

## PT-DR

### Dispersion Releaser - Release Apparatus for Nano- and Microformulations

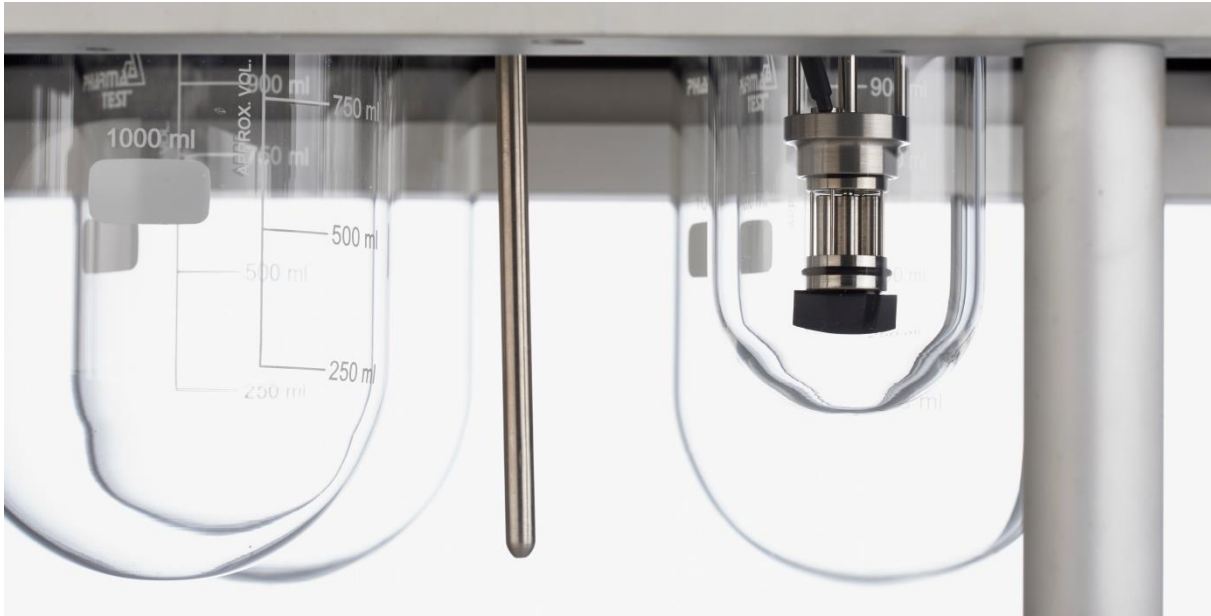
The PT-DR dispersion releaser technology is a dialysis-based device composed of a sample holder cell serving as the donor compartment for dispersed dosage forms (Wacker and Janas 2014). A dialysis membrane is disposed around this housing. This donor chamber is agitated by a paddle stirrer that is connected to the USP Apparatus 2.



PT-DR Dispersion Releaser

### Directly Attachable to the Stirrer Shaft

The dispersion releaser is connected to the dissolution tester by a special coupling directly affiliated to the stirrer shaft. This way the dispersion releaser can be hooked to the coupling and as well easily removed from the stirrer shaft for preparation and cleaning purposes. This ensures a direct transfer of the stirring movements to the stirrer of the dispersion releaser. Basically the dispersion releaser consists of a donor and acceptor compartment. The donor compartment is a cylindrical construction which contains the substance to be tested. This construction is surrounded by a membrane, fixed through two O-rings, which acts as barrier between donor and acceptor compartment.



### Stirrer Connection

In the inside of the donor compartment is a small paddle, with integrated magnets, directly influenced and controlled by the stirrer shaft of the dissolution tester. Through the integrated magnets an external magnetic stirrer, located at the bottom of the donor, is driven to mix the media in the acceptor compartment. The stirring movement inside the donor compartment during a test run promotes the diffusion of the drug substance from the inside to the outside. The media in the acceptor compartment will be mixed with the same speed in the donor compartment, through the additional stirring movement of the external stirrer, driven by the internal one through magnetic attraction. Therefore a homogeneous suspension from media and drug formulation arises.



### Stirring Movement Transfer

The only moveable part in the dispersion releaser is the shaft which connects the internal (and external) stirrer with the dissolution tester stirrer shaft. This one is structurally separated from the remaining parts (integrated vessel cover connected with the donor compartment by fittings) via a sealing ring.

### Test Preparation

As soon as the donor compartment of the dispersion releaser is surrounded by a membrane and filled with the substance to be tested, the adaption can be hanged onto the coupling. In a last step the external stirrer has to be positioned and now the Dispersion Releaser can be driven down into the vessel via the automated lift function of the dissolution testers. It is possible to use the Dispersion Releaser in a Standard Vessel or in a Mini Vessel. The volume usable in the Mini Vessel and Standard Vessel is limited by the upper border of the donor compartment, as a backmixing of the donor with the

acceptor media has to be prevented. Additionally the whole membrane has to be covered with media for a reliable and consistent release testing.



## Advantages

Some of the highlights the PT-DR offers are:

- » Reproducible release through the additional stirring movement in the donor compartment
- » Increased throughput of the dialysis process
- » Mixing inside the donor and the acceptor compartment for an optimal homogeneous suspension
- »

## Features

The main features of the PT-DR are:

- » Providing a uniform, constant and reliable release of the active substance which leads to reproducible results
- » Tube membranes with a width between 26 - 32 mm can be used
- » Typical materials for membranes are cellulose ester and regenerated cellulose

## Standard Scope of Supply

The PT-DR comes ready to use with the following standard scope of supply:

- » PT-DR with mounting tool for the membrane (part. no. 318-5010)