Custom BioGenic Systems

Tech Guide #6

CBS Isothermal -190°C Dry Storage Freezers
5 Minute Lid Open Temperature Study

August 17, 2009

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Study

This study illustrates how the temperature inside your CBS Isothermal Freezer will be affected when the lid is opened for a period of 5 minutes.

To monitor the liquid nitrogen vapor temperature, six temperature probes were placed at various levels in an aluminum freezer rack (see slide #3).

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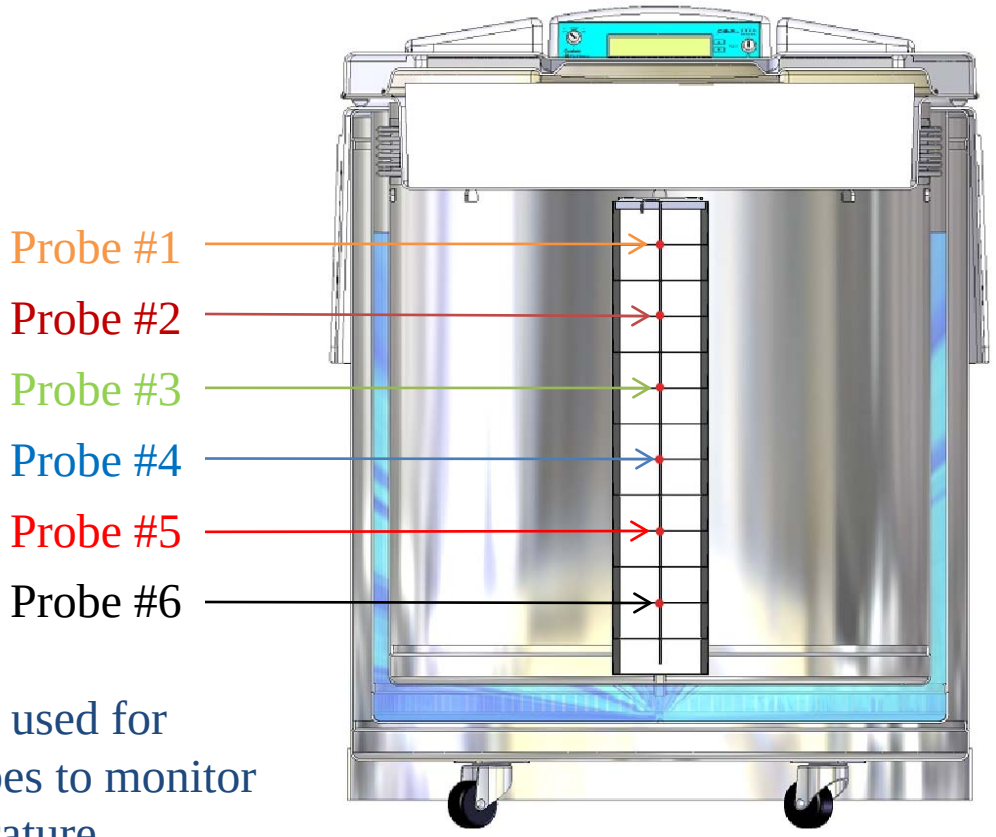
Probe Placement



An aluminum freezer rack is used for attaching 6 temperature probes to monitor liquid nitrogen vapor temperature. Spacing between the probes is approximately 4 inches (10 cm).

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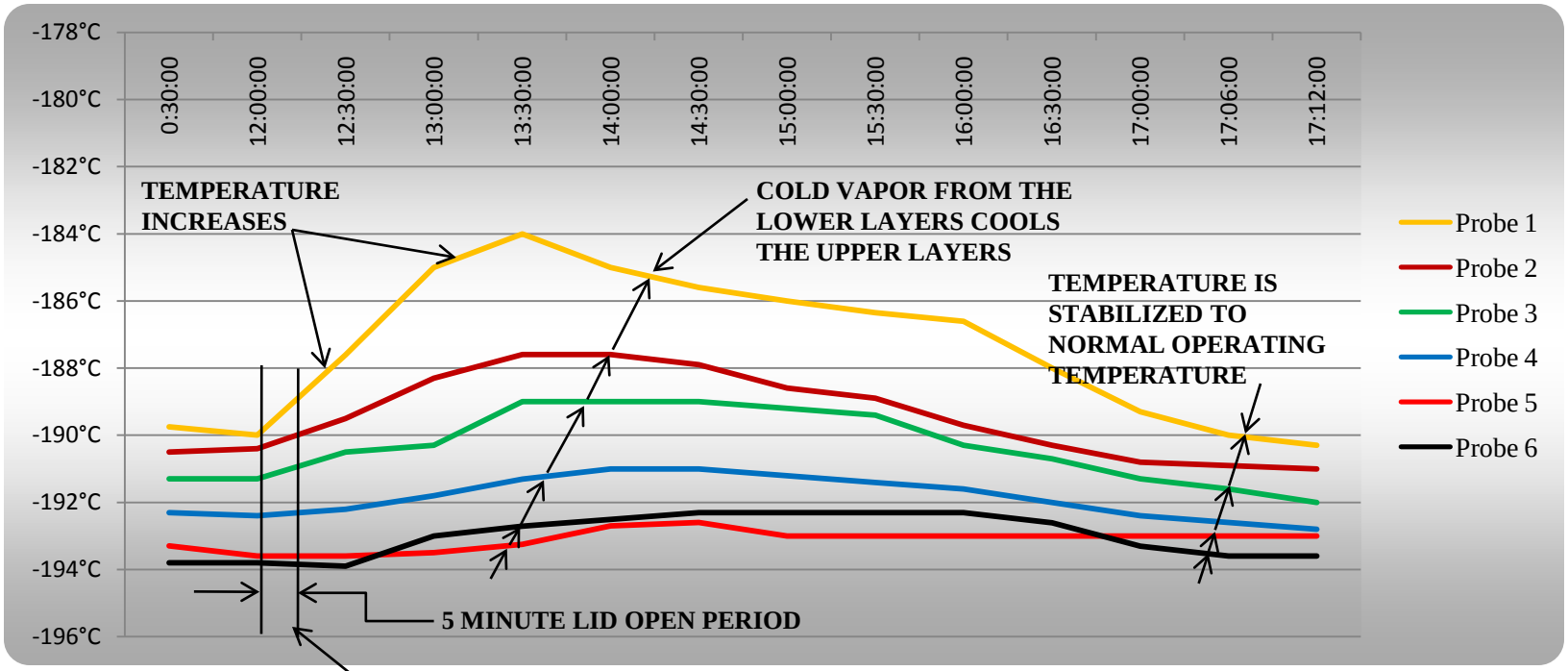

Freezer lid is opened.
Items are stored or retrieved.
Lid is closed.

6 Temperature probes are placed in a 13 shelf aluminum freezer rack, equally spaced from top to bottom.

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Conclusion

This study shows that opening the lid of your CBS Isothermal Freezer for a period of 5 minutes will cause the temperature at the top of the freezer (probe #1) to increase slightly for approximately 1 hour, staying below -180°C. Your freezer will then return to the normal operating temperature in the -189°C range.

The temperature of the other 5 probes increases very little, ranging between -188°C to -192°C . Therefore, 85% of the freezer storage space remains below -186°C and only the top15% of the space will be slightly warmer in the -182°C range.

This study provides temperature data that confirms samples stored in a CBS Isothermal Freezer will be well below critical temperatures.

Although these temperature fluctuations are small, the lid open time should be kept to a minimum.

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Thank you for choosing Custom BioGenic Systems

For more information please visit www.custombiogenics.com
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