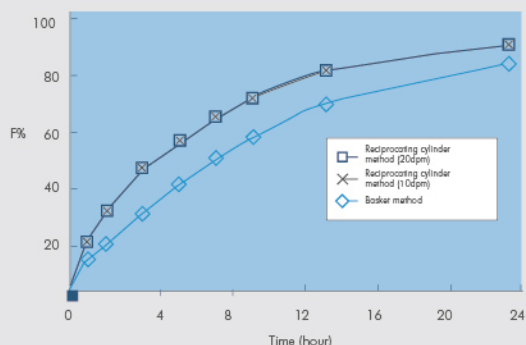


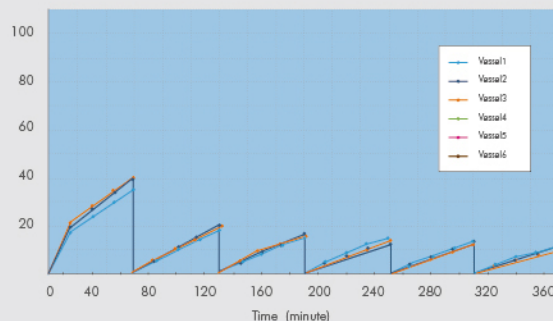
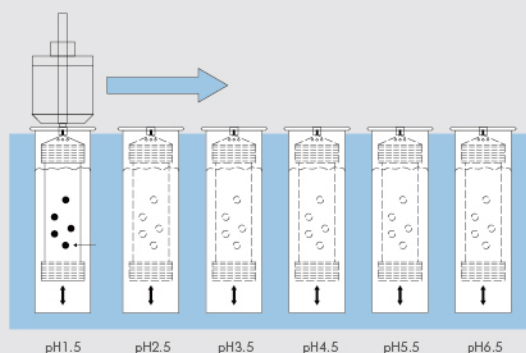
Table 1 Parameter Setting for Reciprocating Cylinder Method

Gastrointestinal tract	pH value	SERVICE	Transfer time /h
Stomach	1.8	Simulated gastric juice (SGFsp1)	2
Jejunum	6.8	Simulated intestinal juice (SIFsp USP28)	2
Ileum	7.5	Simulated intestinal juice (SIFsp USP23)	2
Proximal colon	5.8	Simulated colon fluid (SCoF)	8
Distal colon	6.8	Simulated intestinal juice (SIFsp USP28)	10

study on in vitro release of enteric-coated drugs

USP apparatus 3 test is used to simulate gastrointestinal tract conditions, and the in-vitro dissolution analysis can be performed for bio-equivalent study.

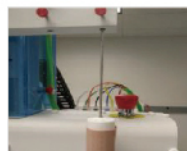
In vitro release of enteric-coated preparations from generic drugs



DISSO III-7

In-vitro Release of Transdermal Patch

For in-vitro release experiments of transdermal patch drugs, USP recommends a variety of methods, including Paddle Over Disk (USP5 method), Rotating Cylinders (USP6 method) and reciprocating cylinder method (USP7 method 1). In recent years, researchers found that USP 7 has many advantages.



Problem with USP 5
Dissolution is divided into upper and lower sections, and the samples are mixed unevenly.



Problem with USP 6
Stirring force is not sufficient, and the sample is trapped under the drum.

Technical Note: Comparison of USP Apparatus 5 and 7 for In Vitro Drug Release from Nicotine Transdermal Systems

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