

**ABSORBENCY OF AGM
WHILE UNDER COMPRESSION**

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Abstract

The absorptive characteristics of AGM were tested in uncompressed and compressed states, and in both horizontal and vertical positions. Total mass absorption and absorption rate data were collected. (could probably use more here)

Introduction

The M/K Systems Gravimetric Absorbency Testing System (GATS) is a highly sensitive demand wettability instrument that was adapted for use in the testing of AGM battery separator materials. It is designed to simulate actual usage as much as possible, in order to provide a realistic assessment of the behavior of separator materials, and the effects of changes to those materials. The modified instrument can work with water or acids.

Function of the Instrument

An electronic balance with three-decimal (0.001g) sensitivity is the heart of the system. A reservoir containing the test liquid is placed on the balance. The reservoir is attached to the test plate on which the sample to be tested rests. Flow from the reservoir to the sample is initiated by two different methods, depending on the type of test plate being used. To offset the effects of gravity, there is a vertical leveling mechanism that lowers the test plate at the same rate that the fluid in the reservoir drops. This allows for a true picture of the actual absorptive demands of the material being tested. Once the data are collected, they are downloaded to a PC and displayed in whatever manner desired.

Objectives of the Tests

These tests were designed to investigate the behavior of battery separator materials in an unrestricted absorption environment, as well as under varying pressures. By establishing a database of absorptive behavior for the raw material, comparative tests of the materials under pressure could be made. An examination of the differences in behavior of various materials under these different operating conditions could then be achieved.

**Modifications and Methodology for
Battery Separator Tests**

The tests were done with a porous plate, a wicking test platform, a battery plate simulation mechanism, and a variety of weights to simulate AGM function under pressure.