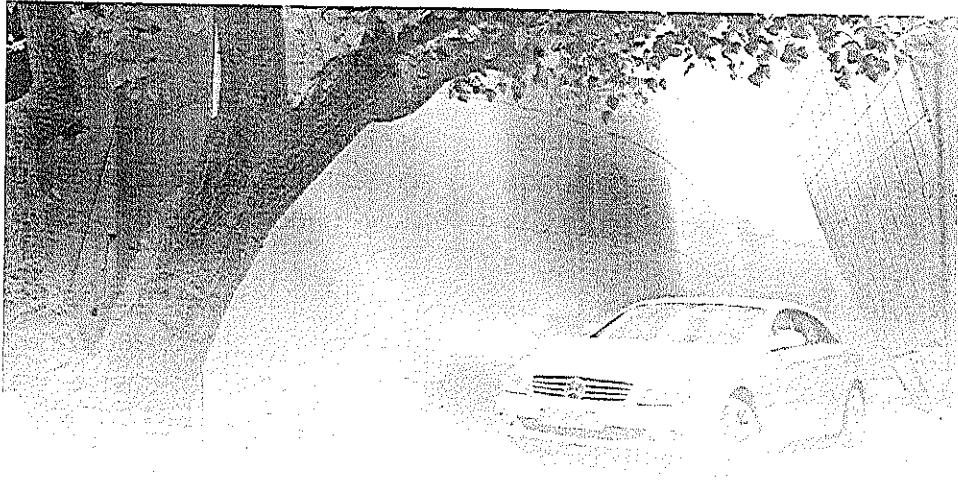


燈具回收 —

該做之負責任的事

作者Peter Bitto



能源效率之螢光與 HID 燈具在過去幾年間，相較於白熾燈泡已獲得廣泛的使用，而汽車停車場是某些這類照明產品的最大用戶。

他們日增的受歡迎度是因為螢光燈只用到普通白熾燈泡約四分之一的電量。同時，螢光燈能持續平均10,000小時；傳統式白熾燈泡只運作約750小時。那是頗大的差距，特別是在你考量到時間與金錢上的投資，更別提在節約電力成本的潛能。

不幸的是，不是每個人都知道螢光燈管和HID燈具內含小量的汞。沒被打破，這些產品完全安全可供處理與使用。被打破時，即使在這些產品中小量的汞，也能構成曝露於此一神經毒素之風險。

因為這樣，對他們的適當棄置曾有所顧慮。所需要的是全面回收解決方案，讓這些產品能被安全的處理，及燈管與球的所有部件都被全面回收。這一點如今已經在全澳洲可供運用，而汽車停車場業界的全體成員都

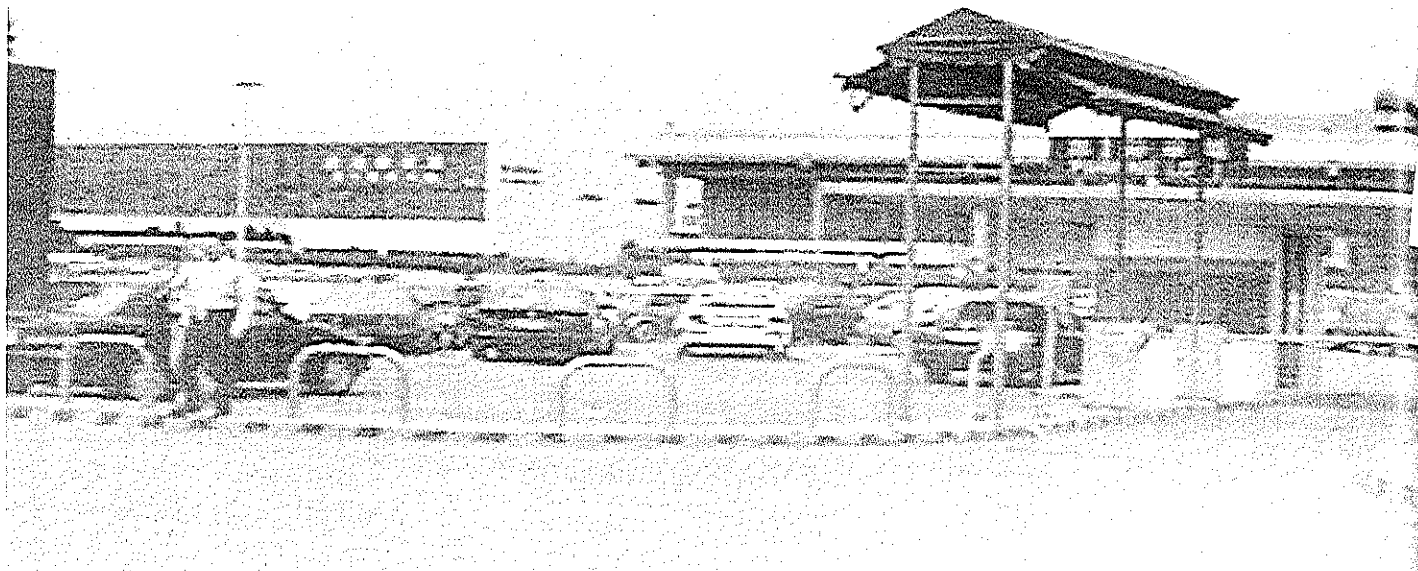
受到鼓勵來支持它。他們有責任要確保這些產品被回收，而非被送去掩埋場。

用過的照明產品是我們市區固體廢棄物系統中最大的汞污染源。若這種含汞廢棄物棄置於掩埋場，留置在那裡，被埋入且不動，或許它不是這麼個問題。然而，在市屬掩埋場所實施之科學測試顯示，存在於棄置螢光燈管與HID燈具中的金屬汞會隨著時間，被熱與細菌作用轉化成極毒且易變的形式，

被稱為甲基汞，而此一毒性氣體被風的作用廣闊散播在環境中。

這種測試展現出含汞燈具被棄置之掩埋場上方的空氣，含有較周遭區域高達50倍更高的汞水準。

每年在澳洲有高達7千萬的含汞燈具被棄置，傾倒超過20,000公噸的汞污染廢棄物至國家之掩埋場中。經由不當的棄置方法，汞能從土壤移往各種水源。湖泊、河流及岸際海洋都曾發現受到汞污染，經常造成某些



魚類不能安全食用。

約100隻破裂的螢光燈管就含有足夠的汞來污染約10億公升的海平面上水源。那是超過25,000座奧運大小游泳池所能裝下的水容量。

目標不是藉警告人們汞污染之健康與環保影響而讓他們恐慌。而是，要鼓勵他們在購買及安裝最佳形式的能源效率照明後，他們全程貫徹來適當的回收它。做為生意人，我們有責任要做正確的事，並確保所有的螢光燈管與球都被回收。

除了棄置汞到我們的環境中之外，我們還每年丟掉超過1,400噸的鋁/黃銅/鋼、及超過20,000噸的玻璃和大量的其他昂貴且非常能源密集之產品，其可被許多產業所重複使用。

除了此種廢棄物是我們掩埋場場址之汞污染主要來源的事實外，我們也丟棄有價值的、能源密集的原料，其若被蒐集與回收，將每年代表著27,500噸溫室氣體的減量。再加上所節約的能源，將代表著從路上消除掉5,620輛汽車、或是足以供應6,200戶一般家庭的電力。

對於我們市立掩埋場之汞污染的明顯而負責任之答案是要回收。回收螢光及HID燈

具能將汞、及其他產品摒拒在我們環境之外，並將它們回歸回收鏈，那是它們該去的地方。

目前，CMA公司，是澳洲境內參與環保負責回收所有含汞廢棄物，包括螢光燈管及HID燈/球之唯一經EPA許可的公司。

燈具及燈管直接由該公司從各種源頭及澳洲與紐西蘭各部份加以蒐集，或經由與廢棄物管理公司有關之第三方。它也供應特定建造之蒐集附件，或以較小數量之，特殊預付蒐集盒。

被蒐集之材料被有效率及合乎成本效能的回收，並提供顧客回收證明，做為對於他們材料被負責任及環保友善的回收之證據。

Peter Bitto是CMA之生週圈的諮商國家銷售經理，且可於peter.bitto@cmacorp.net連絡到他。

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Lamp Recycling - The Responsible Thing to Do

BY PETER BITTO



ENERGY-EFFICIENT FLUORESCENT AND HID lamps have gained widespread usage over the years compared with incandescent bulbs, and car parks are some of the biggest users of such lighting products.

Their increasing popularity is due to the facts that fluorescent lights use only about one-quarter the energy of a common incandescent bulb. Also, fluorescent lights last an average of 10,000 hours; conventional incandescent bulbs work for only about 750 hours.

That's quite a difference, especially when you consider the investment in time and money, not to mention potential in saved energy costs.

Unfortunately, not everybody is aware that fluorescent tubes and HID lamps contain small quantities of mercury. Unbroken, these products are totally safe to handle and to use. When broken, even the small quantity of mercury in these products can pose a risk of exposure to this neurotoxin.

Because of this, there have been concerns over their proper disposal. What is required is a total recycling solution, where these products can be

safely processed and all parts of the tubes and globes fully recycled. This is now available Australia-wide, and all members of the car parking industry are encouraged to get behind it. They have the responsibility to ensure that these products are recycled and not sent to landfill.

Spent lighting products are the largest source of mercury contamination in our municipal solid waste systems. If such mercury-containing waste disposed at landfill, stayed there, buried and immobilised, perhaps it would not be such a problem. However, scientific tests carried out at municipal landfills show that the metallic mercury present in the disposed fluorescent tubes and HID lamps is, over time, converted by the action of heat and bacteria into a very toxic and volatile form known as methyl mercury, and this toxic gas is spread widely into the environment by the action of wind.

Such tests demonstrated that the air over landfills where mercury-containing lights are disposed contains up to 50 times higher levels of mercury than the surrounding areas.

Up to 70 million mercury-containing lamps are disposed of in Australia each year, dumping more than 20,000 metric tons of mercury-contaminated waste into the nation's landfills. Through improper disposal methods, mercury can travel from the soil to various water sources. Lakes, rivers and the coastal oceans have been found to be polluted with mercury, regularly rendering some fish unsafe to eat.

About 100 broken fluorescent tubes contain enough mercury to contaminate about 1 billion litres of water above safe levels. That is the volume of water contained in more than 25,000 Olympic-size swimming pools.

The objective is not to alarm people by alerting them to the health and the environmental impact of mercury pollution. Rather, it is to encourage them that after having purchased and installed the best form of energy-efficient lighting, they go all the way and recycle it properly. As business people, we have a responsibility to do the right thing and ensure that all fluorescent tubes and globes are recycled.

In addition to the disposal of mercury into our environment, we also are annually throwing out more than 1,400 tonnes of aluminum/brass/steel, and more than 20,000 tonnes of glass and quantities of other expensive and very energy-intensive products, which could be reused by a number of industries.

Apart from the fact that this waste is the main source of mercury contamination of our landfill sites, we also are discarding valuable, energy-intensive raw materials, which if collected and recycled would annually account for 27,500 tonnes of greenhouse gases reduction. Added to this, the energy saved would represent 5,620 cars off the road or electricity sufficient to power 6,200 average households.

The obvious and a responsible

answer to the mercury contamination of our municipal landfills is to recycle. Recycling of fluorescent and HID lights keeps mercury, and other products, out of the environment, and places them back into the recycling chain, which is where they should be.

Currently, CMA Corp. is the only EPA-licensed company in Australia involved in the environmentally responsible recycling of all mercury-containing waste, including fluorescent tubes and HID lamps/globes.

Lamps and tubes are collected directly by the company, or via third-party associated waste management companies, from all sources and all parts of Australia and New Zealand. The company is capable of recycling all lighting waste generated in Australia. It also can supply purpose-built collection spillages, or for smaller quantities, special prepaid collection boxes.

The collected material is efficiently and cost-effectively recycled, and customers are provided with a recycling certificate, as evidence of responsible and environmentally friendly recycling of their material.

Peter Bitto is Consultant National Sales Manager for CMA's Eco Cycle, and can be contacted at peter.bitto@cmacorp.net.

