

LUMINOUS

Advanced Tubular Gel Batteries for Residential Energy Storage & Solar Applications



2021_4th Nov'21

Residential ESS & Solar Solutions in South & SE Asia and Africa



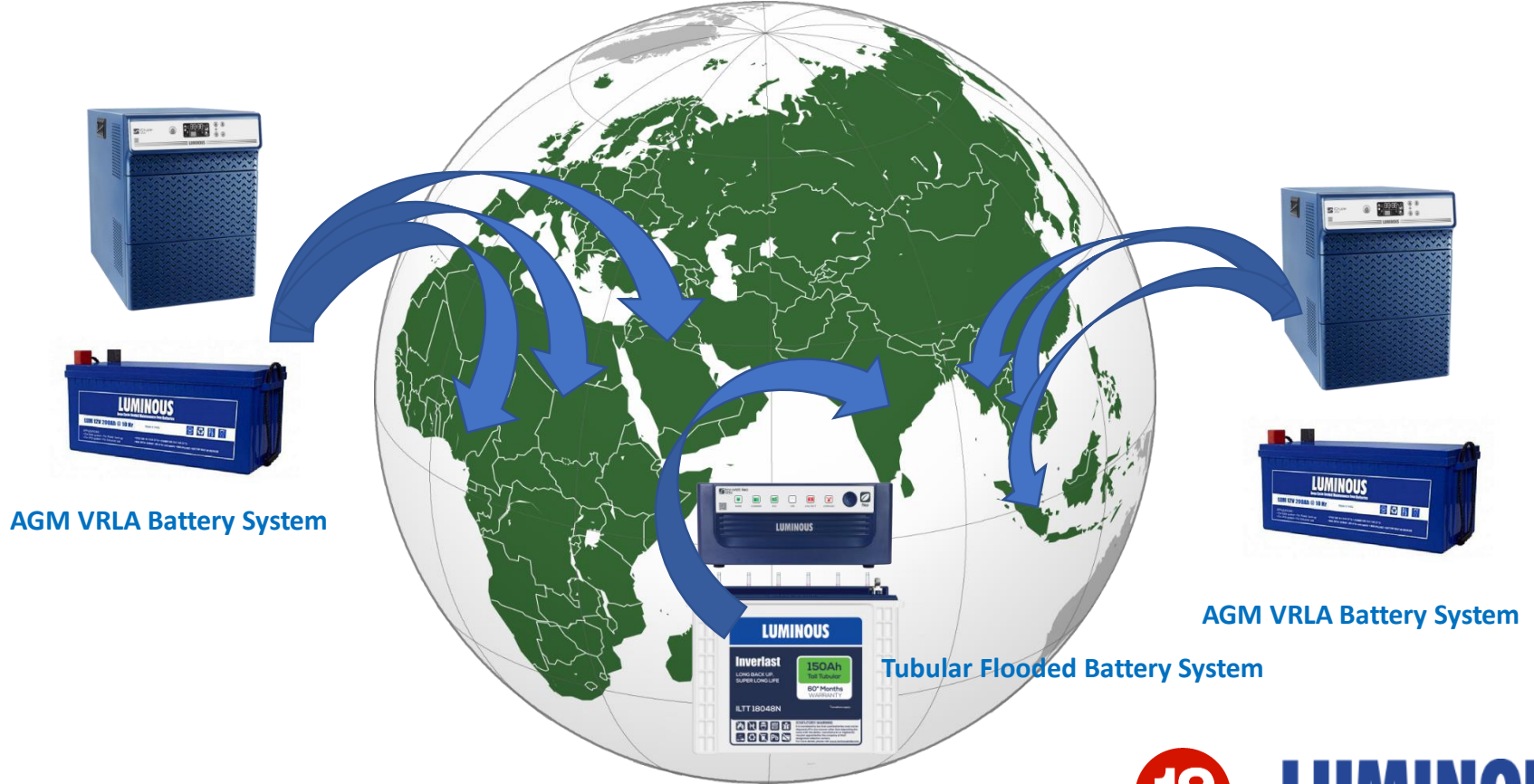
Residential Power Back-up System has become essential in South Asia & SE Asia and Africa and would continue to become critical for their industrial growth.

In view of climate change, integration of solar usage in these ESS application are going to become absolutely necessary.

Major push of electrification in rural area will facilitate decentralized power back-up aided by solar.

Major urbanization and focus on smart cities will make the uninterrupted power supply as a necessity in these cities.

Lead Acid Battery Usage in Residential Premises



AGM VRLA Battery System

AGM VRLA Battery System

Tubular Flooded Battery System

Evolution of LAB as Residential Energy Storage Device

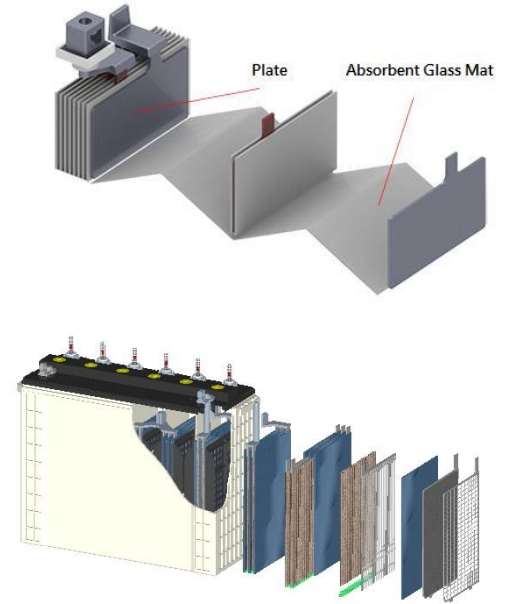
Since many years, AGM VRLA batteries were being used widely in South & South-East Asia and Africa for back-up energy storage & solar solutions at Home. Despite a maintenance free system, its poor cycle life was not enough to fulfil users' requirement.



Tubular flooded battery got many advantages (like double service life, robust for deep cycle application etc.) over the flat Plate AGM design. Luminous has pioneered this transformation by establishing Tubular Flooded battery as one of best suitable options for Home Energy Storage with it's customized design and process.

Tubular flooded technology being successful replacing Flat plate technology in India for a long life deep cycle energy storage application in home.

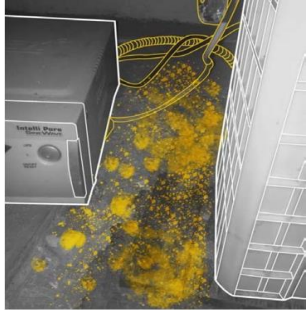
In Africa and other countries, Luminous tubular technology is successfully transforming this usage for the last few years.



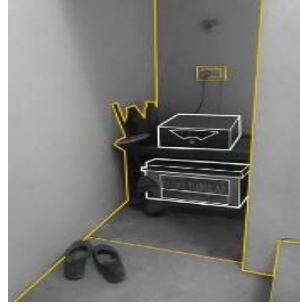
4 Major Customer Feedback



Water Topping Up

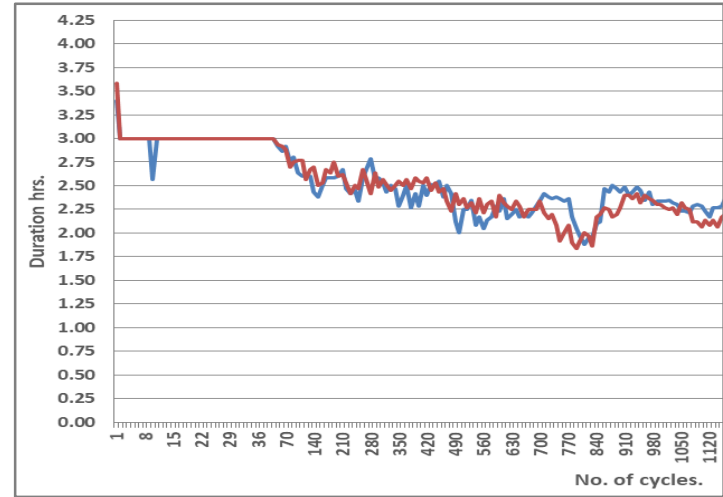


Stained Floor due to acid spillage



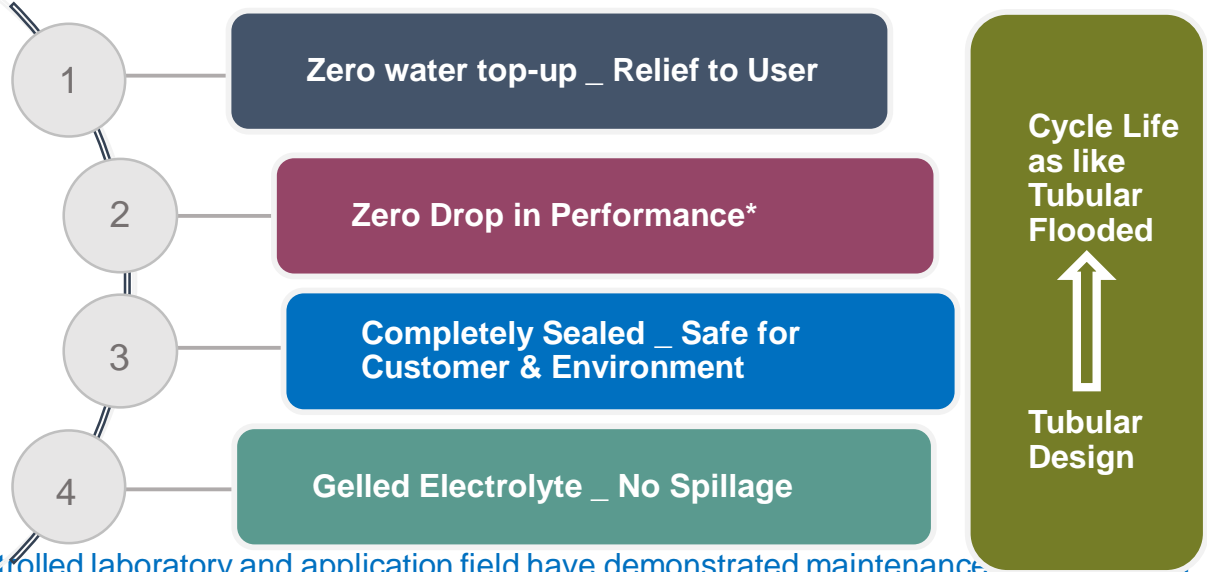
Battery kept at an open area to ward off the harmful gases

Reduced Back-up due to Acid Stratification



Tubular Plate Gel VRLA Battery

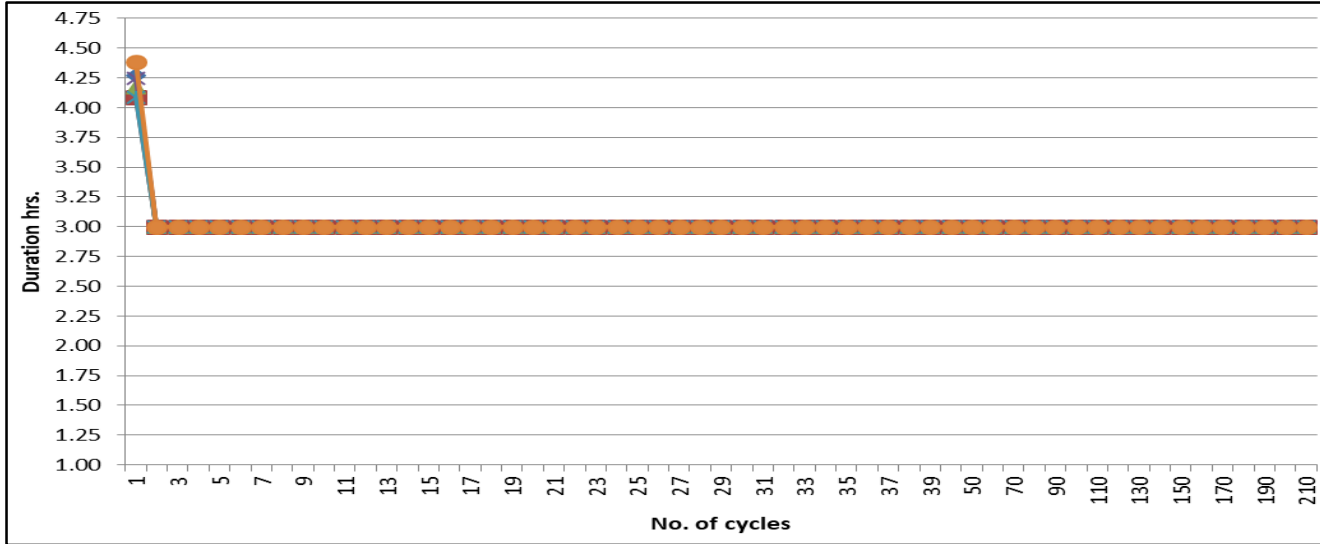
Hence, Luminous has developed an efficient Tubular Gel VRLA battery of robust reliability. Its balanced gel recipe, optimum plate alloy & separator combination and customized process makes it the best option for the application ecosystem.



Performance data and cycling results in controlled laboratory and application field have demonstrated maintenance free and consistent performance throughout its life.

* Due to acid stratification.

No Spillage & Normal Performance at any Orientation...



Test Profile: 100% DOD @ C3 and Recharge 105% of Discharged Output. Test terminated when C3 capacity reached 50%

Note: This test is being conducted in Luminous Test Laboratory @ 30°C.

Luminous Test Lab is Recognized by DSIR, Ministry of Science & Technology, Govt. of India.



NORMAL



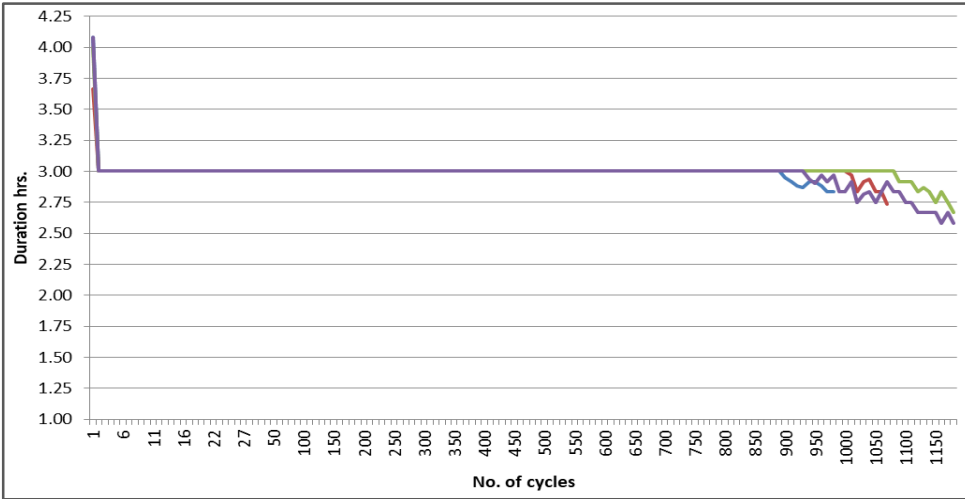
HORIZONTAL



UPSIDE DOWN



Delivers Consistent Back-up Energy...



Note: This test is being conducted in Luminous Test Laboratory 30°C.



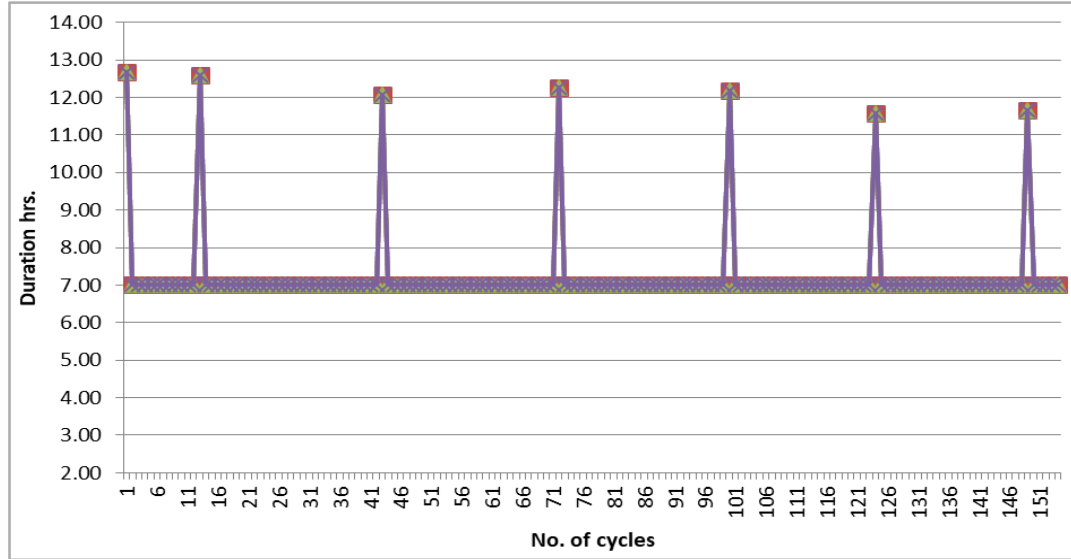
Test Profile:

100% DOD @ C3 and Recharge 105% of Discharged Output.

Test terminated when C3 capacity reached 50%



Stable Performance in String too...



Test Profile:

48V System (4 x 12V)

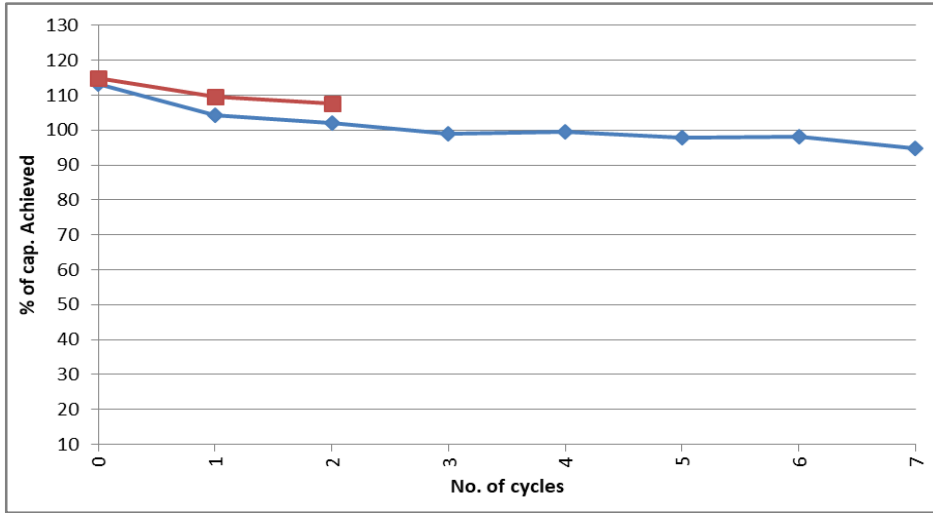
70% DOD @ C10 and Recharge 105% of Discharged Output.

Test terminated when C10 capacity reached 50%

Note: This test is being conducted in Luminous Test Laboratory @ 30°C.



Cycle Endurance Test... Solar PV



Note: This test is being conducted in Luminous Test Laboratory @ 40°C.



Test Profile:

Step No.	Phase	Test profile (IEC 61427)
1	A	Discharge the battery at C10 rate for 9 hrs. or 10.50V
2		Recharge back (i.e. C10*0.103) for 3 hrs.
3		Discharge the battery at C10 rate for 3 hrs.
4		Conduct 50 cycles in step no. 2~3
5		After completion of 50 cycles fully recharge the battery
6	B	Discharge the battery (i.e. C10*0.125) for 2 hrs.
7		Recharge back at 14.40v CV @ C10 for 6 hrs.
8		Conduct 100 cycles in step no. 6 ~ 7
9		After completion of 100 cycles battery is cooled down to the tem. 30°C & stabilized this value to 16 hrs.
10		After 16 hrs. rest conduct a C10 capacity test.

Test would be finished when :

During the phase A, when the cell voltage during discharge is lower than 1.5 V/cell
 After phase B, when the checked capacity measured is lower than 80% of rated capacity.

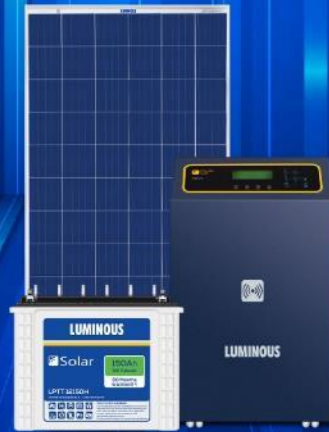
Advance Gel Battery developed by Luminous for Residential ESS & Solar Solutions will play major role in Climate Change Action in Future



LUMINOUS



HOME UPS & BATTERIES



SOLAR PRODUCTS



HOME ELECTRICAL PRODUCTS

THANK YOU