STANDARD OPERATING PROCEDURE OF HIGH SPEED DIFFUSION CELL

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	SUBJECT: **SOP FOR DIFFUSION CELL**	**EFFECTIVE DATE:** **25/2/2022** **REVIEW PERIOD:** **252/2023**

Purpose:

To provide a procedure for the operating of Diffusion Cell apparatus

Scope:

Applicable to operation of Diffusion Cell apparatus

References:

Instrument Manual

Safety Issues and Precautions:

- Were Head cap, Mask, Hand glows and other safety requirements during the performance of stated activity
- Please make the entry of Usage with require details in the Instrument log book
- Handle the Instrument properly with care
- After using the apparatus please clean the instrument and accessories and keep it clean

Procedure:

The Vertical Franz Diffusion Cell is a simple, reproducible test for measuring the in vitro drug release from creams, ointment s and gel. The Franz Cell consists of two primary chambers separated by a membrane. The test product is applied to the membrane via the top chamber- donor compartment. The bottom chamber- receptor compartment contains fluid from which

samples are taken at regular intervals for analysis. This testing determines the amount of active drug that has permeated the membrane at each time point. In-vitro skin permeation studies of topical formulations. The Transdermal Diffusion cell apparatus is remarkably simple to operate; the system is supplied with:

- ✓ Six stage magnetic stirrer with digital RPM indicator.
- ✓ Water heater & Water circulation system with digital temperature controller and water level indicator.
- ✓ Cell holders
- ✓ Diffusion Cells.
- ✓ Teflon coated stirring bars.

I. EXPERIMENTAL DESIGN/EQUIPMENT/PRINCIPLES

Choice of diffusion cells: static or continuous flow

Static cell (vertical or Side-By-Side):

Description: Franz type cell or Side-By-Side Cell, fixed volume receptor chamber, controlled temperature, port to sample receptor fluid, stirred receptor fluid (Side-By-Side Cells allow stirring of both the donor and receptor chambers.)

Uses: Evaluating compound uptake into a membrane, finite dose permeation, steady state flux of compounds (either alone or in formulations.)

1. Permeability of the compound
2. Permeability of the tissue
3. Determines rate across membrane (flux)
4. Determines concentration in receptor chamber

Continuous flow cell or flow-thru cell:

Description: Franz type cell or In-Line Cell, fixed volume receptor chamber, controlled temperature - Franz type cells are stirred, In-Line Cells have continuous flow which causes turbulence in the receptor chamber and simulates stirring, flow rate is adjustable, permits automated sampling.

Uses: Mimics in-vivo (flow equates blood flow), evaluating compound uptake into membrane, finite or infinite dose permeation, steady state flux and Kp of compounds (either alone or in formulations.)

1. Permeability of the compound
2. Permeability of the tissue
3. Determines rate across membrane (flux)
4. Determines concentration in receptor chamber
5. Determines rate of clearance (flow rate)

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