



UL 大型電池暨危險場所設備測試中心

**UL LARGE BATTERY
& HAZARDOUS
LOCATION EQUIPMENT
TESTING CENTER**



大型儲能電池安全 LARGE FORMAT BATTERY SAFETY

隨著全球氣候變遷所引發的節能減碳風潮，愈來愈多強調能源效益的產品及應用相應而生，並為國際間視為未來十年各國重點發展的產業，其包括可再生能源、電動車、及智慧電網等。應時勢所趨，大型儲能與動力電池的市場需求相繼被強勢帶起。由於中大型電池的技術發展、產品效率及可靠性的評估，將牽動產業能否順利發展，各國政府不得不對電池在生產、運輸、安裝及卸除等各階段，加緊腳步陸續訂出強制性的安全要求。

UL 長期著注於電池安全議題研究及標準發展，包括危險根因分析、內部結構剖析、各式新型測試研發、最終檢測方法開發等，並密切與政府和供應鏈研究合作；而在大型電池的部份，UL 更陸續發表與電動汽車相關的安全要求。

大型蓄能電池蔚為趨勢，針對市場動能活絡的亞洲地區，UL 策略性選擇設於台灣的亞洲檢測中樞－「UL 台灣」，積極挹注資源，於 2014 初完成了大型電池測試實驗室的規劃建置。

As the wave of energy saving and carbon reducing emissions rises with changes in the global climate, an increasing number of products and applications with an emphasis on energy efficiency has emerged and become an industry that is focused on internationally in the next decade. These include renewable energy, electric vehicles, smart grid...etc. Driven by current trends, the market demand for large energy storage and battery power is also going strong. Due to the technological developments and the evaluation of product efficiency and reliability to determine the smooth development of the large format battery industry, the associated mandatory regulations are globally increased in battery production, transportation, installation and decommission.

UL has, for a long time, focused on the research of battery safety issues and the development of standards, which includes hazard root cause analysis, analysis and identification of battery components, new testing research by using state-of-the-art facility and test method development; as well as program partnership with government national labs and the battery supply chain. In the area of large battery, UL is introducing new requirements for electric vehicles.

Large batteries have become the norm. Targeting the energy growth and demands of the Asian region, UL has strategically selected "UL Taiwan", its Asian testing hub located in Taiwan and actively injected resources; it has completed the establishment of the large format battery testing lab at the beginning of 2014.

為起飛的產業把關 GATEKEEPER OF AN EMERGING INDUSTRY





危險場所設備安全 HAZARDOUS LOCATION EQUIPMENT SAFETY

當產品必須安置在大西洋的鑽油平台上、巴西的石化工廠內，或其他任何被歸類為危險的場所，都應使用適用於危險場所的設備，否則一旦發生火災甚至爆炸，不僅將造成人員或財物的嚴重損失，亦將重創公司聲譽。防爆電氣設備即屬於危險場所的設備，其應符合嚴格的防爆構造規格，並通過相應的安全規範，才得以確保能在緊急的情況下發揮功能。

UL 在危險場所的分級領域、保護方法和產品類別上，皆有高度的專業經驗。服務範疇可涵蓋從外殼防護型、本質安全防護型裝置、防爆控制站、防爆安全增強照明裝置到第二等級的製程設備...等。為提供全球製造重鎮且擁有高密度重工業的大中華區最便捷省時、及具成本效益的服務管道，UL 在擁有資深工程能力的台灣，移植北美及歐洲既有的服務經驗，設置大中華區第一座防爆測試實驗室，廣大服務兩岸三地及亞太區的設備製造商。

Whether a product is destined for a North Atlantic oil platform, a Brazilian petro-chemical facility, or any place in between, equipment suitable for hazardous locations should be used; otherwise, in the event of a fire or even an explosion, not only will there be the potential for serious personnel or property losses, the company's reputation may also be badly damaged. Explosion-proof electrical equipment is considered suitable for use in hazardous locations and should comply strictly with explosion-proof structural specifications, and comply with the corresponding safety standards in order to function under emergency situations.

UL global HazLoc family maintains expertise in all area classifications, protection methods and product categories – from enclosure protection, intrinsically safe apparatus to explosion-proof control stations to increased safety luminaires to Division 2 process equipment. In order to provide a more efficient, time-saving and cost-effective service channel for the Greater China region, a global strategic production zone packed densely with industries, transplanting its existing service experiences in North America and Europe to the advanced engineering-capable Taiwan, UL established its first HazLoc testing lab in the Greater China region, serving an extensive customer base of equipment manufacturers in mainland China, Hong Kong, Taiwan and the Asia-Pacific region.





UL 前瞻安全實驗中心 滿足電池、防爆產品的安全需求

UL's Advanced Safety Testing Center
Meeting the Safety Requirements for Battery
and Explosion-Proof Products

占地逾 1,300 平方公尺的全新實驗中心，
囊括幾大特色：

The 1,300-square meters brand-new lab
center is characterized by :

完整充沛的電池測試能量——

UL 台灣設於台北的鋰電池測試實驗室為全球第一家充電電池 CB 測試實驗室 (BATT IEC 62133 CBTL)，亦是 PSE、KC、CTIA 和 UN 認可實驗室；新的大型電池實驗室成立，拓寬了電池測試服務的能量及範疇，為 UL 台灣的服務進程再立下新的里程碑。

專業、安全、健康設計——

無論是大型電池或是危險場所產品安全的檢測，測試過程皆具高度危險。因此，該測試中心的設計，除須兼顧實驗室專業能力廣泛服務外，更重視操作環境的安全防護及測試人員的健康考量，如實驗室採用抗爆建材與設備；配置可提供充足氣壓釋放與空氣交流的室內環境交換機，因應不同狀況的滅火系統等；而針對人員的健康安全需要，亦有防止毒氣擴散與空氣污染及緊急狀態操作等系統的設置。

多項國際認可加持——

為提供全面整合的服務類別，使客戶享用快速便利的「一站式」全球認證服務。本測試中心除了為美國國家認可實驗室 (NRTL)，亦通過多項國際組織的認可，可執行相應的檢測項目，包括國際電工委員會防爆電氣產品認證 (IECEX)、歐洲的 ATEX 防爆指令 (Ⓜ)、加拿大標準委員會 (SCC)、台灣財團法人全國認證基金會 (TAF) 及台灣標準檢驗局 (BSMI) 等。

Battery testing capacity that is complete and abundant - UL Taiwan's lithium battery testing lab, which is located at Taipei, is the world's first battery CB testing lab (BATT IEC 62133 CBTL), as well as a PSE, KC, CTIA and UN-accredited lab; the establishment of the new large battery lab provides an expansion of the capacity and range of battery testing services and achieves a new milestone in the development of UL Taiwan's services.

Design that is professional, safe and sound - Whether large battery or hazardous location equipment safety testing, the testing process is a highly dangerous one. Therefore, while ensuring professional lab capabilities and providing extensive services, the design of such testing centers must emphasize safety and protection of the work environment and of the health considerations of testing personnel, and implement measures such as the use of blast-resistant building materials and equipment; indoor ventilators that provide ample air pressure release and air exchange, as well as an extinguishing system that caters for different conditions, are installed; in consideration of employees' health and safety needs, systems that prevent the spread of toxic gases, air pollution and for emergency situations are installed.

Multiple international recognitions - To provide comprehensive and integrated service categories, so that customers can enjoy fast and convenient "one-stop" global certification services, apart from being a U.S. nationally-recognized testing lab (NRTL), this testing center has also obtained the accreditation of many international organizations. It can perform the corresponding testing items including the International Electrotechnical Commission's certification for explosion-proof electrical products (IECEX), Europe's ATEX directive for explosive atmospheres (Ⓜ), Standards Council of Canada (SCC), Taiwan Accreditation Foundation (TAF), Bureau of Standards, Metrology and Inspection (BSMI), etc.



擁有 UL 在海外第一個授權實驗室頭銜的 UL 台灣，自 1988 年於台北市北投區成立迄今，佈局了完善且多面向的測試設備，並培育逾 140 名測試工程師，成就了「UL 亞太區實驗室中樞」的美名。UL 台灣以豐碩的檢測能量為基底，不斷引進符合國際標準的前端檢測設備，在空間充裕的全新位址 - 新北市林口龜山交界，設立了前瞻的安全測試中心，全方位滿足大型儲能電池以及危險場所設備的安全檢測需求。

UL Taiwan was established in 1988 in Peitou District, Taipei City, as UL's first overseas authorized lab. The acclaimed "UL's Asian Testing Hub" is equipped with comprehensive testing equipment and has trained more than 140 lab engineers. On the basis of UL Taiwan's robust testing capacity, front-end testing equipment that meets international standards are constantly being brought in. UL Taiwan also built a futuristic safety testing center at its spacious and new location at the junction of Guishan and Linkou in New Taipei City, fully meeting the safety testing demands of large battery and hazardous location equipment.



360° Overview of Two Major Lab Categories

兩大實驗室 360° 觀覽



大電池測試實驗室

LARGE BATTERY TESTING LAB

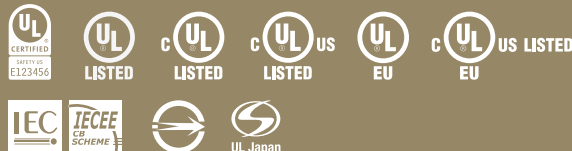


因應全球節能減碳環保趨勢，主要的服務對象為電動汽機車、智慧電網、資料庫中心及大型儲能設備所使用的大型儲能電池。

Due to the global trends of saving energy, reducing carbon emissions and protecting the environment, the services are mainly catered for large batteries used for electric vehicles, smart grids, database centers and large energy storage equipment.

<p>測試項目 Testing Items</p>	<p>過充電、過放電、擠壓、衝擊、振動、溫升、溫度循環、短路、水浸、鹽霧 Overcharge, Overdischarge, Crush, Shock, Vibration, Heating, Temperature Cycling, Short Circuit, Immersion, Salt Spray</p>
<p>服務能力 Capability</p>	<p>UL 1973 用於電動輕軌和車站等固定地點的電池 Batteries for Use in Light Electric Rail (LER) Applications and Stationary Applications</p>
	<p>UL 2271 用於輕型電動車的電池 Batteries for Use in Light Electric Vehicle (LEV) Applications</p>
	<p>CNS 15387 用於電動摩托車的二次鋰電池安全測試要求 Safety Testing Method for Secondary Lithium Batteries for Electric Motorcycles</p>
	<p>CNS 15424-1 電動摩托車電池系統 - 第一部份： 可卸除電池系統安全要求 Electric Motorcycles Battery System – Part 1: the Safety Requirements of Removable Battery System</p>
	<p>CNS 15424-2 電動摩托車電池系統 - 第二部份： 固定式電池系統安全要求 Electric Motorcycles Battery System – Part 2: the Safety Requirements of Stationary Battery System</p>
	<p>SBAS 1101 2011 二次鋰電池 (單電池芯 / 電池系統) 安全測試 Safety Testing Method for Secondary Lithium Batteries (Single Cell and Battery System)</p>

認證標誌
Certification
Marks





消防控制器

緊急 警報 作動

消滅水滅火
CO2 滅火
火警閉鎖



Check & Test Test Room

危險場所設備測試實驗室

HAZARDOUS LOCATION EQUIPMENT
TESTING LAB





鑒於全球高密度的石化及電子產業帶來普遍存在的危險場所，以及逾十億勞工的工作環境充滿易燃化學物質，再加上都市人口的集中化、工廠與住宅區的距離漸失…等，許多工業先進國家早已立法，規定具潛在危險性的化工廠及可能產生易爆性氣體之場所，其使用的電氣設備必須具備防爆等防護設計的要求。UL 實驗室主要是服務任何被安置在歸類於危險場所的產品。

In view of the widespread of hazardous sites of dense petrochemical and electronic industries all over the world, the work environments with more than a billion workers filled with flammable chemical substances, and the concentration of the urban population, with the gap between factories and residential areas disappearing...etc., many developed industrialized countries have long established legislation specifying the requirement of explosion-proof and other protective designs for electrical equipment used in potentially hazardous chemical plants and locations that may produce explosive gases. UL's laboratories provide services mainly for products placed in such hazardous locations.





<p>測試項目 Testing Items</p>	<p>爆炸、火花、靜水壓、IP 保護、高低溫循環 Explosion, Spark Ignition, Hydrostatic, Ingress Protection, Thermal Endurance to Heat / Cold</p>
<p>服務範疇 Service Scope</p>	<p>ISA 12.12.01 用於 I 級和 II 級、第 2 類和 III 級、第 1 類及第 2 類危險 (分級) 場所的無火花電氣設備 Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations</p>
	<p>IEC 60079-0 爆炸性氣體環境用電機設備 – 第 0 部份：設備 – 一般要求 Electrical Apparatus for Explosive Gas Atmospheres - Part 0: Equipment - General Requirements</p>
	<p>IEC 60079-1 爆炸性氣體環境用電機設備 – 第 1 部份：耐壓防爆外殼 “d” Electrical Apparatus for Explosive Gas Atmospheres - Part 1: Flameproof Enclosures “d”</p>
	<p>IEC 60079-7 爆炸性氣體環境用電機設備 – 第 7 部份：增安型防護 “e” Electrical Apparatus for Explosive Gas Atmospheres - Part 7: Increased Safety “e”</p>
	<p>IEC 60079-11 爆炸性氣體環境用電機設備 – 第 11 部份：本質安全型防護 “i” Electrical Apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety “i”</p>
	<p>IEC 60079-15 爆炸性氣體環境用電機設備 – 第 15 部份：保護型式 “n” Electrical Apparatus for Explosive Gas Atmospheres - Part 15: Type of Protection “n”</p>
	<p>IEC 60079-18 爆炸性氣體環境用電機設備 – 第 18 部份：封裝 “m” Electrical Apparatus for Explosive Gas Atmospheres - Part 18: Encapsulation “m”</p>
	<p>IEC 60079-31 爆炸性氣體環境用電機設備 – 第 31 部份：設備粉塵防護外殼 “t” Electrical Apparatus for Explosive Gas Atmospheres - Part 31: Equipment Dust Ignition Protection by Enclosure “t”</p>
	<p>CSA C22.2 No.157 用於危險場所的本質安全與非易燃設備 Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations</p>
	<p>CSA C22.2 No. 213 用於 I 級、第 2 類危險場所的無火花電氣設備 Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations</p>
	<p>UL 674 用於危險場所的電動馬達與發電機 Electrical Motors and Generators for Use in Hazardous Locations</p>
	<p>UL 783 用於危險場所的手電筒與燈具 Electrical Flashlights and Lanterns for Use in Hazardous Locations</p>
	<p>UL 844 用於危險場所的照明設備 Luminaires for Use in Hazardous Locations</p>
	<p>UL 913 用於 I、II、III 級與第 1 類危險場所的本質安全設備暨相關設備 Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations</p>
<p>UL 1203 用於危險場所的防爆與防塵燃電氣設備 Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous Locations</p>	
<p>認證標誌 Certification Marks</p>	       

關於 UL

UL 是全球首屈一指且獨立的安全科學公司，享譽一百多年歷史，全球擁有逾 10,000 名專業員工，秉持 UL 使命為人類推動安全的工作與生活環境。UL 持續研究發展和制定標準，提升與滿足不斷演繹的安全需求；並透過與企業、製造商、產業協會與國際法規機構的結盟，為日益複雜的全球供應鏈帶來適切的解決方案。更多關於 UL 認證、測試、審核、諮詢與教育服務，請瀏覽 www.UL.com

About UL

UL is a premier global independent safety science company that has championed progress for 120 years. Its more than 10,000 professionals are guided by the UL mission to promote safe working and living environments for all people. UL uses research and the development of standards to continually advance and meet ever-evolving safety needs. We partner with businesses, manufacturers, trade associations and international regulatory authorities to bring solutions to a more complex global supply chain. For more information about our certification, testing, inspection, advisory and education services, visit <http://www.UL.com>.



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