TEST REPORT

Reliability Laboratory

Report No.： HE10020C/2013
Page： 1 of 5
Date： February 8, 2013

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

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

Product Description:	Sealed Lead-Acid Battery
Style/ Item No.:	WP45-12/ No.1
Manufacturer/Vendor:	Kung Long Batteries Industrial Co., Ltd.
Quantity:	Total 1 set
Testing Period:	Jan. 23, 2013 to Feb. 4, 2013
Note:	(Client's declaration) WP45-12 and WP45-12N are identical product with different terminals.

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 Version 2012 Edition

Conclusion
Submittals samples comply with the requirement of Special Provision 238 in International Maritime Dangerous Goods Code 2012 Edition.

* HE10020A/2013, dated on February 6, 2013, is hereby canceled and replaced by HE10020C/2013.

Signed for and on behalf of SGS TAIWAN Ltd.

Norman Wu
Supervisor

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Lab Environmental Conditions:

Ambient temperature: (20 ± 5) ℃
Ambient humidity: (55 ± 20) % RH

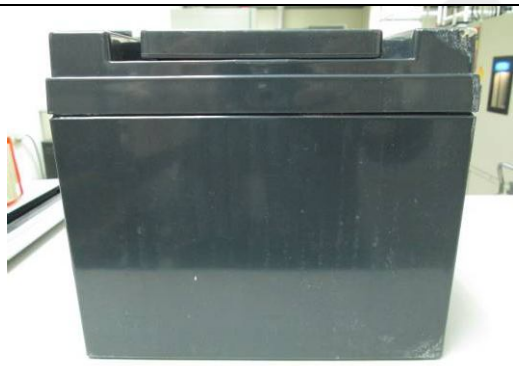
Test Equipment:

Name	Brand	Model	Serial No.
Vibration Test System	UNHOLTZ-DICKIE	SAI60-H560BAC/2/ST	474
Controller	Dactron	LASER	7110357
Control Accelerometer	PCB	353B34	143549
Altitude Chamber	GIANT FORCE	GTP-1260-50-CP-AR	MAF1206-008

Images:



1. Appearance of specimen



2. Appearance of specimen

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Images--Continued:



3. Vibration Test: X axis



4. Vibration Test: Y axis



5. Vibration Test: Z axis



6. Pressure Differential Test



7. High Temperature Test

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Test Method/ Specification:

Special Provisions 238	
Test method:	1. Batteries can be considered as non-spillable provided that they are capable of withstanding the vibration and pressure differential tests given without leakage of battery fluid: 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 vibrator) of the battery. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods. Pressure differential test: Following the vibration test, the battery is stored for six hours at 24°C±4°C while subjected to pressure differential of at least 88 kPa. The battery is 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. Non-spillable type batteries which are an integral part of and necessary for the operation of mechanical or electronic equipment shall be securely fastened in the battery holder on the equipment and protected in such a manner as to prevent damage and short circuits. 2. Non-spillable batteries are not subject to the provisions of this Code if, at a temperature of 55°C, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, when packaged for transport, the terminals are protected from short circuit.
Requirement:	No leakage of battery fluid

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Test Result:

1. **Vibration Test:**

Check Item / Style/Item No.	Appearance check (Visual check)
WP45-12/ No.1	No leakage of battery fluid

2. **Pressure Different Test:**

Check Item / Style/Item No.	Appearance check (Visual check)
WP45-12/ No.1	No leakage of battery fluid

3. **High Temperature Test:**

Check Item / Style/Item No.	Appearance check (Visual check)
WP45-12/ 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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