

IMPROVE AIR EXIST SYSTEM IN N-100 amp. AUTOMOBILE BATTERY

^[1]Parth Brahmabhatt, ^[2] Dr. Rajeev Vaghmare

CENTRAL INSTITUTE OF PLASTICS ENGINEERING AND TECHNOLOGY, AHMEDABAD-382445

ABSTRACT

The purpose of this investigation is to determine, to determine, from the samples that were given to me by several Automobile battery manufacturing companies, Making It the safest battery, As per current scenario 22% of total battery are explode & fail in test which was conducted by CPRI (Central power Research Institute). Automobile battery Manufacturing Company are facing Production rejection cost & trust of their customers in this challenging market. Reasons of blast in battery are mainly improper exhaust of air, Hydrogen reaction, impurity But, As per test result due to improper ventilation system major battery are exploding. Company currently using simple block of vent with just minor tolerance gape to pass air outside but it cannot prevent acid which filled inside. Sometimes acid leakage also causes problems. Current market required such plastic material or other product which can easily exhaust air & also prevent acid leakage or That Material Do not pass acid outside & also withstand excellent with quality certified by test.

1. INTRODUCTION

The battery is the essential "source" of electrical vitality on vehicles. It stores chemicals, not power. Two distinctive sorts of lead in a corrosive blend respond to create an electrical weight. Batteries are used whenever electrical energy is needed, but there is neither a direct connection to the public electricity grid nor a generator-based stand-alone supply. Batteries store electrical energy as chemical energy. During discharge, the chemical energy is re-converted into electrical energy. Depending on the battery system, this process is either irreversible or reversible. There are two types of batteries: 'primary batteries' and 'secondary batteries'.

2. EXPERIMENTAL WORK

- Polypropylene & silica is the suitable material for this application. PP-SiO₂. The PP-SiO₂ particles had irregular particle morphology & the aggregation formed among the particles.
- Compounding & Mixing Firstly, addition of silica ratio is more important in this survey. Process fail in different stages as processed with different ratio. Finally, after selecting material precaution mixing making essential role in this process. Batch mixer used to mix this & filler also added for better result. Especially filler is added 0.5% PP ratio & Silica ratio would be 70:30 %. All chemicals are analytical reagent and used as received without any further purification. By using compression molding machine at set temperature around 220°C & purging batch with finally process completed for making silica / PP sheet. Adding paraffin oil for better bonding with various batch processed.

TABLE 1: COMPOSITION OF BATCHES

Sr. No.	Polypropylene (PP) %	Silica %
1	100	0
2	95	5
3	90	10
4	80	20
5	70	30

- As per required diameter its plan to fix punch accordingly for better result. After all finally this filter fixed in position & ultrasonic welding occurs. By applying this technique gas permeability index works higher in exist ratio.

3. RESULTS

Gas Permeability Test:

Rate at which a gas or vapor goes through a polymer is known as Gas Transmission Rate of particular polymer or our blended material.

It consists following 3 procedures:

- ✓ Absorption of the penetrating species into the polymer
- ✓ Diffusion through the polymer
- ✓ Desorption of the penetrating species from the polymer surface and evacuation.

The virgin oriented Polypropylene's Oxygen Transmission Rate @ 0% RH is 2526 cc/m².day. At 23° C.

As per my Experiment I have made 5 batch of blend of Polypropylene & Silica at different proportion. In all above batch I have added paraffin oil for compatibility of blends. The different proportion are mention below,

TABLE 2: TEST RESULTS

Sr. No.	Polypropylene (PP) %	Silica %	OTR cc/m ² .day. at 23° C
1	100	0	2526
2	95	5	2854
3	90	10	3545
4	80	20	3840
5	70	30	4054

So with the help of above OTR data, we can observe that by increasing % of Silica in Polypropylene the Oxygen Transmission rate increases. So Batch No. 5 is optimum result we have got which we can use it in battery container. And we have tested our samples of all 5 batches at declared that 5th Batch is optimum for the application of Battery Containers.

4. CONCLUSION

After studying and working on its operations and material the solution has been found to overcome its limitations. Firstly, addition of silica & pp makes the product more gas permeable. As on working with five different batch finally I found the best solution with process detail data. The incorporation of PP and silica may resulting significant improvements in the properties of the composites compared with virgin polymer and silica. These improvements include increased mechanical strength and elastic modulus, improved heat and flame resistance, increase gas permeability as shown in test data result at batch 5 shows the OTR value of 4054 cc/m².day. at 23° C & such product which we have made form batch 5 can sustain under constant gas pressure, which means exist more gas outside to nature & fulfilled all condition

5. REFERENCES

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