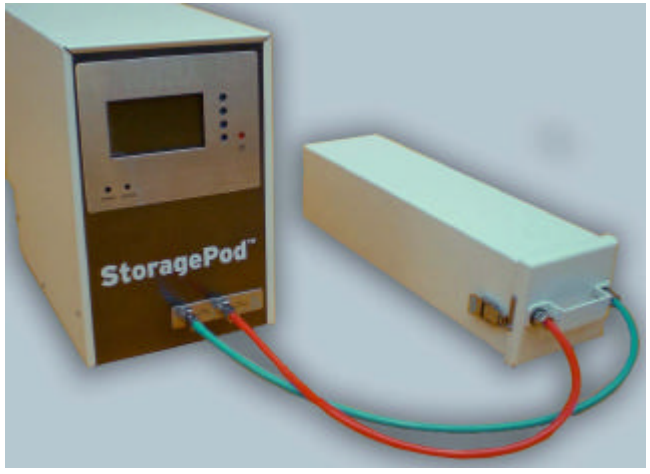
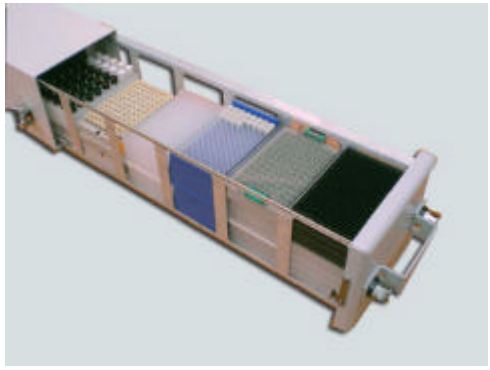
StoragePod™ Evaluation





Customer Data

Notes

- The following data was produced from a customer evaluation of the StoragePod™ system using low volume plates for acoustic dispensers. The customer was experiencing significant problems with rapid moisture absorption resulting from the low volumes used in their plates
- 7ul and 5ul volumes were used in the 384 well and 1536 well plates respectively
- In this test the customer purged the StoragePod™enclosures to oxygen and humidity thresholds of 2%. The results were extremely good, but they could have been improved by purging to lower threshold levels. The StoragePod™ Station can purge to a threshold of 0.1%
- 4 plate/seal configurations were tested in the StoragePod™enclosures , using both 384 well and 1536 well plates. Unsealed (open) plates, plates with the Labcyte (micro-climate) lid, plates sealed with a peelable foil seal and plates sealed with a combination of the peelable foilseal and Labcyte lid

Notes

- The data shown compares lidded and sealed/Lidded plates as this was most meaningful to the customer. Other Excel based data generated by the customer shows that the performance with the open plates matched those of the plates sealed with the Labcyte lid

Our Conclusions

Conclusions we have drawn from the test data are:

- The labcyte lids were not having much effect in storage. Indeed, open plates could be stored in the StoragePod™ enclosures with the same result
- Moisture absorption in the StoragePod™ enclosures was minimal and could have been further reduced with increased enclosure purging to a lower threshold level (below 0.5% oxygen and moisture thresholds).
- A drying effect was identified for moisture contaminated DMSO
- Comparing DMSO increase VS the moisture reduction, the data suggests that no DMSO was evaporating in the dry StoragePod™enclosure conditions

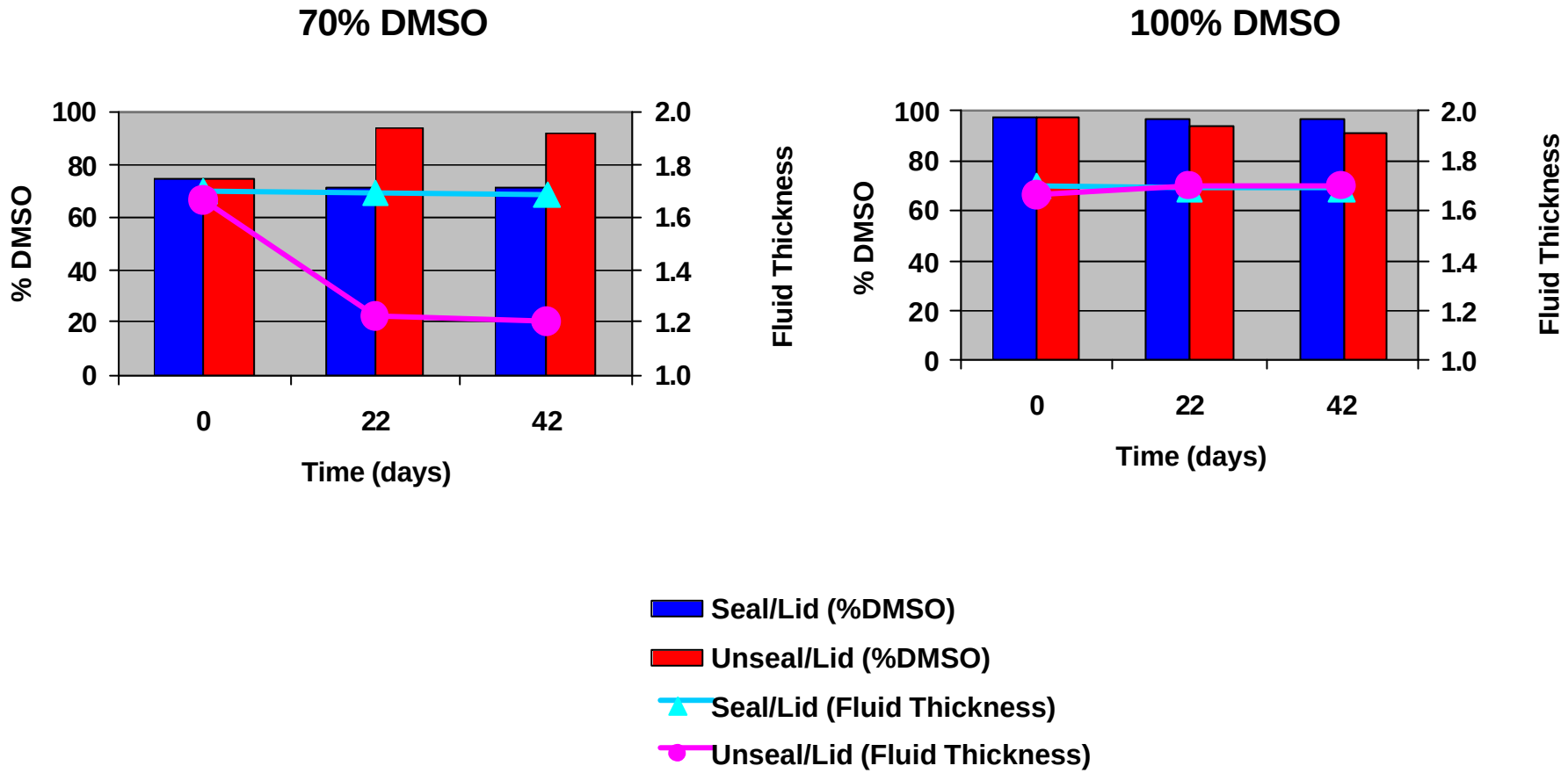
Customer's Objectives

- To evaluate the Roylan StoragePod™.
- To explore various storage conditions.
- To determine if storage of compound plates in a controlled environment eliminates or reverses water uptake.

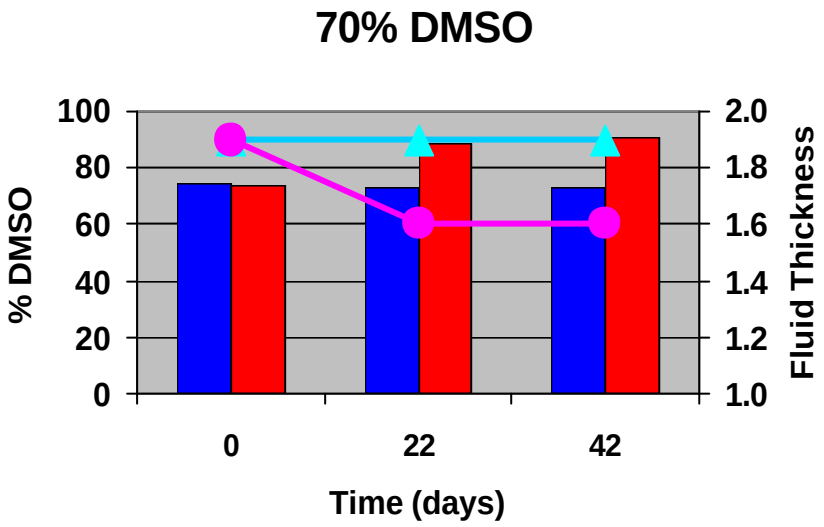
Method

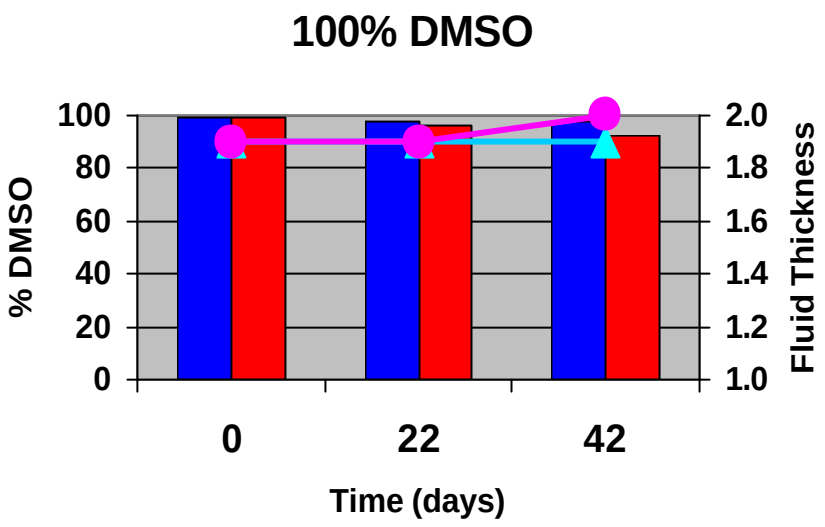
1. Fill 384- and 1536-well Echo source plates with both 70% and 100% DMSO
    1. sealed, unsealed, sealed/lidded, unsealed/lidded
2. Survey plates with Echo and record data (T=0)
    1. Echo reports %DMSO and fluid thickness (volume)
3. Store a copy in POD enclosure, room temperature and 4°C for 2 weeks
4. Repeat steps 2 and 3 at T=22 and 42 days

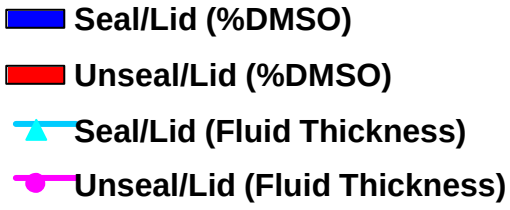
384well Stored in POD



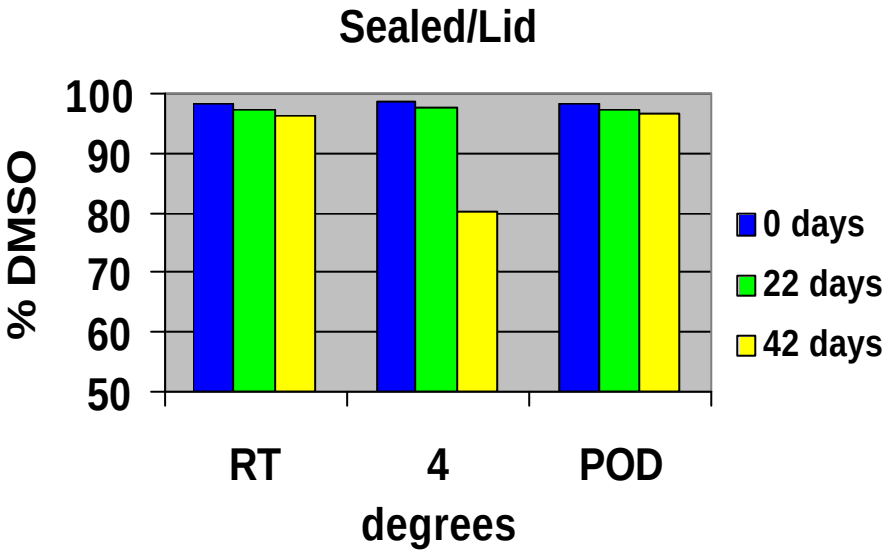
1536well Stored in POD

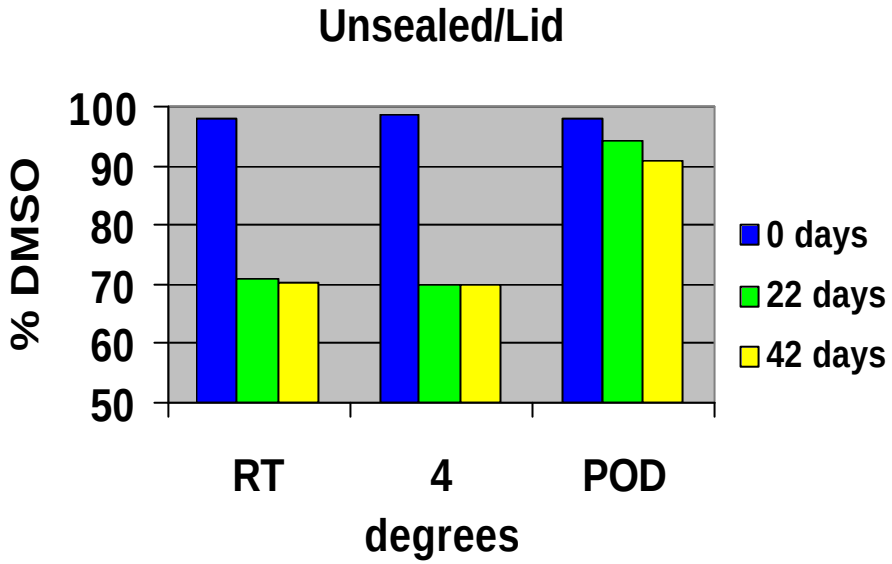




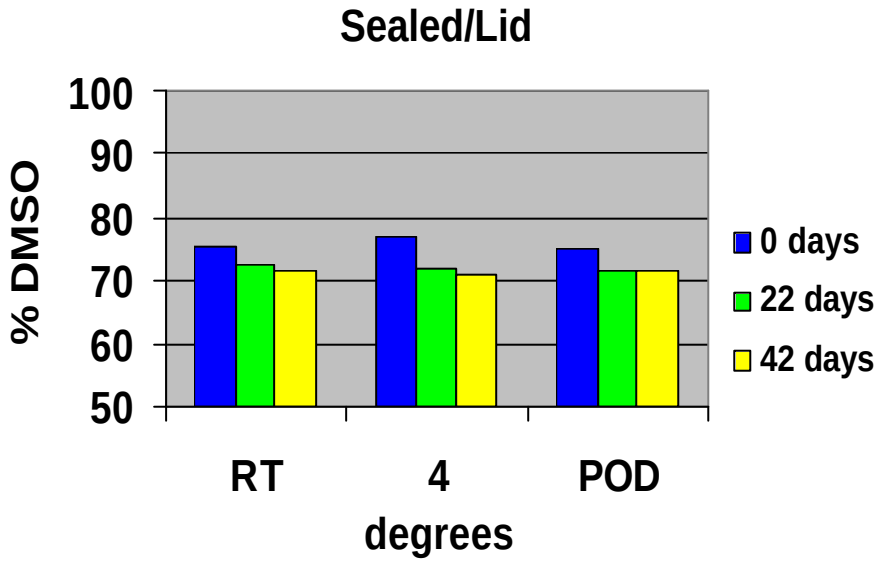


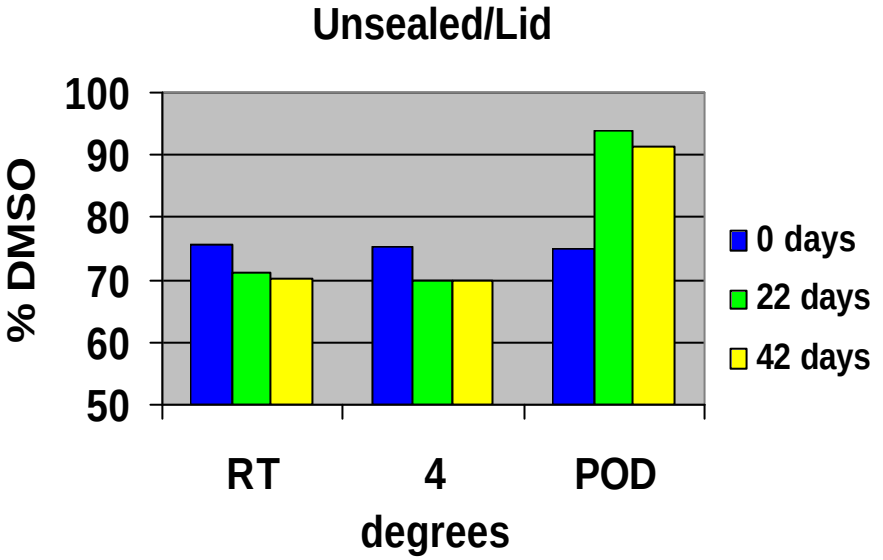
Storage Condition Comparison
384well 100% DMSO



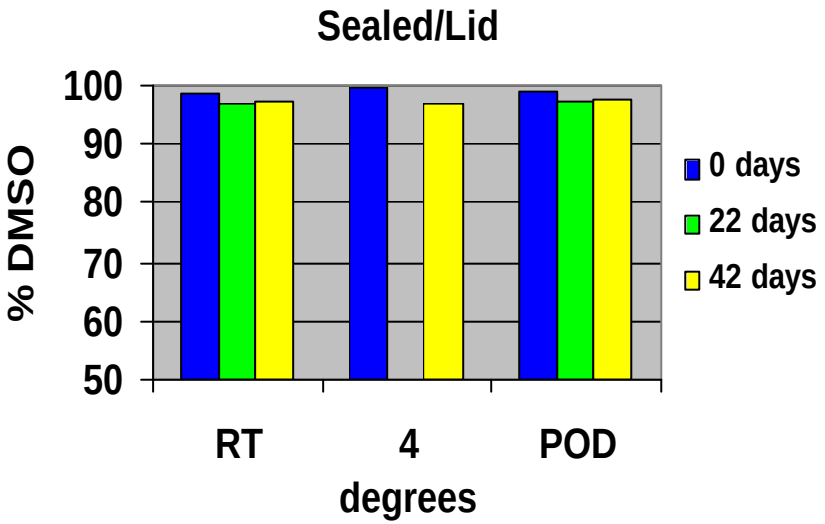


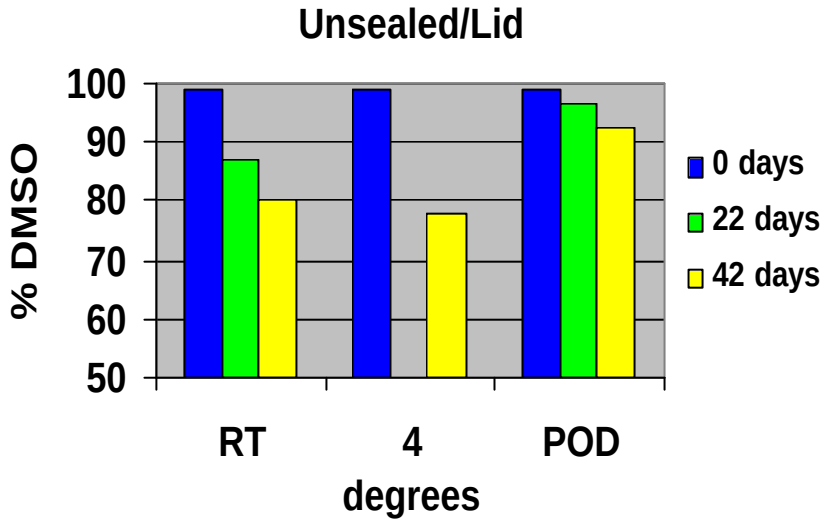
Storage Condition Comparison
384well 70% DMSO





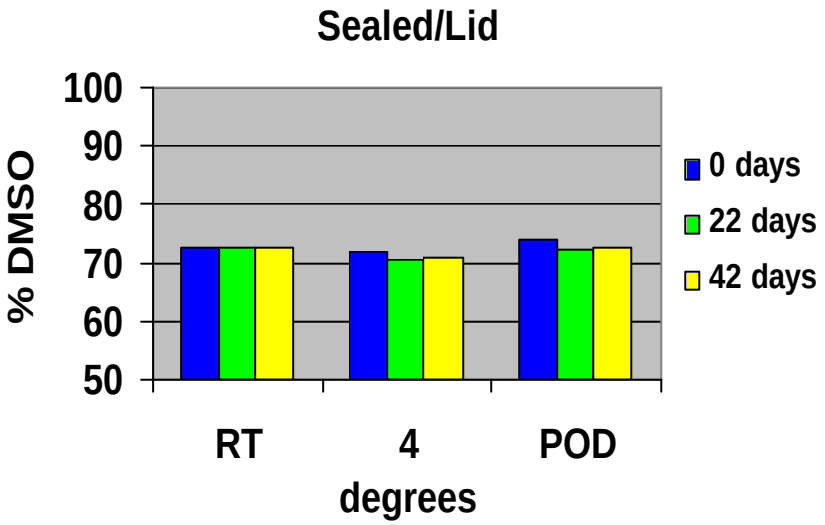
Storage Condition Comparison
1536well 100% DMSO

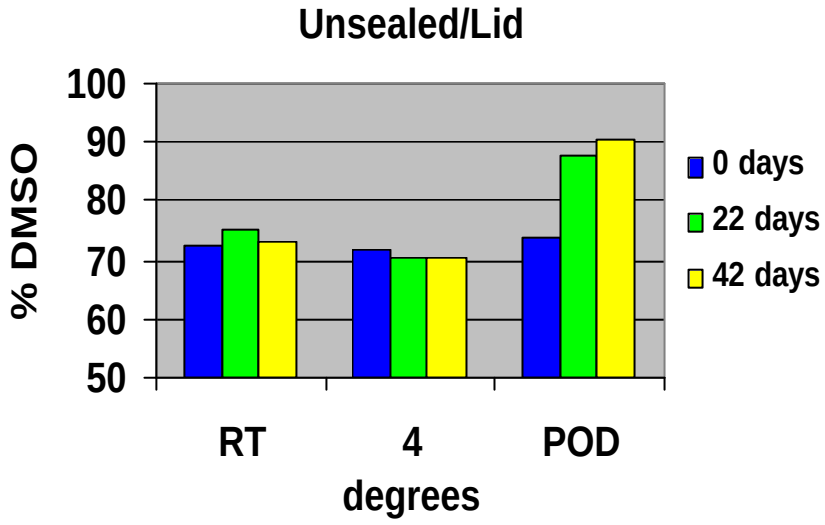




*note that the 4 degree data at 22 days was compromised due to condensation on the plate and lid. The data was invalid and therefore not reported.

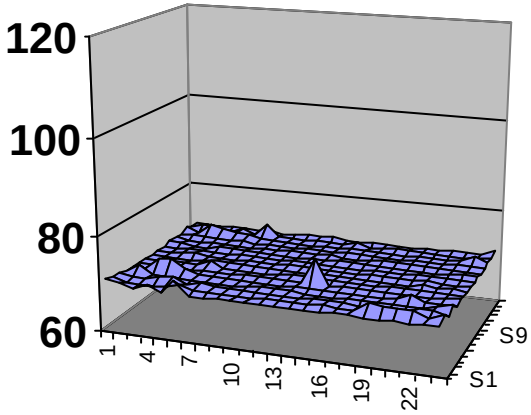
Storage Condition Comparison
1536well 70% DMSO



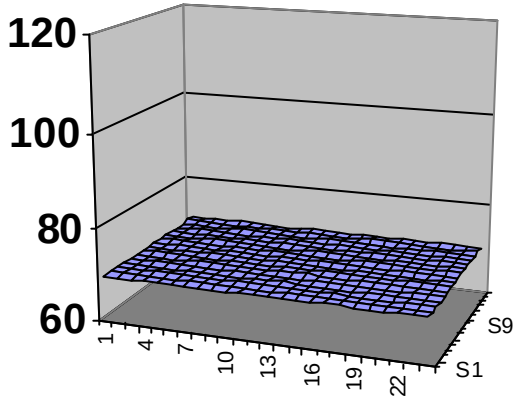


Surface Graphs
Unsealed Lidded
384well 70% DMSO at 42 days

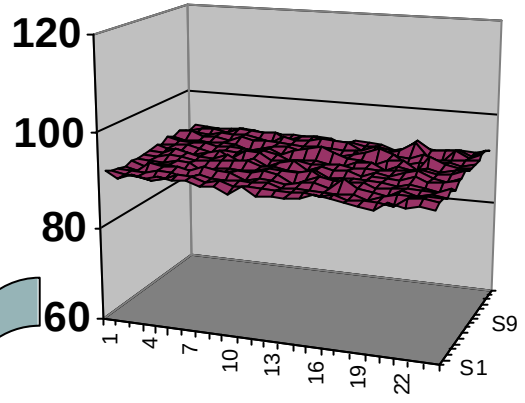
RT



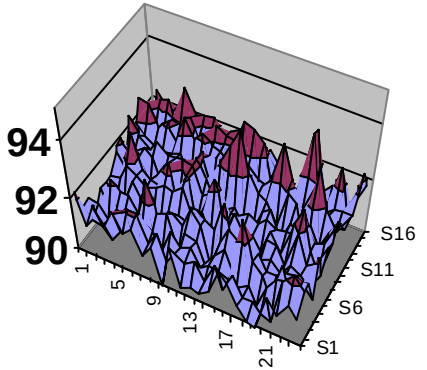
4 degree



POD

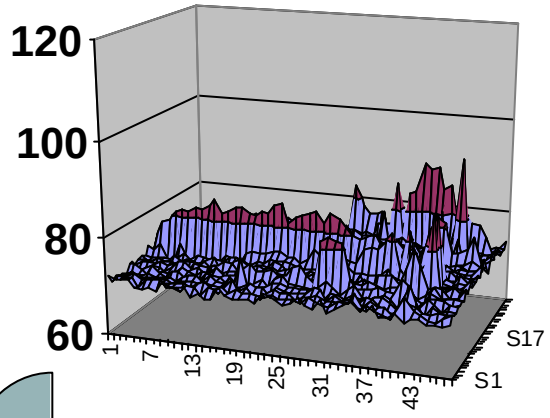


blowup

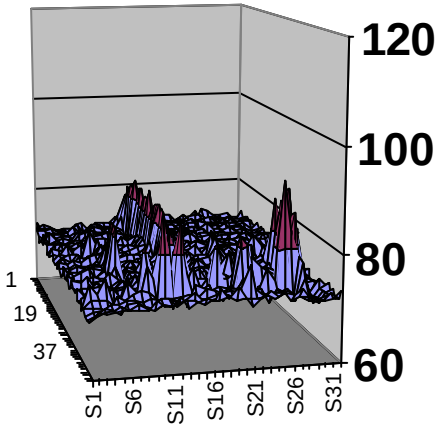


Surface Graphs
Unsealed Lidded
1536well 70% DMSO at 42 days

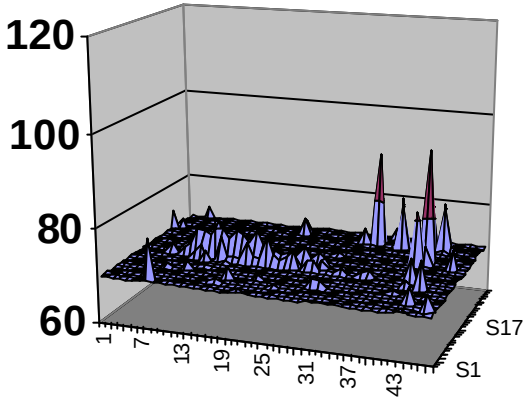
RT



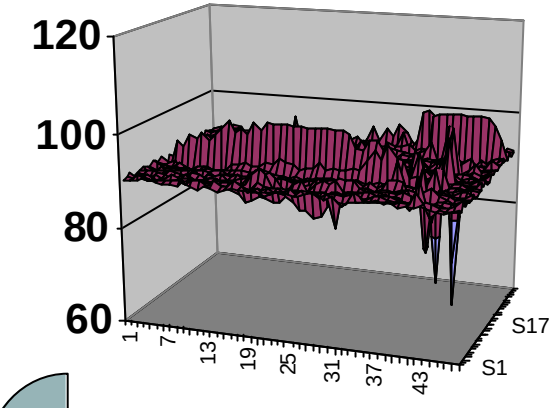
blowup



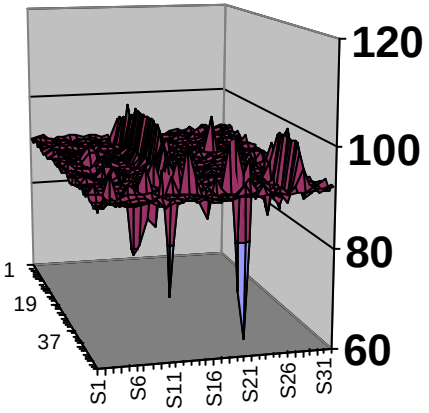
4 degree



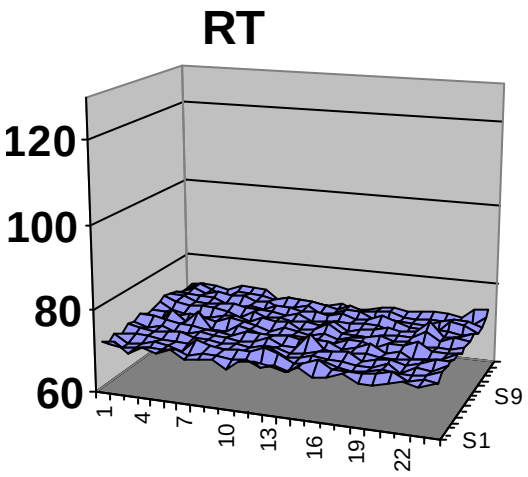
POD

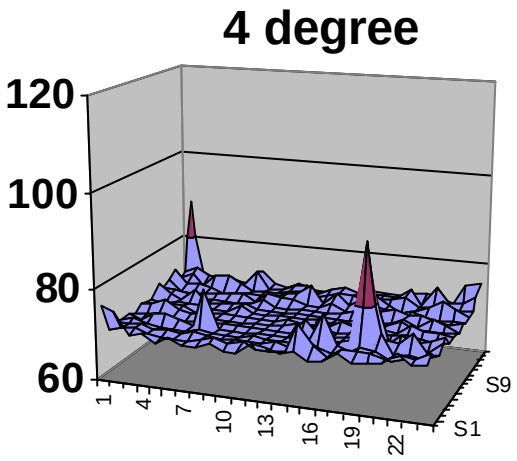


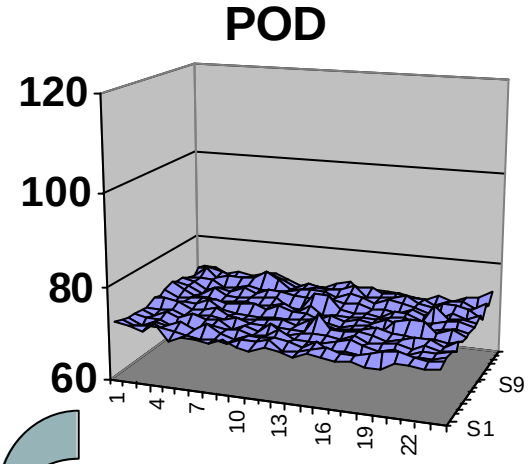
blowup

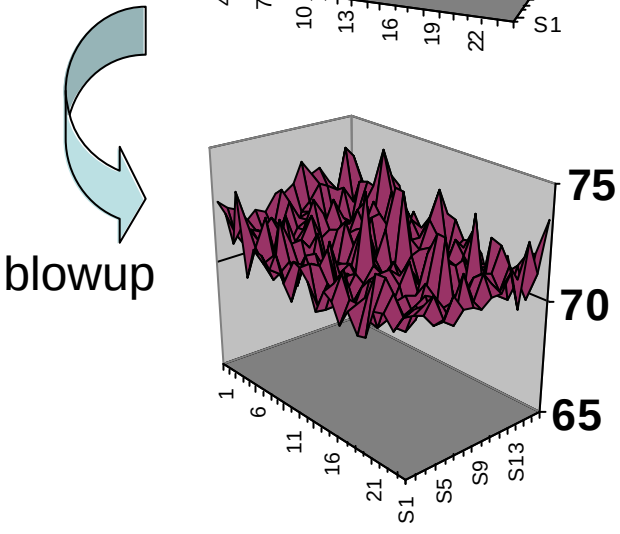


Surface Graphs
Sealed Lidded
384well 70% DMSO at 42 days



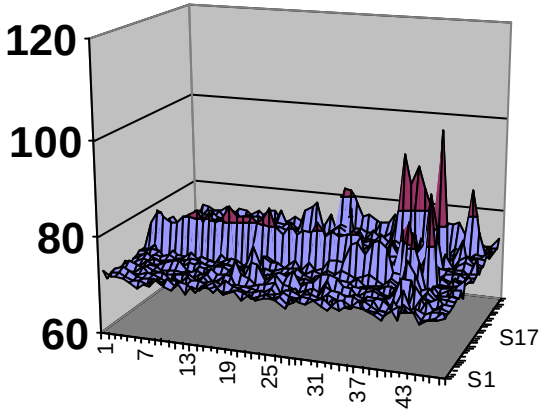




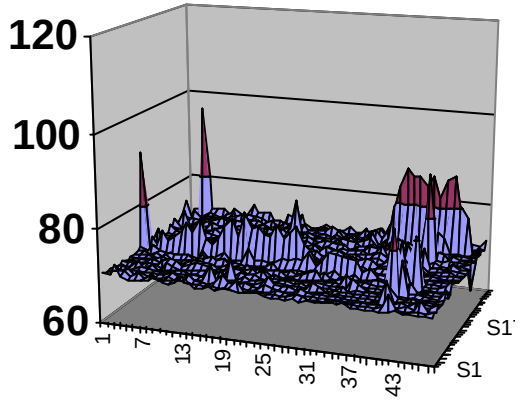


Surface Graphs
Sealed Lidded
1536well 70% DMSO at 42 days

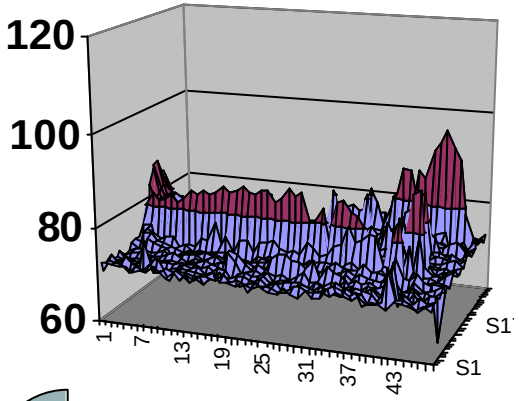
RT



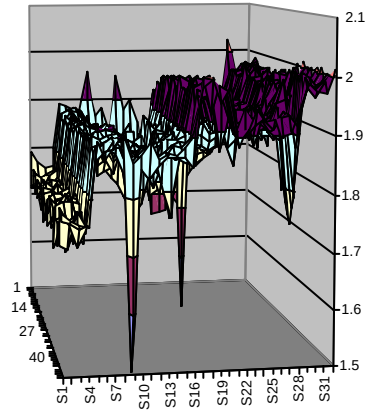
4 degree



POD

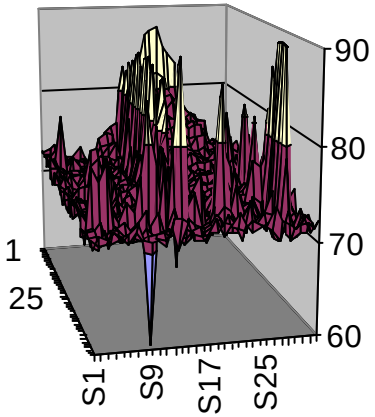


Surface graph of fluid thickness



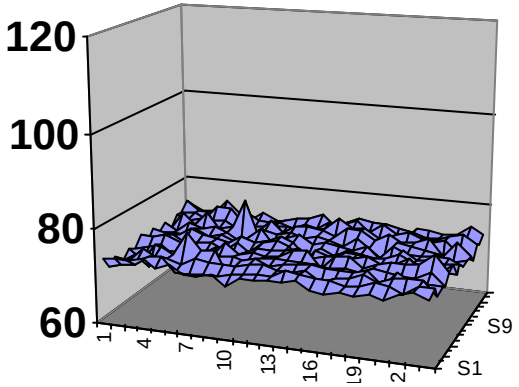
An investigation into the fluid thickness to see if there was any correlation to the pattern. None was found.

blowup

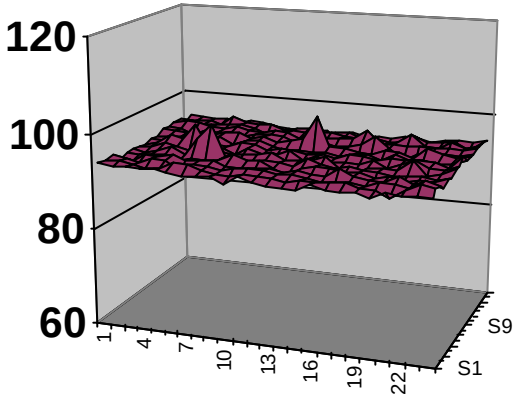


Surface Graphs
Unsealed Lidded
384well 70% DMSO POD

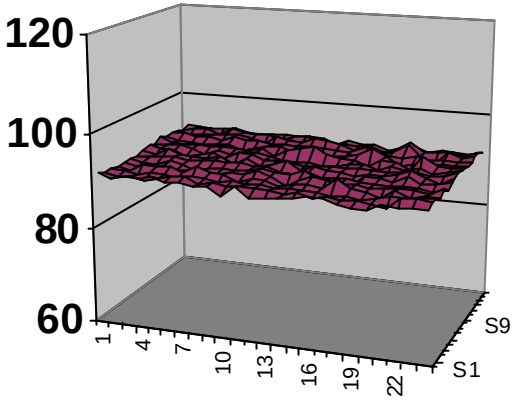
T=0

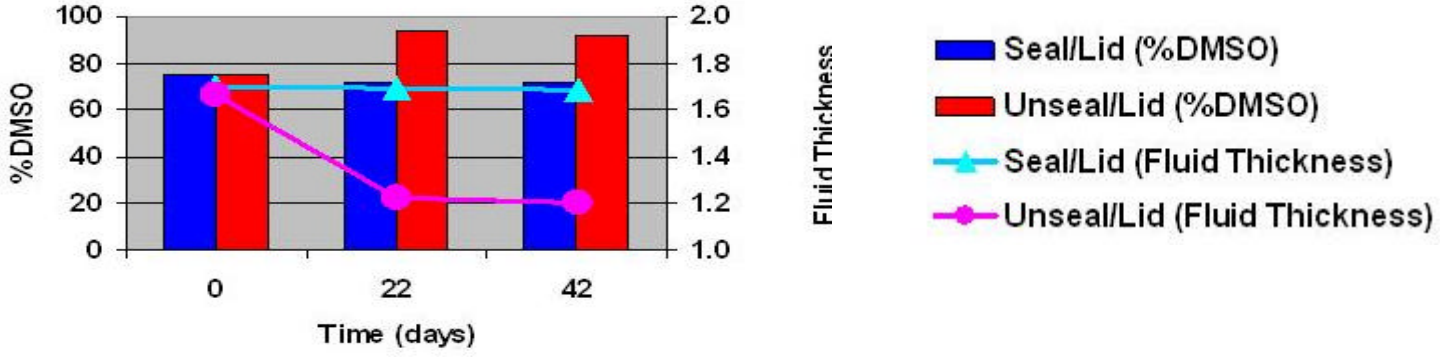


T=22



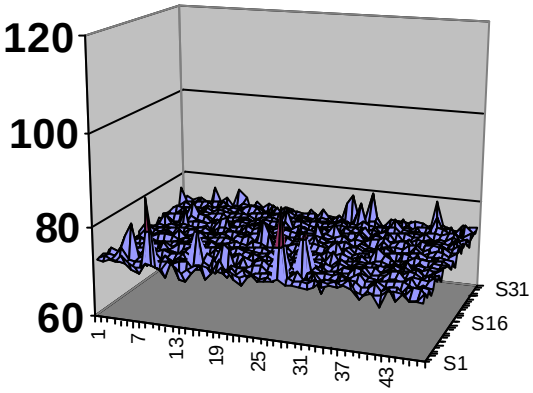
T=42



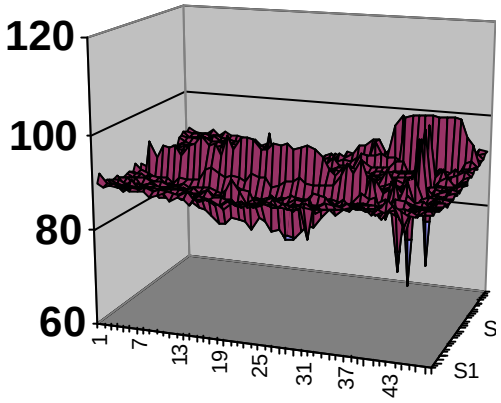


Surface Graphs
Unsealed Lidded
1536well 70% DMSO POD

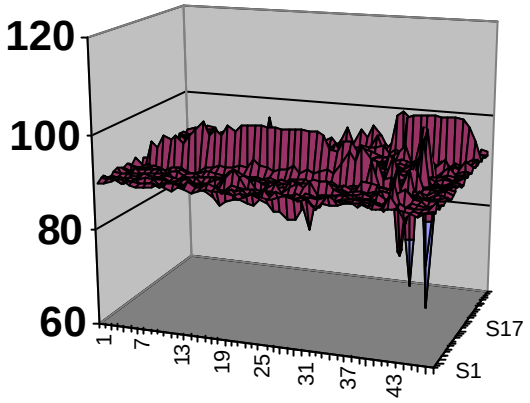
T=0

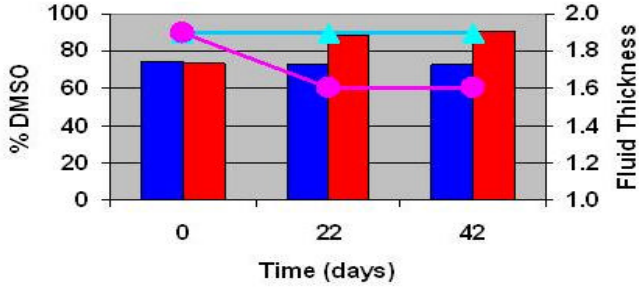


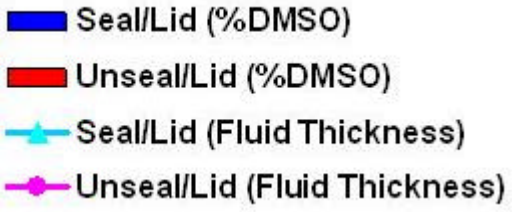
T=22



T=42





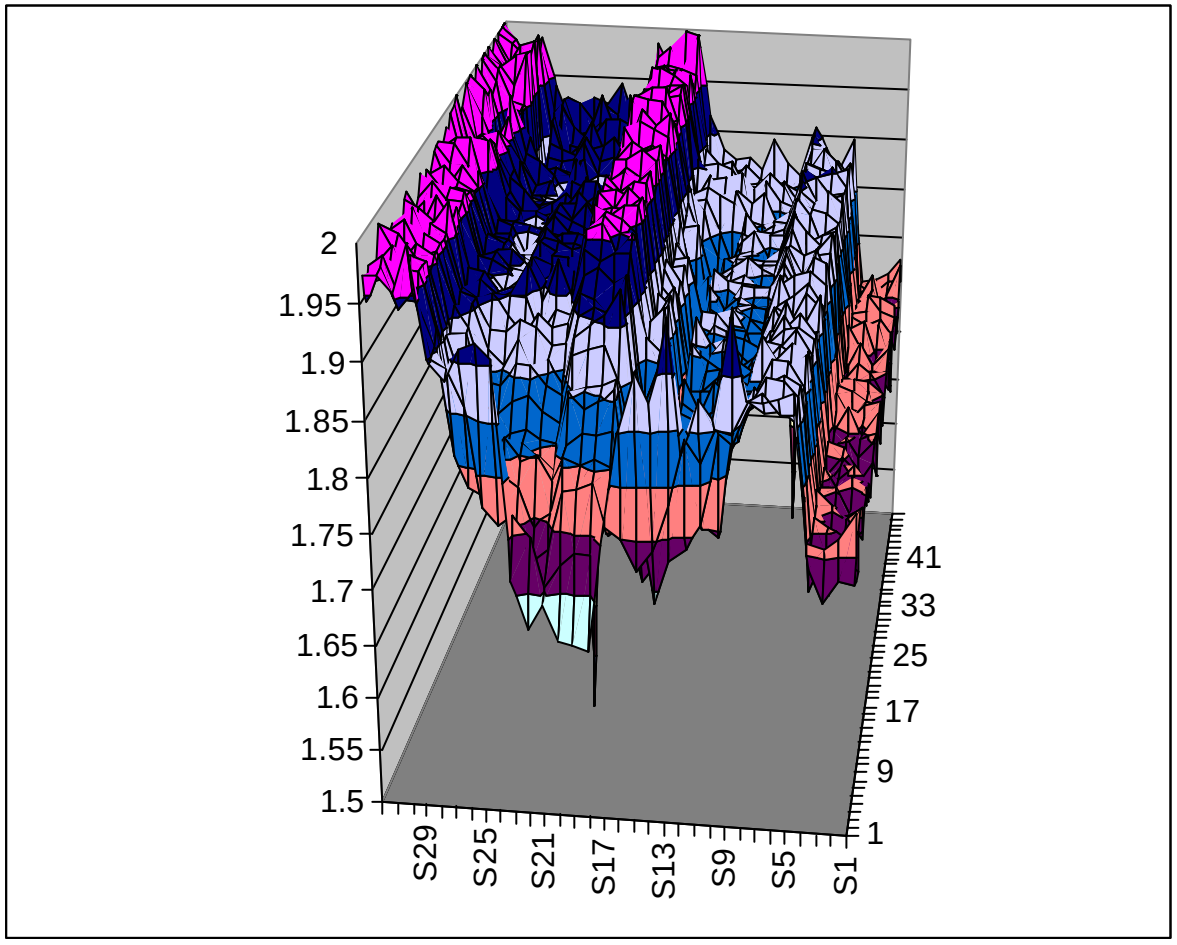


Summary

- Sealed, lidded plates stored at RT or in POD take up relatively little water up to 42 days. Storage at 4 degrees revealed moisture exposure and water uptake by 42 days.
- Unsealed, lidded plates stored at RT or 4 degrees begin to take up water by 22 days. Storage in the POD is preserved.
- The POD can has the ability to remove moisture from samples exposed to water in the atmosphere.

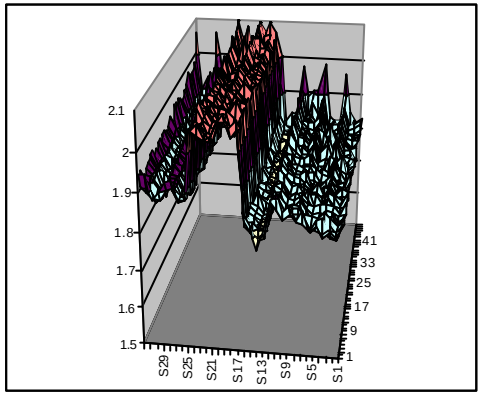
Backup Slides

Sealed lidded POD FT 42 days 70%

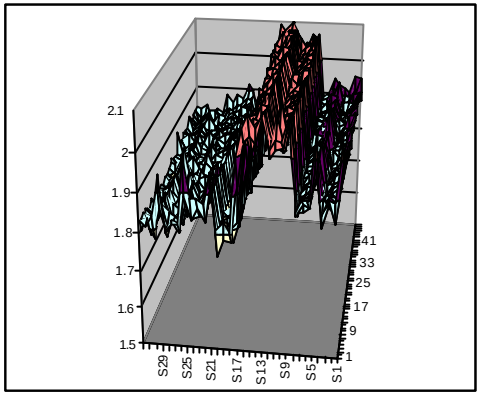


Fluid Thickness 0 days 100%

Survey in normal orientation



Survey same plate in 180 deg orientation



After the evaluation was complete, a fresh plate was dispensed.
The fluid thickness pattern was investigated to determine the root cause.
The conclusion was that it was due to the dispenser.