



TEST REPORT

Reliability Laboratory

Report No. : HE40037C/2016

Page : 1 of 5

Date : May 17, 2016

KUNG LONG BATTERIES INDUSTRIAL CO., LTD.
NO. 6, TZU-LI 3 RD, NANTOU CITY, TAIWAN

The following merchandise was submitted and identified by the vendor as:

Product Description: Valve Regulated Lead-Acid Battery

Style/ Item No.: U1-33HN / No.1

Manufacturer/Vendor: KUNG LONG BATTERIES INDUSTRIAL CO., LTD.

Quantity: Total 1 set

Testing Period: May 3, 2016 to May 5, 2016

Note: (Client's declaration) U1-33HN and U1-33H are identical products with same plate sizes but terminals design.

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required : Special Provision 238 in International Maritime Dangerous Goods Code 2014 Edition.(Amdt 37-14)

Conclusion

Submittals samples comply with the requirement of Special Provision 238 in International Maritime Dangerous Goods Code 2014 Edition. (Amdt 37-14)

HE40037A/2016, dated on May 9, 2016, is hereby canceled and replaced by HE40037C/2016.

Signed for and on behalf of
SGS TAIWAN Ltd.

Norman Wu
Asst. Manager

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Lab Environmental Conditions:

Ambient temperature: (20 ± 5) °C

Ambient humidity: (55 ± 20) % RH

Test Equipment:

Name	Brand	Model	Serial No.
Vacuum-Temperature Cabinet	YEONG SHIN	DOBL-45	YSCB940280E
Vibration Test System	UNHOLTZ-DICKIE	SAI60-H560BAC/2/ST	474
Controller	Dactron	LASER	7110357
Control Accelerometer	PCB	353B34	143549
Programmable Temperature & Humidity Chamber	KSON	THS-A6T-150	A0347

Images:



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Images--Continued:



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Test Method/ Specification:

Special Provisions 238	
Test method:	<p>1. Vibration test — The battery is rigidly clamped to the platform of a vibration machine and a simple harmonic motion having an amplitude of 0.8 mm (1.6 mm maximum total excursion) is applied. The frequency is varied at the rate of 1 Hz/min between the limits of 10 Hz to 55 Hz. The entire range of frequencies and return is traversed in 95 ± 5 minutes for each mounting position (direction of vibration) of the battery. The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.</p> <p>2. Pressure differential test — Following the vibration test, the battery is stored for six hours at $24^{\circ}\text{C} \pm 4^{\circ}\text{C}$ while subjected to a pressure differential of at least 88 kPa. The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.</p> <p>Note: Non-spillable type batteries which are an integral part of, and necessary for the operation of mechanical or electronic equipment, must be securely fastened in the battery holder on the equipment and protected in such a manner as to prevent damage and short circuits.</p> <p>3. Non-spillable batteries meeting the requirements of Packing Instruction 872 are not subject to these Regulations when carried as cargo if, at a temperature of 55°C, the electrolyte will not flow from a ruptured or cracked case. The battery must not contain any free or unabsorbed liquid. Any electrical battery or battery powered device, equipment or vehicle having the potential of dangerous evolution of heat must be prepared for transport so as to prevent:</p> <p>(a) a short circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals); and</p> <p>(b) unintentional activation</p> <p>The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.</p>
Requirement:	No leakage of battery fluid

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Page : 5 of 5

Test Result:

1. Vibration Test:

Check Item Style/Item No.	Appearance check (Visual check)
U1-33HN / No.1	No leakage of battery fluid

2. Pressure Different Test:

Check Item Style/Item No.	Appearance check (Visual check)
U1-33HN / No.1	No leakage of battery fluid

3. High Temperature Test:

Check Item Style/Item No.	Appearance check (Visual check)
U1-33HN / No.1	No leakage of battery fluid

Test Summary:

Test Item	Test Result	Note
Special Provision 238	Pass	

— — — The End of Test Report — — —

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