

Document Title: Description, AN, SafeStorage		Part # and Rev. 13377	
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Rev.	Description	Revision By	Date

Production Filename: 13377 (In Product Library)

Path to Working Files: DecaDoc\Application Notes\Master\Description

Dimensions: 8.5 inch wide, 11 inch tall

Material: Paper, 92 Bright White or better, 75g/m² or heavier

Colors: Color Print on White

Printer: HP Color LaserJet 8550-PS

Finish: None

Adhesive: None

Special Notes: Illustrations are Ref Only ** Not to Scale **



Application Note

The SafeStorage System

Water activity has long been recognized as an important component of product quality and safety. Decagon Devices' AquaLab water activity instrument is the industry standard for measuring water activity. The AquaLab is a powerful benchtop water activity instrument that is effective in determining the water activity of products post production. But what is happening during storage and shipping? If abuse-type conditions such as high humidity or high temperature occur during storage and/or shipping, product quality, safety, and shelf life may be altered.

Because shipping and storage conditions are often changing, it is difficult to monitor water activity and temperature with single spot tests. Consider a product that is tested and found to be acceptable, but is then exposed to abuse conditions and spoils several days later during storage. Since there are no test results that indicate that the batch has spoiled, the product is shipped to a customer, found to be spoiled, and immediately rejected with a note to not buy from that supplier again. If the test had been conducted after the exposure to abuse conditions, the product would have been deemed unacceptable and the problem avoided. However, spot testing did not and in most cases will not discover storage and shipping problems. A system that can log water activity (relative humidity) and temperature over time is needed to make it possible to know exactly when conditions became unsafe.

In response to the need to be able to log water activity over time, Decagon Devices, Inc. introduces the SafeStorage System. The SafeStorage System consists of a 5-channel data logging SafeStorage Monitor, which records water activity and temperature data from up to 5 SafeStorage probes. The probes are small and versatile sensors with 10 ft. of cable that can be extended to 110 ft. The probes can be mounted anywhere to record water activity (relative humidity) and temperature. They can be inserted into a package either over or in a product (resealing the hole with vacuum grease and packing tape), inside a storage warehouse to record humidity conditions, inside a shipping container to record conditions during shipment, or inside a grain bin to monitor storage conditions.

The SafeStorage Monitor will collect and store data from the probes at preset time interval (minutes, hours or days). Data is downloaded from the logger by either serial or radio connection to a computer and analyzed using the DataTrac software. The software presents water activity and temperature data in both table and graphic form. View preferences can be toggled between water activity and relative humidity, while temperatures can be viewed in either Celsius or Fahrenheit. The software also makes it possible to set up target zones for both water activity and temperature and view the zones graphically. The target zones are highlighted by different colors, making it easy to determine when conditions have become unsafe.