Counterfeit Cell Phone & Laptop Batteries

Caution, Credibility, Causes and Cures
by Shirley Georgi

Examples are shown of the recent Consumer Product Safety Commission (CSPC) battery related safety recalls. Although there is no accurate report of the number of counterfeit/defective batteries that are currently in the U.S., or seized at point of arrival, the CSPC does keep track of the numbers in its recalls. This year a total of 1,190,000 cell phone batteries (Lithium-ion) were in the hands of the consumer before they were recalled as being potentially dangerous, potentially causing injury if overheating, venting and/or exploding. In addition, another 28,000 laptop batteries had to be recalled for the same reasons.+

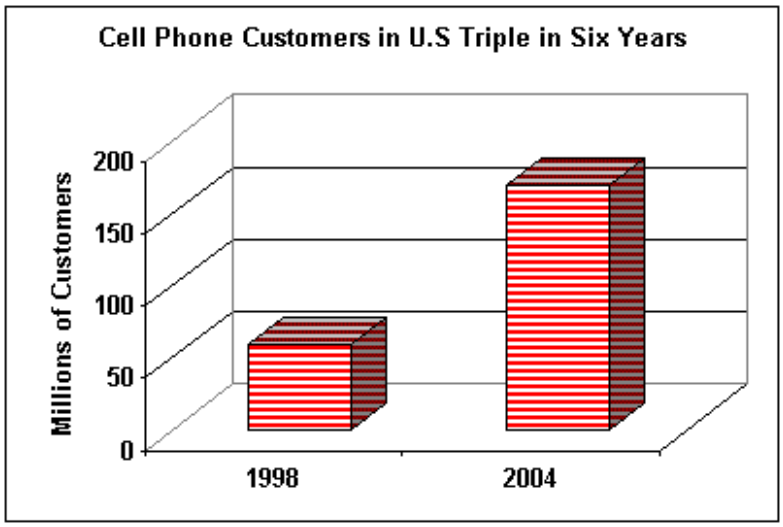
For the fourth time in 2004, the **U.S. Consumer Product Safety Commission** (CPSC) has issued a recall on batteries in portable power communications The most recent recall of October 28th was for approximately a million cell phone batteries from **Kyocera Wireless Corp.** (KWC) in San Diego. The recall took place because there were 14 reports of batteries short circuiting and overheating which resulted in smoke and some property damage and also two cases of minor burn injuries.

Caution

2004 Recall Alerts by the Consumer Product Safety Commission (CPSC)

October 28, 2004 Kyocera Wireless Corp.'s recalled batteries were manufactured by **HECMMA Group** of El Paso, Texas. Kyocera is following through with legal action in this case because the supplier, HECMMA Group, allegedly continued to make fraudulent batteries with Kyocera's logo and the company continued to sell them in the aftermarket even though Kyocera had terminated its relationship.

In its official press release, Kyocera states, "The supplier's deceit resulted in fraudulent batteries shipping with Kyocera phones and being sold as accessories. Upon deeper investigation, KWC discovered that despite terminating the supplier's services, the supplier continued to make the fraudulent batteries and sold them into the gray (after) market. These counterfeits feature Kyocera's logo and are designed to look identical to legitimate Kyocera-approved batteries. Since the supplier is headquartered in the U.S., KWC is actively working with the United States **Federal Bureau of Investigation** (FBI) and Consumer Product Safety Commission to locate these counterfeit batteries, prosecute those involved and ensure they do not reach consumers." Kyocera cannot make comments on the lawsuit since a judge has issued a gag order in the case.



Not only is the OEM market for cell phones (and batteries) growing, but there is also a huge aftermarket for replacement batteries. The aftermarket can be especially lucrative for the gray market suppliers because unsuspecting consumers on the Web or at retail stores look for the cheapest price and unknowingly can be purchasing batteries which do not have the recommended safety features. (Data for chart is from Cellular Telecommunications and Internet Association.) +

August 19, 2004 **Apple Computer** recalled about 28,000 batteries used in its 15-inch PowerBook G4 laptop computers. Four reports of overheating were reported, but there were no injuries. **LG Chemical Ltd**. is listed as the manufacturer of the batteries. (*BD Note: Were these "illegally identified" batteries with an LG Chemical label?*)

June 24, 2004 About 50,000 LG-branded TM-510 batteries were recalled because they were deemed to be counterfeit and susceptible to over charging, especially if used with a non-LG charger. **LG Infocomm U.S.A. Inc**. states that these are counterfeit LG-branded batteries, which do not contain a safety device in the circuitry to prevent overcharging. Eighteen incidents were reported which included injuries to users and property damage. The manufacturer/importer was listed as **Verizon Wireless** of Bedminster, N.J.

January 23, 2004 Kyocera Wireless Corp. recalled 140,000 units; the batteries were listed as being manufactured by **Coslight International Group of Hong Kong**. Kyocera had received four reports of battery failures, including one minor burn injury. (BD *note: Evidently, these were not counterfeit batteries*.)

Other noted incidents

In the U.S. in 2003, Kyocera temporarily halted shipments of its cell phone, the KE412 Phantom when a Nebraska family reported its cell phone vented hot gases. In June 2004, a teen in California was injured when her Kyocera 2325 cell phone caught on fire.

On November 4, 2004, www.nbc4.com cited a consumer report that Liz Crenshaw had been investigating. Liz Crenshaw reported on a case where a person was watching a movie and the charger holding the cell phone battery went off like a tiny bomb.

Currently, the CPSC is looking into over 80 situations where cell phone batteries and/or chargers have caused incidents, i.e. explosions.

Other related recalls noted

On February 3, 2004, **Dorcy International** announced a recall of 20,000 **Fuji** batteries sold with Dorcy Xenon flashlights. The Fuji Power and A&T Fuji Power CR123A 3-Volt Lithium batteries were originally provided with Dorcy Spyder Tactical Xenon Lights. The batteries were also sold in packages of two flashlights under the name Dorcy Xenon Tactical Light. Five reports were received of the batteries overheating and causing the flashlight to burst. Dorcy also received four reports of minor damage to clothing and personal items and burn injuries. In one case the batteries allegedly caused or contributed to a house fire. The batteries were said to be manufactured in Taiwan. It is also not known if the defective batteries were actually supplied by Fuji or if they were counterfeit.

CPSC states that the "same batteries" sold by **Dorcy** were also sold in **Browning**'s Black Ice Flashlights; the official recall of the Browning flashlight batteries was on January 21, 2004. There were two reports of the flashlights rupturing, but no injuries were reported. CPSC says, "The batteries can short out, causing the flashlight's canister to rupture and pose injury to the consumer." The batteries were listed as CR 123A lithium batteries but no manufacturer of the batteries is named. Once again CPSC just reports "Manufactured in: China."

On November 9, 2004, about 1,000 Solaris Headlamp Lithium-ion batteries were recalled. The manufacturer was **Black Diamond Headlamp Ltd.** which used batteries made in China. To date, no injuries or incidents have been reported but the headlamp batteries may overheat. (See photo in this article.)
Cell phone manufacturers having to recall batteries from other countries because of counterfeit batteries are **Nokia** and **L.G. Philips**. In August 2003, a lady from the Netherlands received injuries to her hand when a Nokia cell phone exploded; in November, a Dutch man burned his leg after a Nokia handheld exploded in his pants pockets. Nokia has made a statement that worldwide there were 5 million counterfeit batteries that were seized and destroyed last year.

Credibility

Selling a product that does not work properly (or could be dangerous) definitely purports a negative image for the business who may have worked for years to have a quality name brand in the community. Yet, in bringing products to market, COST is major factor in producing an item such as a Lithium-ion battery. In our global economy, that means purchasing from countries where labor is cheap and cells and packs are manufactured at rock bottom prices.

Thus in the case of batteries (especially in the newer more expensive chemistries such as Lithium-ion which should have redundant safety features), there are counterfeits being made and sold at cheap prices and there are non-counterfeit batteries which have defects. In either case, some of the safety requirements have been bypassed. But companies which need batteries for their portable-powered product are buying from China and other inexpensive global sources and are taking the risk that the batteries they purchase will pose no problem.

Ashcroft released the document, "A Report of the Department of Justice's Task Force on Intellectual Property." In the report he said his department would recommend more FBI agents dedicated to intellectual property investigations. He also stated that there is a need to update the legal tools that help bring IP (Intellectual Property) criminals overseas to face American justice by updating our nation's Mutual Legal Assistance and extradition treaties with our trading partners. In relation to batteries, he stated, "The Department of Justice and the Bureau of Immigration and Customs Enforcement have blocked hundreds of thousands of counterfeit batteries from reaching U.S. stores. These batteries contained unsafe levels of mercury, and were so poorly manufactured that exposure to sunlight might have caused the batteries to explode."

Former U.S. Attorney General John Ashcroft resigned November 9th from President George Bush'scabinet. The direction and focus of his efforts may or may not change under new leadership. Currently, Albert Gonzales is the chosen nominee to replace John Ashcroft. +

Government involvement

And risk is greater than one might think, former Attorney General John Ashcroft in a document, "A Report of the Department of Justice's Task Force on Intellectual Property," dated 10-12-04, stated, "Overall, the U.S. Trade Representative now estimates that Intellectual Property theft worldwide costs United States companies $250 billion annually.... These crimes also endanger the public.... For example: The Department of Justice and the Bureau of Immigration and Customs Enforcement have blocked hundreds of thousands of counterfeit batteries from reaching U.S. stores. These batteries contained unsafe levels of mercury, and were so poorly manufactured that exposure to sunlight might have caused the batteries to explode."

Kyocera and the HECMMA Group

But what happened in the latest recall for Kyocera? Weren't those batteries listed as having a U.S. manufacturer, the HECMMA Group from El Paso, Texas? What is known about this manufacturer?

The HECMMA Group assembled battery packs at its Juarez factory in Mexico with parts from China, according to John Chier, a Kyocera spokesman. The company is listed as having 101 to 500 employees with ISO 9000 certification.

In searching the WEB, the only location found by BD staff describing the HECMMA Company was on Alibaba.com, a large global import-export site listed by **Forbes** as a winner of the "Best of the Web." Interestingly, in the business information section, the company had no listing for its legal representative/CEO, the year it was established or an industry focus. On the site, the company in an exact quote states, "We have ample experience in the manufacturing and assembly of batteries for uses like, cell phones, flashlights, medical devices, and cordless power tools. We have represented companies like Kyocera Wireless, **Makita Corporation**, **Mag Instruments** and **ProDentek** to name a few. This includes Li-ion, NI-Cd, Ni-mH."

One precaution that the Alibaba site notes is that this free member, HECMMA, does not have a Trust Profile. "A Trust Profile indicates that the company is legally registered and that the contact person is a genuine employee. Whilst you can still contact this company by clicking 'Send Message', we strongly recommend you request this member to provide a Trust Profile and/or other certification verifying identify and credibility." It is not known how Kyocera qualified this company for manufacturer of the battery packs.

When the news became public, several reporters tried to reach HECMMA for a comment on the incident but were not successful. However, on November 23rd, the *El Paso Business Journal* reported "HECMMA denies battery claims by Kyocera." HECMMA also has sued Kyocera in reference to a safety recall last January.

In the November recall, there is no way of knowing how many of the one million battery packs/cells are "bad," because unless each battery is disassembled, there is no way of identification. Therefore, Kyocera must face the recall of all packs to ensure its concern for consumer safety while yet maintaining credibility with the public as a reliable supplier of cell phones. The unfortunate fact is that the public may never know who made the battery cells in China, what (or if any) safety mechanisms were implemented in creating any of cells and packs, and how much "gray" business, outside of the Kyocera recall, will continue as usual.

Causes

In February in 2003, RFID (Radio Frequency Identification) for Smart Packaging held a Conference Review of Intelligent and Smart Packaging. At the conference, Gerry Meyer of **Proctor & Gamble** put the scale of counterfeiting into context. He said "It is estimated that 7-9% of world trade, of $500 billion globally per annum, is in counterfeit products. Thus, the battery industry and the products they power are a part of this growing business.

$$$$

Unfortunately, for some individuals and companies, making money is a prime driver at all costs, and as Jim Carbone said in an article, "How to spot counterfeit parts," in *Purchasing Magazine* in 11/21/02, "Lowest cost rules!" Applying this philosophy would cause a company to shave every penny, in not only hiring the least expensive supplier/manufacturer but also could cause the removing of a component such as safety sensor, which hopefully will never be noticed or cause a problem. (*BD Note: Here, the open commandment seems to be, "Thou shall do whatever needs to be done (legal or illegal) to earn the Almighty Dollar."*)

Public unawareness

Although the **Consumer Products Safety Commission** (CPSC) does have battery recalls, the recall is only publicly announced when there is (as the agency states) a need to "protect the public from unreasonable risk of serious injury or death." But awareness of the general problem of counterfeiting or creating defective batteries is not highly publicized. Alleged suits abound but the public does not hear about them. As Stu Lipoff with **IP Action Partners** said, "Most cases are under gag orders and settle out of court." In one recent case reported on 11/08/04, evidently not yet under a gag order, **Symbol Technologies, Inc.** filed a lawsuit against device and battery vendor **Mobile Knowledge Group** alleging the company sold counterfeit batteries and other parts with the Symbol logo. Such an announcement will go almost unnoticed by the public because the majority of news coverage on Intellectual Property has to do with software, DVDs and CDs made by popular recording artists, movie stars and their respective studios/companies. Although batteries have a vital role in powering all portable devices, they are considered a common, mundane commodity and do not have the sex appeal for mass IT news coverage.

China and the global community

Many battery recalls by CPSC do not name a specific Chinese manufacturer of the cells and/or battery packs. If that country is the source, the only listing is "Made in China'." Although China does have reputable manufacturers, there are others in the country who have entered the supply chain to make money and who do not seemingly understand and/or have any concern about the need for quality and safety. At the site, www.export.gov/stop _fakes__gov/index.asp, it states, "China was the number one source of counterfeit products that were seized at the United States border last year."

Andrea Klein, chief executive officer of independent distributor **Rand Technology,** was quoted in Jim Carbone's article, "How to Spot counterfeit parts," two years ago and addressed this issue. She said, "The majority of counterfeit product is coming out of China. Counterfeit products circulate through Asia into the U.S. and Europe, but 'is all made in China'." For example, "If you have a passive device and it is the size of a peppercorn, all you have is a label to identify the part. 'Third rate, third party houses' build poor product and put on a label from a

reputable manufacturer...." Parts, i.e. batteries, are then sold through distributors and brokerage houses and are purchased by OEMs and contract manufacturers. "There are a lot of OEMs selling counterfeit excess and they don't know it." Although the problem is not cured overnight, the Chinese government has recognized the problem and is said to be taking increasing responsibility to limit counterfeiting.

Of course, the problem of respecting intellectual property and counterfeiting is worldwide, and not just in China. John Ashcroft said in his October report, "Eastern Europe and Asia are two regions where large, organized networks of intellectual property counterfeiters and thieves operate." David Heacock, vice president of portable power management for **Texas Instruments** (TI) recently was quoted in an *EE Times* article and remarked that battery counterfeiters are most prevalent in South America, South Africa and India. He references companies disassembling large battery packs into component cells and making smaller packs and then selling them over the Web or at retail - not a desireable practice. (Reference - "Fake batteries blow up in the industry's face" by Rick Merritt, *EE Times*, 09/17/04)

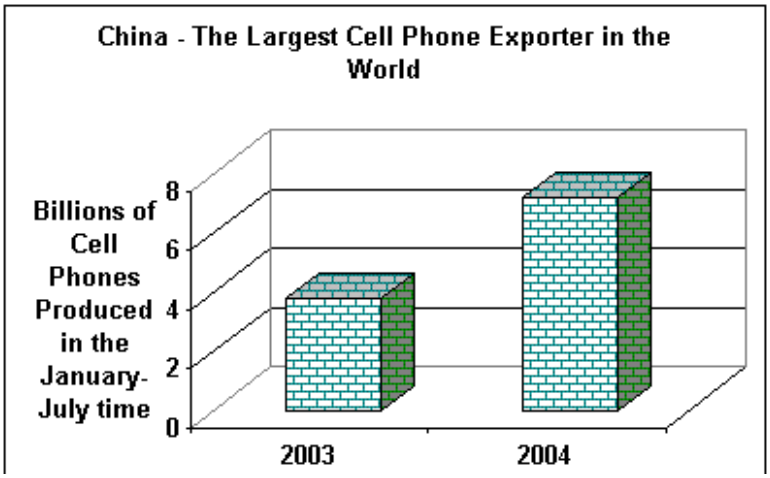
Government policies and practices

In the November issue of *Consumer Reports* in an article entitled "Consumer Reports Find Recalled Products Continue to be Sold to Consumers," the report states that defective goods are still finding their way to the marketplace. The article notes that the CPSC lacks transparency and has loss of funding for staff; this agency rarely destroys even dangerous products. Of course, there are legal issues which complicate the matter. The report also notes that Federal action is inconsistent and that Federal regulators do not always exercise the power they have.

The question remains - Will the report released in the October 2004 from the U.S. Justice Department's IT Task Force really be implemented so that enhanced investigative and prosecutional powers can reduce piracy and counterfeiting of batteries as well as other products? In an article in the *Asian Times* ("Global Economy" by Alan Boyd of Sydney, Austrailia, 10/15/04), Mr. Boyd states that counterfeiters in Asia do not take the threat seriously. He cites one reason efforts are not working in the U.S. is that there are too many enforcers. In congressional testimony in September 2004, approximately a dozen government agencies were listed as having some jurisdiction over intellectual property rights but these agencies did not necessarily work together. Although there is much recent rhetoric in the press about co-operative strategies among agencies (i.e. through STOP - Strategy Targeting Organized Piracy), Mr. Boyd says, "few believe they will succeed."

Cures

Proactive government - But the proactive initiatives in STOP may work. As a collaborative effort among the U.S. Department of Justice, Commerce and Homeland Security and the respective offices of the U.S. Trade Representative, the initiative aims to thwart international criminal piracy and counterfeiting by crushing criminal networks, protecting U.S. businesses and stopping pirated and counterfeit goods at U.S. borders. In implementing this plan, the U.S. will publish an annual list of foreign companies known to be producing or trafficking in fakes. In praise of the STOP initiative and its public announcement in October 2004 , John Ashcroft said, "Just as geography no longer limits criminal activity, law enforcement will not be deterred by the boundaries of our nations. We must cooperate with those around the world."



from the Ministry of Commerce in China, during the first seven months in 2004, over 73 million cell phones went to overseas markets. Most phones had foreign components, assembled in China. About 94 percent of the cell phones had materials supplied by clients. Joint-ventures produced most of the Chinese exported cell phones. Seventy-five percent of the exported cells phones went to the United States, Hong Kong, Germany and Singapore.

In a 2004 Special 301 report, United States Trade Representative Robert B. Zoellick provided an annual review, which examined in detail the adequacy and effectiveness of intellectual property protection in approximately 85 countries. In the Executive Summary, in reference to China, he said, “Addressing weak IP protection and enforcement in China is one of the Administration’s top priorities. At the April 2004 meeting of the Joint Commission on Commerce and Trade (JCCT), the United States secured a commitment from China’s Vice Premier Wu Yi that China will undertake a series of actions to significantly reduce IPR (Intellectual Property Regulation) infringements throughout the country. These actions, outlined in the China section of the report, are critical in light of the rampart counterfeit and piracy problems that plague China’s domestic market and the fact that China has become a leading exporter of counterfeit and pirated goods to the world. We will be monitoring implementation of these commitments closely through a Joint IPR Working Group formed through the JCCT and will assess China’s progress on their commitments through an out-of-cycle review in early 2005.”.

Recall - Black Diamond Headlamp and Lithium-ion batteries. Recalled batteries are not only associated with cell phones and computers but can also be from other products. About 1,000 units were recalled this November because each battery could potentially “overheat, posing a burn or fire hazard to users,” according to the Consumer Product Safety Commission. The manufacturer of the battery is not given. CPSC states “Manufacturered in: China.” +

Technology advancements - Both software and hardware solutions are being developed and implemented. Of course, this may add to the price of each battery, but quality and safety should take precedence over price.

Dave DeMuro of **Motorola** Energy Systems Group said in reference to a smart battery for a cell phone or PDA, "The most basic feature is that of identification, as in 'what kind of battery is this, and (perhaps more importantly), is it genuine?'." He believes that a basic robust identification system will not only require some type of read-only memory device in the battery but also a serial communication bus and host firmware. (Quote from "Intelligent Batteries: Not 'One Size Fits All' " by Dave DeMuro, *Battery Power Products & Technology Magazine*, 03/04) The following describes what some of the companies are doing to take aim at counterfeit batteries.

— NEC has developed a software-based system which verifies the legitimacy of batteries in cell phones and digital still cameras. The software solution is for use with the company's own microcontrollers, which are typically installed in the device and battery. NEC uses its "CipherUnicorn-S" encryption technology to verify the battery's authenticity. If a fake battery is inserted, the device will not allow the person to use the battery or will warn him/her that the battery is not suitable.

— Microchip has a Keeloq secure algorithm which can be used for battery authentication in portable applications. With the use this algorithm, a differentiation can be made between genuine and counterfeit batteries. By integrating Microchip's PIC microcontrollers into the host system, and one of its PowerSmart battery fuel gauge devices in the battery pack, secure authentication solutions can be made without adding excessive complexity to the system.

— Dallas Semiconductor provides a low-cost suite of identification and validation products that create a barrier to potentially hazardous accessories. The DS2505 provides a unique ID and EPTROM memory, while the DS2432 adds the security of the industry-standard SHA-1 encryption, both requiring only a single serial-interface contact.

Professional responsibility - The industry leaders know that standards in developing reliable and safe products are crucial and they have been working through their professional society to finalize approved specifications. The IEEE **(Institute of Electrical Engineers)** is currently working on the development of IEEE P1725TM, "Standard for Rechargeable Batteries for Cellular Telephones." The proliferation of cell phones with Lithium-ion and Lithium-ion polymer batteries has prompted the development of the new standard to improve their reliability. "IEEE P1725 will extend existing cell phone battery standards and help the industry meet future requirements," said Jason Howard, Chair of the Cellular Battery Standards Working Group and Energy Technologies Manager at **Motorola**. The group will consider battery and battery pack electrical and mechanical construction, chemistries, process control, qualification and packaging technologies, among other areas. It will be developed by companies that manufacture batteries, cells and handsets, as well as by carriers.

In April 2004, the Institute released a new specification for the design and manufacturer of laptop batteries known as IEEE P1625TM. As stated by the IEEE, the new standard will be used "to reduce the incidence of user problems; the portable computer and battery industries need standardized criteria for qualification of rechargeable battery systems and for verifying the quality and reliability of those batteries." The newly developed specifications cover manufacturing process control requirements, energy capacity and demand management, levels of management and control within the battery systems, and updates to Lithium-ion battery chemistries and packaging technologies. In addition the document also specifies a variety of scenarios that consider combinations of factors for potential battery failure. For additional information see the website: http://standards.ieee.org

Recommendations - Those making decisions in manufacturing and supply product can't be too careful. The following are a few tips from those individuals and companies working to provide a reliable and safe product.

• Know the people in the entire supply chain. Michael Kirschner, president of **Design Chain Associates** says, "Above all, deep knowledge of your suppliers through all levels of the supply chain is crucial.

•Everyone needs to be careful and cautious; no one is immune. "We have seen counterfeit products come through every channel, including OEM excess, franchised distributors and even from the factory," said Sid Mohasseb, a director of the **Independent Distributors of Electronic Association**.

• Utilize as many authentication techniques as possible. Ram Manchi of the **Alliance for Gray Market and Counterfeit Abatement** suggests techniques such as software keys, watermarking or radio frequency identification.

• For sourcing in China, hire an Asian agent to weed out poor suppliers. Gene Richer, a chief procurement officer for **IBM**, says hiring an agent out of Hong Kong to make the first pass for you may help find more reliable suppliers. The agent can weed our the counterfeiters and suppliers of questionable quality. Also, listen to reliable suppliers with whom you already work.

• The lowest price may not be the best deal. Joe Abelson, director of business development for **iSuppli**, notes that the best price may not be the lowest cost.

• Educate everyone in the battery supply chain, including the ultimate user, about counterfeit batteries. For example on Nokia's website, they show samples of counterfeit batteries and note how there are often errors in printing (labeling).

• Purchase cells and batteries from "tried and true" sources. On November 18th, 2004, **Newer Technology Inc**. and **Other World Computing** announced the sale of their 53.3 Watt/hour NuPower AL 15 battery as a replacement battery for the 15-inch Aluminum G4 PowerBook. In the press release, the companies particularly noted that the batteries are built in the United States using premium Lithium-ion cells manufactured in Japan and Canada. Evidently, the companies felt it important to note that the cells and batteries were not coming from China and/or other global sources where counterfeit and defective batteries have become a significant problem.

Challenges

Perhaps there will not be an all encompassing cure for those who create and pass on counterfeit/defective batteries, but if those enjoying the monetary benefits of running these gray operations find that their businesses are being choked and stifled, their distribution networks will starve and there will be no incentive to continue such businesses. This is a way to treat, if not totally cure, the illegal and shoddy practices. However, to succeed in eradicating this gray market, government and all reputable companies must ardently work together. No link in the chain can afford to be weak; laisser-faire enforcement and/or uncooperative actions by those in the battery businesses will only allow the infected battery market to thrive.

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