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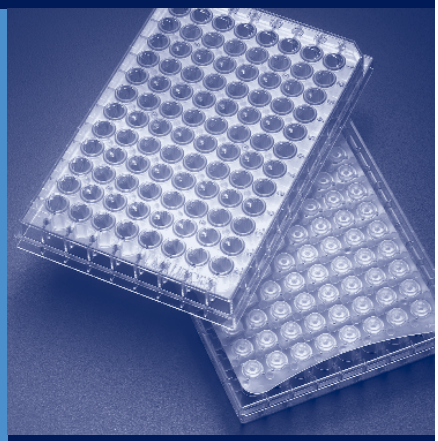


MultiScreen® Solubility Filter Plate

96-well filter plate designed and optimized for aqueous solubility assays

- *Solubility results in <4 hours*
- *Automation compatible*
- *High drug recovery*
- *QC released for filtration flow time, low extractables and extended incubations*

DATA SHEET

Determining compound solubility in water has become an essential early measurement in the drug discovery process. Poor water solubility can cause problems in many different *in vitro* testing techniques, leading to unreliable results and/or reproducibility problems. Insoluble precipitates have been shown to cause false positives in bioassays potentially wasting valuable resources. Water solubility also influences absorption and thus can be used to help predict the ADME properties of a molecule.

Increased Screening Throughput and Efficiency

The MultiScreen Solubility filter plate is a high throughput, 96-well system used to classify or quantify the aqueous solubility of compound libraries stored in solvent as a concentrated solution.

The filtration-based protocol is fast and efficient. The protocol has been validated to screen hundreds of samples per day and saves time and sample in comparison with the shake-flask method. Typical MultiScreen Solubility filter plate analysis time is less than 4 hours and uses <100 µg of sample per analysis. This is an improvement as compared to the shake-flask method that can take several days and require milligrams of sample for each analysis.

MultiScreen Solubility filter plates are automation compatible. The plates are in compliance with SBS guidelines for easy handling by robotics. They also include a space for barcoding.

Reliable, Reproducible Results

MultiScreen Solubility filter plates are specifically designed and optimized for quantitative solubility assays. The plates demonstrate reproducible results in well-to-well, plate-to-plate and lot-to-lot comparisons.

Additionally, MultiScreen Solubility filter plate results show good agreement with shake-flask solubility values. Both methods determine solubility by a direct measure of compound in solution. This correlation with the solubility assay standard gives MultiScreen Solubility filter plate users an advantage over other methods, including nephelometry which measures insoluble precipitates rather than compound in solution.

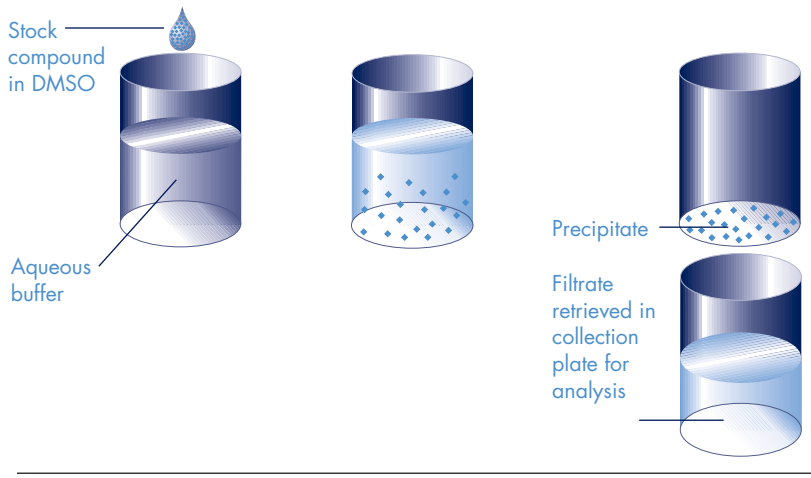
Validated for High Drug Recovery

The MultiScreen Solubility filter plate incorporates low-binding membrane and low-binding plate materials to yield the high drug recovery needed for solubility results. The plate is validated versus a panel of 9 drugs for >80% drug recovery at 10 µM concentration in 5% DMSO/PBS. Example results at 1 µM drug are shown in Figure 2.

Filtration-based Solubility Results in Less than 4 Hours

The MultiScreen Solubility filter plate is tested to ensure reliable, discrete filtrate transfer with no cross-talk. The plate can be incubated for 6 hours or longer with shaking and have no drip out. As soon as vacuum is applied, the wells empty in less than 1 minute.

Protocol



1. *Add compound dissolved in organic solvent to aqueous buffer.*
2. *Shake for 90 minutes to allow insoluble compound to precipitate.*
3. *Apply vacuum to filter solution into collection plate. Precipitates remain on membrane. Analyze filtrate in collection plate to quantitate amount of compound still in solution.*

Performance

Results Correlate to Shake-flask

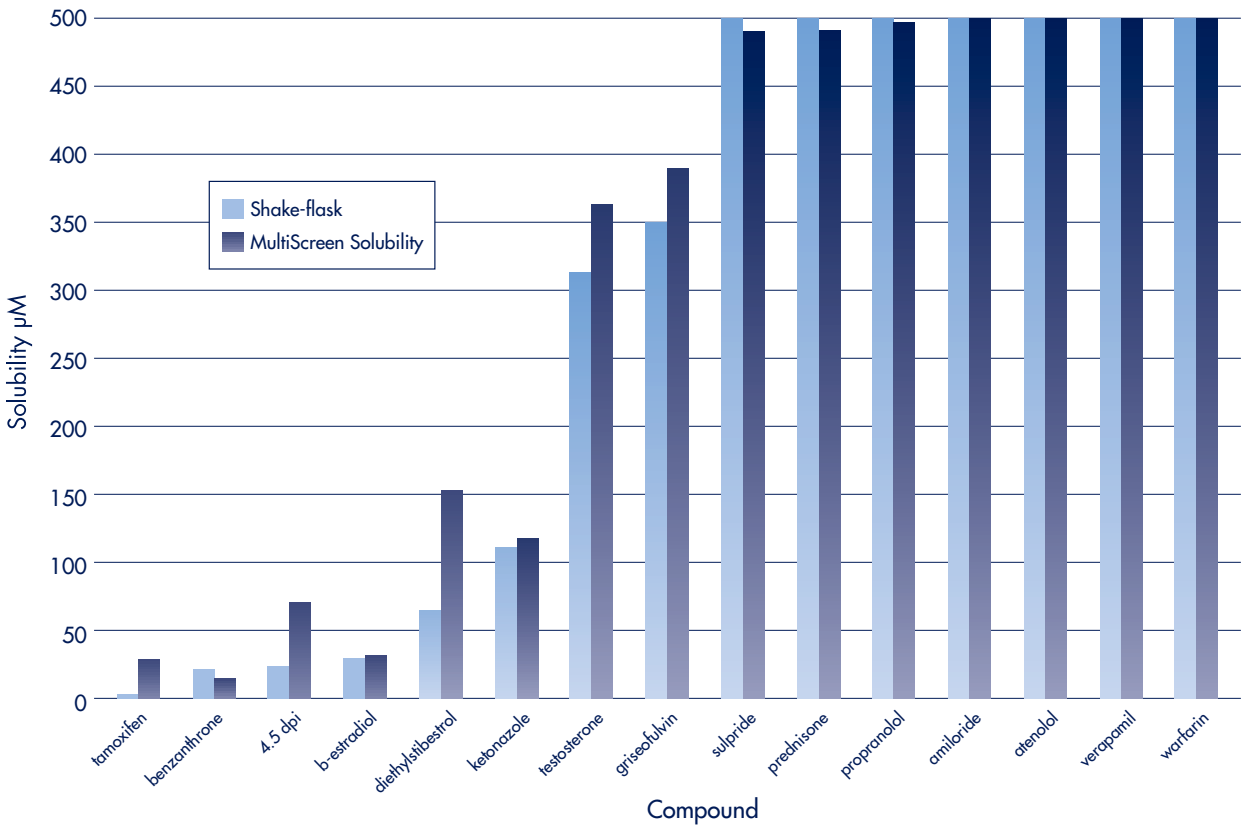


Figure 1. *Fifteen (15) compounds were evaluated by an ASTM Shake-flask method and a protocol using the MultiScreen Solubility filter plate. Shake-flask solubility was determined for solid compounds added to PBS. MultiScreen Solubility filter plate results were determined for 10 µL of 10 mM DMSO stocks added to 190 µL PBS for a final DMSO concentration of 5%. The maximum concentration on the Y axis is given as 500 µM due to the MultiScreen Solubility filter plate protocol that has an upper limit for the amount of compound added.*

High Drug Recovery

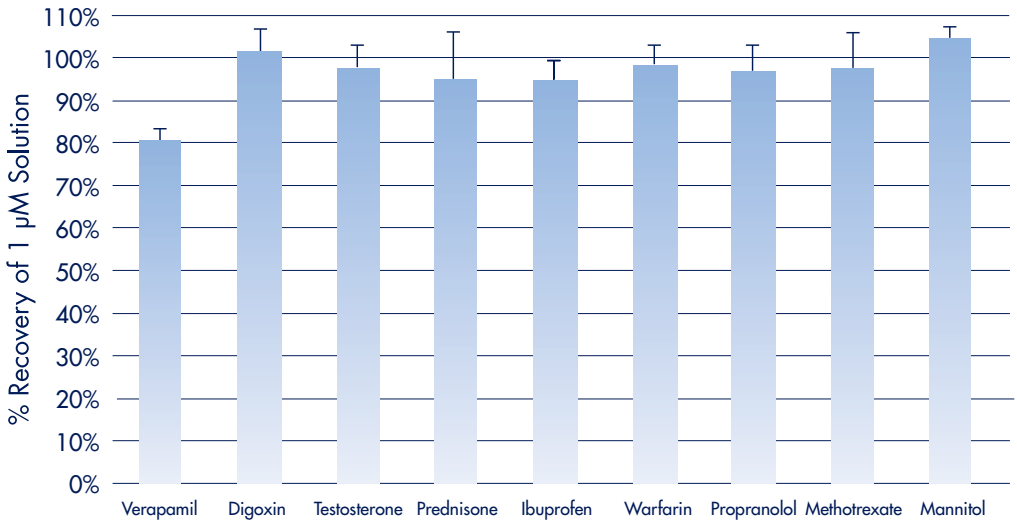


Figure 2. *Soluble drugs were dissolved in 5% DMSO/PBS at 1 µM, incubated in the MultiScreen Solubility filter plate and filtered into a receiver plate. The results are reported as percent drug recovery as determined by radiometric analysis.*

Reproducible Results

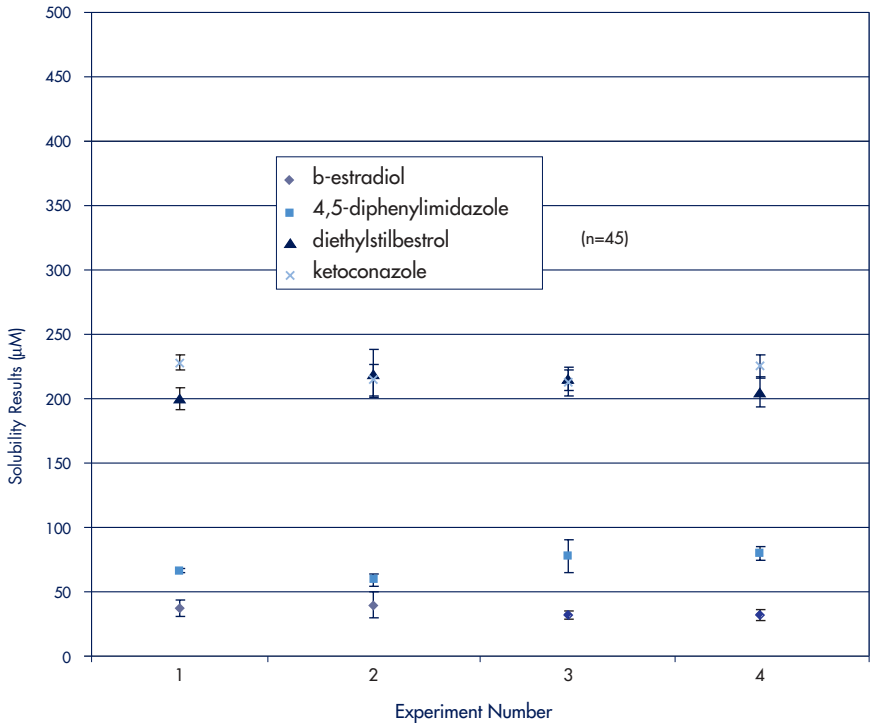


Figure 3. *Four compounds were analyzed in 45 wells per plate, 2 plates each over a 4 day period. The average and standard deviation from a given plate on a specific day is plotted in µM units.*

Ordering Information

Each MultiScreen Solubility filter plate includes a lid and a 96-well filter plate.

Description	Qty/Pk	Catalogue No.
MultiScreen Solubility filter plate	10	MSS LB PC10
Required Equipment		
Millipore Vacuum Manifold	1	MAVM 096 0R

Related Literature

Application note AN1730EN00: Quantitative method to determine drug aqueous solubility: optimization and correlation to standard methods

Application note AN1731EN00: Performance and correlation of a 96-well high throughput screening method to determine aqueous drug solubility

Protocol note PC2445EN00: Determination of aqueous compound solubility using a 96-well filter plate to remove precipitated solids prior to UV/Vis spectroscopic analysis

To Place an Order or Receive Technical Assistance

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