



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Who Wins? AGM VS. ACID

Finalist's Name: Maddy Witt

School and City: Limon High School- Limon

Sponsor's Name: Becky Thompson

Category: Energy

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

People need reliable automotive batteries and should know which type of battery performs best in different temperatures. Research shows that AGM batteries will perform better than acid batteries in different temperatures. This experiment will analyze both batteries in different temperatures.

My experiment tested a new AGM battery and a new acid battery in different temperature environments. I also tested the performance of the batteries with a work light attached. The cold test involved placing each battery in a freezer for 24 hours. The heat test involved each battery being placed in a heated box for two hours. The light test involved connecting a work light to the batteries for two hours. Voltage and amperage were checked after each test.

Results showed that both batteries performed equally in voltage and amperage after the light and heat tests. Following the cold test there was a difference seen in amperage for both batteries. The amperage test showed a drop by 162 CCA for the AGM battery, but only a 80 CCA drop for the acid battery.

My hypothesis stating that the AGM battery would perform better in different temperatures is not supported by the results. Based on the results of my testing, neither battery performed better during the light or heat test; however, the acid battery performed better in amperage during the cold test. Based upon these results, the acid battery appears to be the better recommendation for traveling in cold climates.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**