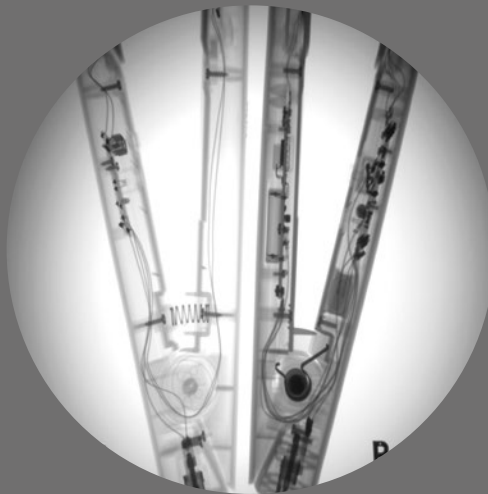
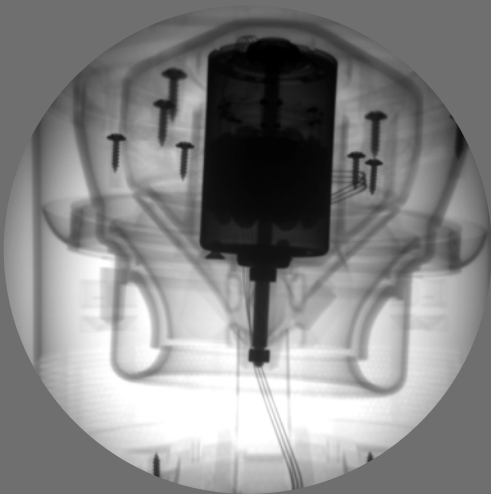


A shocking rip off

The true cost of counterfeit electrical products





About Electrical Safety First

Electrical Safety First is the UK charity dedicated to reducing deaths and injuries caused by electrical accidents. Our aim is to ensure everyone in the UK can use electricity safely.

We campaign on behalf of consumers and electrical trade professionals to improve safety regulation and ensure safety messages are appropriate, up to date and well communicated.

We provide expert information and advice to help people protect themselves from faulty, damaged, sub-standard, and poorly maintained electrical installations and electrical appliances.

We are recognised by government and industry as the leading campaigning charity and technical authority on electrical safety.

A shocking rip off - The true cost of counterfeit electrical products

Director General's Forward

Electrical Safety First has been highlighting the risks associated with counterfeit electrical products for some time now. However, given the increasing volume of these dangerous goods ending up in UK homes, we decided the issue required further investigation.



Our mission includes aiding those organisations tasked with safeguarding the public, which we undertake in a variety of ways. Our plug gauge cards, for example, developed to help officers 'in the field' to rapidly assess suspicious products, have been so well received that we have recently provided samples to every Trading Standards office in the country.

However, Trading Standards and other agencies need more support to effectively combat the danger

of counterfeit goods, which is only likely to be achieved if the true scale of the problem is recognised. This report aims to raise awareness of the issue and the very real threat that counterfeits pose to consumers. Around half of all domestic fires in Great Britain arise through electricity (with the majority caused by electrical products), at an estimated cost of £1 billion. Of course, the personal cost is incalculable, but we know that electricity kills around one person every week and several hundred thousand people a year experience a serious electric shock.

We believe it is in everyone's interest, retailers and manufacturers, enforcement agencies and government, and most crucially the public, to work together to combat counterfeiters. We want to ensure that when you buy an electrical product you get the real deal and not a disaster waiting to happen.

A handwritten signature in black ink, which appears to read 'Phil Buckle'. The signature is written in a cursive, flowing style.

Phil Buckle, Director General

Jim Fitzpatrick MP

Jim Fitzpatrick has been the Member of Parliament for Poplar and Limehouse since 2010, and for its predecessor Poplar and Canning Town since 1997. He was a fire-fighter with the London Fire Brigade for 20 years, and was awarded the Fire Brigade Long Service and Good Conduct Medal. The secretary of the All-Party Parliamentary Fire Safety and Rescue Group, he has frequently worked for improved fire and electrical safety in parliament.



Modern life would be impossible without electricity and the benefits it provides. Like all of us, I depend on electricity and the gadgets and tools it powers, both in my work as an MP and in my personal life, so I was extremely concerned to discover that many products we use in everyday life may not be what they appear.

Thanks to the UK's robust standards, when I buy electrical goods I feel confident that what I am buying is both good quality and safe. However, unscrupulous manufacturers are undermining that trust and selling counterfeit products that not only damage reputable businesses but also put the public at risk.

As this report by Electrical Safety First shows, fake electrical products present a number of issues. This can range from the trivial, such as a product failing to work as advertised, to the potentially deadly. In the worst case scenario they can deliver a fatal electric shock or cause a dangerous fire. The problem is made more serious by the fact that many who buy these fake goods will be doing so without realising it and placing their families, friends and neighbours at risk as a result.

In my work as a member of the London Fire Brigade I have witnessed first-hand the tragic consequences of house fires. So I firmly support any initiative designed to prevent such awful events and I am delighted that Electrical Safety First have asked me to introduce this report. I believe the recommendations it contains serve as a good road-map towards a safer environment for consumers, and I hope they are acted upon in a timely and effective fashion.



Jim Fitzpatrick MP

This investigation was conducted with the generous support, knowledge and expertise of Trading Standards, the London Fire Brigade, Bureau Veritas, Nemko Ltd. Safety Testing and Certification, the Anti-Counterfeiting Group (ACG) and a number of manufacturers who provided genuine and counterfeit products for comparison.

Executive Summary

Counterfeit goods present a particularly insidious threat to the consumer, undermining legitimate manufacturers and retailers whilst also often posing a risk of fire or serious electric shock.

Electrical Safety First has been monitoring the problems caused by counterfeit electrical products for a number of years, and it has become clear that this problem is steadily increasing, with counterfeits becoming ever more difficult to detect, and even the most sophisticated consumer products now falling victim.

It has never been easier for counterfeit products to enter the UK marketplace, with internet based sales portals, social media marketplaces and the ability for anyone with a bank account and internet access to import products from anywhere in the world. At the same time, those agencies tasked with tackling the counterfeiting menace are having the resources available to them spread ever thinner.

As part of this research, a number of counterfeit products were acquired and investigated. This investigation revealed poor build quality, substandard components, missing safety features and potentially dangerous deficiencies in design.

In order to reduce the risk to the public from these products, a series of recommendations were produced. These are, in brief:

- From all parties, recognition that counterfeit electrical products are a serious and growing problem.
- For the government – market surveillance and enforcement authorities must be given more support, be encouraged to work more closely together and share intelligence more effectively both nationally and internationally.
- Manufacturers, importers and retailers must ensure they have full control and traceability over their entire supply chain and audit regularly.

- The public must be educated as to the risks posed by counterfeit electrical products.

The last point is perhaps the most important, as the market for counterfeits would not exist without consumer demand. This requires a concerted and coordinated effort from all stakeholders to raise awareness of the issue.

Introduction

Everyone relies in some way on the products they use and depends upon their authenticity, which is to say that these products are made by a responsible company to recognised safety standards.

However counterfeiting has now reached a level of sophistication whereby even the most complex products are at risk, as criminals seek the profits to be had from ignoring basic safety standards and undercutting legitimate brands.

Poorly constructed to a non-compliant design using inferior or counterfeit components, and not subject to any testing regime, counterfeit devices are prone to failure. In the best case scenario the product will cease to function, in the worst the product may cause a fire or present a serious risk of electric shock.

Counterfeits, especially those at the lower end of the market, are often identified by poor build quality and grammatical errors on the packaging.

Unfortunately for consumers, electronic counterfeits are increasing in sophistication and are no longer so easy to identify or avoid. With some, it is now only really possible to confirm whether the product is counterfeit by investigating its interior.

Most people would probably be very wary about such a course of action, with justifiable fears about damaging the product, difficulties with re-assembly and voiding any warranty and furthermore most will lack the competence to undertake such a task safely. Furthermore, even if they were to take this course of action without detailed guidance it is highly unlikely that most consumers would be able to differentiate between genuine and counterfeit components.

Recent research commissioned by Electrical Safety First has indicated that 2% of people in Great Britain have knowingly bought a counterfeit product in the last year – over a million people¹. However, the true figure is almost certainly significantly higher, as many will have unknowingly bought counterfeits.

Counterfeit electrical products are thought to cause billions of pounds of damage every year, both in terms of the economic impact and the fires and injuries they cause when

they malfunction. Whilst figures for fires caused directly by counterfeit products are hard to come by, fires caused by faulty electrical products are responsible for over 7,000 domestic fires a year. With the average cost of a house fire estimated at £44,500, even if only a small proportion are due to counterfeit goods the direct financial impact is likely to be significant, leaving aside the human cost of such fires.

The market for counterfeit goods in the UK is thought to be worth more than £1.3 billion per year, of which an estimated £900 million helps fund organised crime. Groups such as the World Customs Organisation (WCO) and the Organisation for Economic Co-operation and Development (OECD) estimate that the trade in all counterfeit products may account for as much as 7% of the world's trade every year². However, it is impossible to say with accuracy how many counterfeit goods are in circulation, as it is only possible to record those which are detected and removed from the market.

¹ Electrical Safety First Ipsos Mori poll conducted in 2015. 1 million figure derived from GB population mid 2013 estimate from ONS = 62,275.9k, therefore 2% = 1,245,518 approximately.

² "The Economic Impact of Counterfeiting" - Organisation for Economic Co-operation and Development - www.oecd.org/sti/ind/2090589.pdf

Figures released in March 2015 by Trading Standards³ show that the authority detains more than 6,500 items a day, and nearly two in five interventions at ports and borders resulted in items identified as “unsafe or noncompliant” – this included 64% of all LED lamps tested. Each unsafe or noncompliant item removed from the supply chain saves the UK economy £30.80, but those detected are thought to only represent a very small amount of the actual volume entering the country. Some estimate that counterfeiting has grown by 10,000% in the last two decades as manufacturing becomes cheaper and easier. This trend should be expected to increase without decisive action, which is especially worrying given that almost 50% of all Trading Standards authorities have investigated counterfeit electrical products in the last year alone⁴.

A key driver in the growth of counterfeit electrical products is cost. For example, a legitimate manufacturer may retail a smart phone charger at £15-20, whilst a counterfeit version may be available for less than £1. From investigation, the primary reason counterfeits are on sale for so little is that significant shortcuts have been made in every area, most importantly those governing the products’ performance and safety. This is exacerbated by the rapid growth in online sales portals, a lack of sufficient regulation and oversight and, crucially, a lack of consumer knowledge.

Even on very low-cost products such as plug fuses counterfeiting is widespread. Informal estimates by enforcement officers suggest that a relatively large percentage of all fuses in products in the UK may be counterfeit, and this percentage is likely to be far higher in counterfeit products. Counterfeit fuses introduce a potential fatal risk into the product design, which is compounded if used in conjunction with other counterfeit components, with each substitution increasing the risk to the user.

The issue is not limited to counterfeit products sold via the internet or market stalls, as there have been a number of products sold by legitimate retailers which (presumably unknowingly) contained counterfeit components. This demonstrates that the problem is not limited to those who operate with a disregard for the law.

In producing this report Electrical Safety First aims to raise awareness of this growing problem and suggest key actions for stakeholders to help turn the tide of counterfeit electrical products entering the UK.

³ www.tradingstandards.uk/extra/news-item.cfm/newsid/1712

⁴ IPO IP Crime Report 2014/15

How responsible manufacturers bring their products to market in the EU

Counterfeiters undercut legitimate, responsible manufacturers in a number of ways. These include using substandard materials and components; poor manufacturing techniques; disregarding safe working conditions and environmental protections and ignoring basic product safety standards.

Before selling a product in the EU, manufacturers must meet a number of basic requirements to ensure that any product they sell meets EU standards, and above all is safe. As these steps require oversight, responsibility and financial outlay to make sure the correct procedures are followed, counterfeit products undermine responsible manufacturers by ignoring them altogether.

Some of the key components of the safety regime are the Low Voltage Directive (LVD) and the CE mark, both of which legitimate manufacturers must abide by in order to sell products in the UK and EU.

The LVD sets out the basic standards electrical products must meet before being placed on the market, whilst the CE mark is a visible self-declaration by the manufacturer that the product has been assessed before being placed on the market.

By placing the CE marking on a product a manufacturer is declaring conformity with all of the legal requirements to achieve CE marking, and takes full responsibility for that product. It also means the product satisfies the legislative requirements to be sold, and that the manufacturer has ensured that the product conforms to all relevant essential safety requirements.

This approach is intended to help make sure that only safe products are placed on the UK market. However, much of the financial gain counterfeiting makes possible is due to complete ignorance or disregard of these important measures.

Technical investigation and case studies

In order to determine the risk posed by counterfeit products and understand what shortcuts have been taken in their construction, a selection of counterfeit products were acquired, along with a confirmed genuine product for comparison.

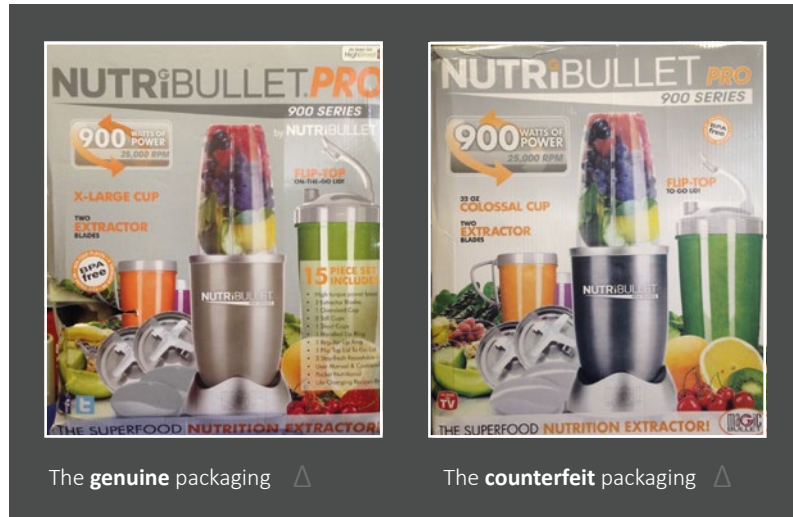
Test process for counterfeit goods	Products Investigated	Example of anti-counterfeiting strategies
<p>A test and inspection regime was planned for each product, with several stages:</p> <ol style="list-style-type: none"><li data-bbox="225 898 571 1290">1. Non-destructive physical examination and photography of relevant points of interest, including product markings The products were compared thoroughly, both in appearance and in operation. Discrepancies in instruction were noted, particularly if there was a performance penalty such as shorter operation times, slower operation, and so on.<li data-bbox="225 1346 571 1547">2. X-ray photography of products Appropriate products were subjected to x-ray photography, so that differences in the interior of the product can be shown clearly.<li data-bbox="225 1603 571 1863">3. Destructive testing and examination of the products The products were sent to a test house for destructive investigation, in order to determine whether they meet the required standards and what hazards they may present.	<ol style="list-style-type: none"><li data-bbox="647 730 991 763">1. Blender/Juicer<li data-bbox="647 797 991 831">2. Bladeless Fan<li data-bbox="647 864 991 898">3. Steam Mop<li data-bbox="647 931 991 965">4. Mobile Telephone Charger<li data-bbox="647 999 991 1032">5. Hair Straighteners<li data-bbox="647 1066 991 1099">6. Plug Fuses	<ol style="list-style-type: none"><li data-bbox="1067 730 1410 763">1. Battery Charger

1. Blender / Juicer

This counterfeit is of a popular brand of high-power blender, and is a very high quality counterfeit in appearance, missing the usual easy identification points such as grammatical/typographical errors. Key identification points are the different positioning of the CE marking and the absence of other important marks on the product, and that the colouration of the metal shell is incorrect for the model – but these are not things which the average shopper would notice.

The packaging in particular was a very close copy. An example of the packaging is pictured, with the genuine packaging on the left and counterfeit on the right, showing the lengths counterfeiters will go to make their products look legitimate.

This product was also shown to enforcement officers, who often found it difficult to quickly distinguish between the real product and the counterfeit, even after fairly intensive investigation of both products.



A number of deficiencies were identified with the counterfeit product.

A locked rotor test was conducted, in order to simulate how the product would respond if something jammed in the blender, such as a nut, or a mass of ice. When the test was left to run, the fake appliance caught fire after the self-resetting thermal cut-

out had opened for the second time, resulting in the damage shown in the photographs below.

Other observations on this product are that the rating of some of the components is less than the rating of the appliance and therefore increases the risk of failure, and that the motor in the blender is incorrectly labelled for use with the UK mains supply.



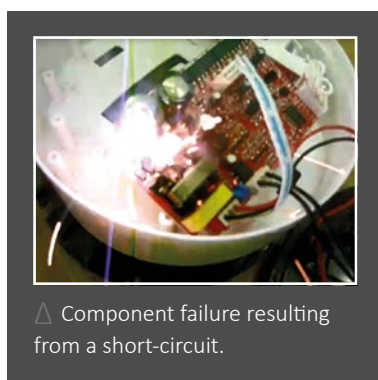
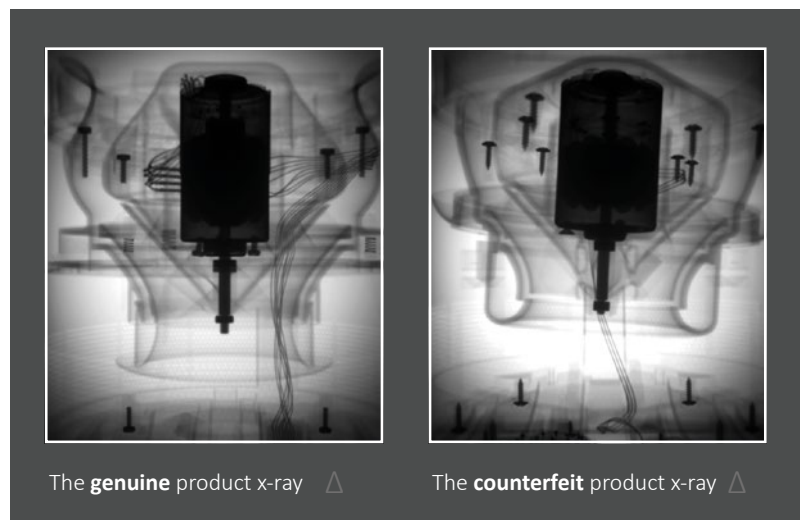
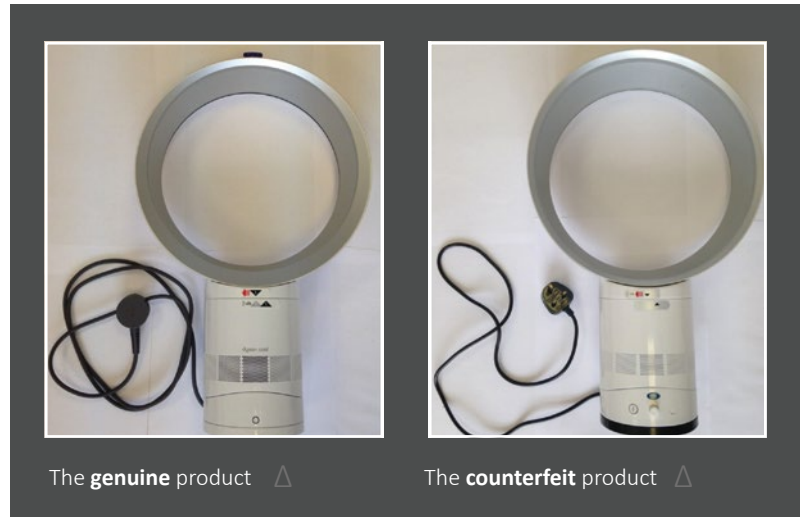
2. Bladeless Fan

Bladeless fans of this design have been falling victim to counterfeiters since shortly after their debut. Differences in product performance were immediately obvious; the counterfeit fan was much louder than the genuine model and delivered a noticeably weaker airflow.

Differences in exterior build quality were also immediately apparent, with the counterfeit's construction and materials being of a much lower quality. The required markings were also absent from the counterfeit, including CE marking, whether the appliance is double insulated or earthed and the make and model number.

During testing of the counterfeit bladeless fan a short-circuit was introduced. Roughly one minute later smoke was seen emanating from the printed circuit board (PCB), followed shortly by an explosive flash and the component bursting into flames, as seen in the image below.

This shows the lack of appropriate fail-safe measures in the design – properly designed electrical products should never fail in a manner which results in a fire.



Furthermore, this test was done with the fan disassembled. If this had occurred whilst the fan was intact, it is possible that the risk of a larger fire would be substantially increased by the close proximity of non-metallic materials and associated wiring immediately above the PCB.

Other deficiencies identified included a poorly assembled and incorrectly wired mains plug with the live wire being connected to the incorrect pin, and a counterfeit and incorrectly marked mains lead. This lead was marked as being 3 core and 0.75mm², but when inspected was found to be 2 core and 0.5mm².

3. Steam Mop



When opened for preliminary investigation, a number of serious faults were immediately obvious, including inadequate wiring terminations and a lack of basic protections against water for components near the miniature steam boiler.

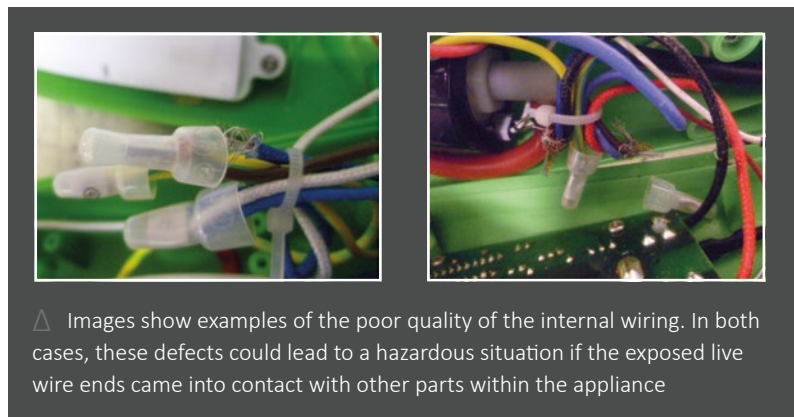
The counterfeit product lacks a safety steam pressure relief valve, which directs excess steam away from the user if the steam pressure exceeds safe limits. In the counterfeit version of the product the steam leaked from gaps in the housing even before excess pressure occurred, potentially leading to a foreseeable risk of scalding and electric shock.

The image (left) shows a fully assembled steam mop. For this investigation only the body was subjected to testing as the rest of the product contains no electrical or electronic components.

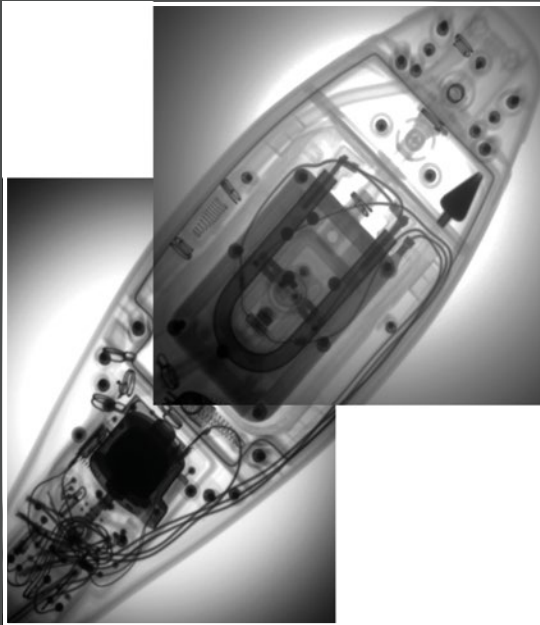


Above: An important safety feature, the hole to the right of the image, below the central recess at the head of the steam mop body is a safety relief valve. If excess pressure builds up in the boiler unit inside the mop – perhaps due to a blockage, a valve opens and the steam is vented through this hole, away from the user.

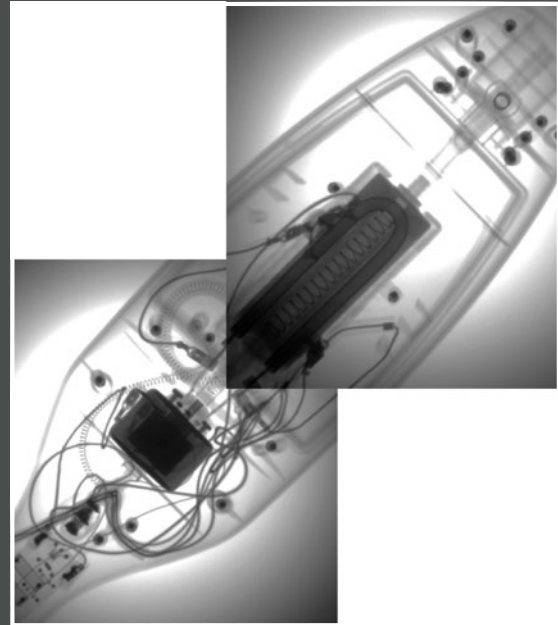
Without such a feature, there is a risk that dangerous pressures would build up inside the boiler unit, or it would vent inside the body of the mop, potentially compromising the electronics, as well as posing a possible scalding risk to the user.



△ Images show examples of the poor quality of the internal wiring. In both cases, these defects could lead to a hazardous situation if the exposed live wire ends came into contact with other parts within the appliance



The **genuine** product ▲



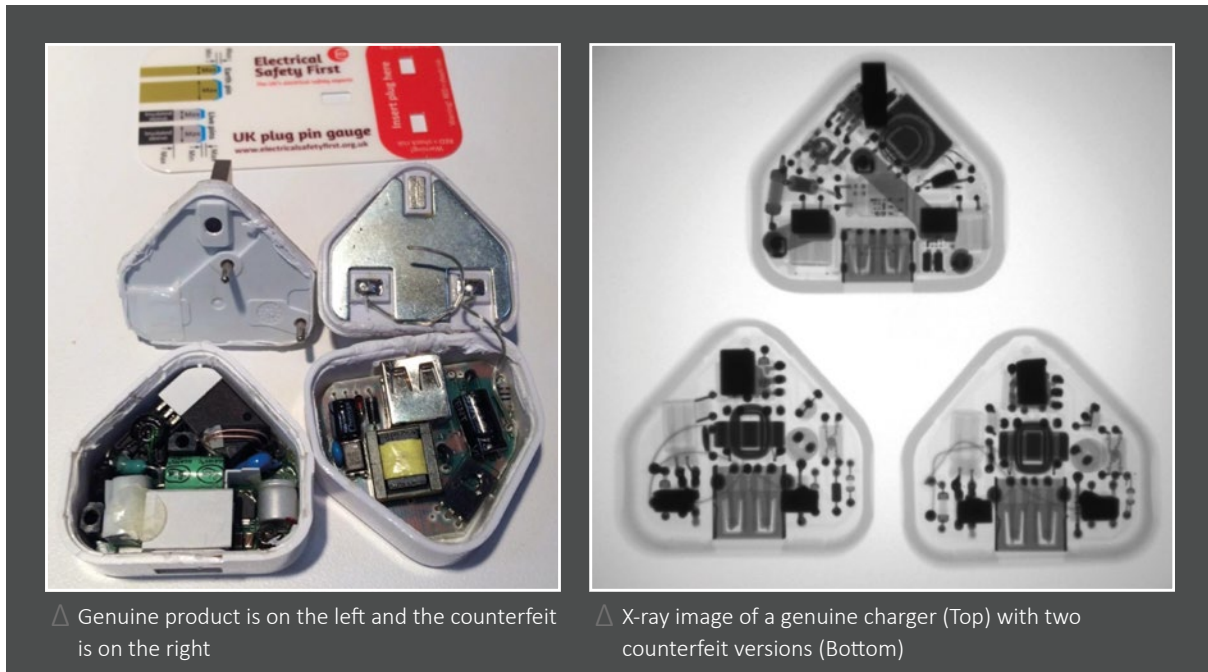
The **counterfeit** product ▲

Composite x-ray images show the main body and “nose” of the product

At the start of the inspection of these products one counterfeit steam mop was found to be non-operational. Upon opening the product for further inspection, it was discovered that a number of connectors were loose or not actually connected, rendering the product useless. In another sample the connections used were of extremely poor quality and the cable cores lacked the necessary sheathing to adequately protect them from damage. This example is indicative of the generally poor quality of most counterfeit products and the lack of care taken in their manufacture.

Other deficiencies with these counterfeits included a lack of a fuse to protect against faults in the electronic circuitry, a lack of the required electrical ratings and, in a departure from the genuine design, it was found to be possible for the steam operation switch to be accidentally triggered, something which the genuine design prevents.

4. Mobile Telephone Chargers



Probably the most popular counterfeit products entering the UK market are mobile telephone chargers, typically with a USB output. Unfortunately, these products were also the most potentially dangerous items tested during the course of this research.

Usually with these counterfeits, the appearance is the simplest method of identification. Spelling mistakes and poor-quality markings are common, and the general build quality is often visibly very poor.

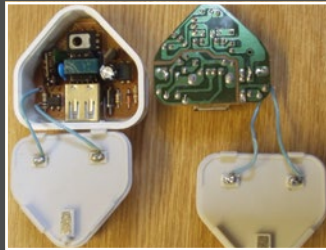
London Fire Brigade noted that the number of components contained in the products was also significantly different between the genuine and counterfeit models. A genuine charger would contain over 60 individual components, whilst a counterfeit averaged 25, with some having as few as 19.

The weight of charger varied as a result, with genuine models weighing over 42g, and the counterfeits normally between 30 and 38g.

As the weight of a charger is an easy way to check whether it is genuine, counterfeiters have pursued a number of strategies to increase the weight of the chargers they produce. The most dramatic evidence of this is that some counterfeit chargers now contain a plate of metal on the reverse of the plug face – see the image above, where a genuine product is on the left and the counterfeit is on the right.

Of the counterfeit chargers tested, eight major failings were identified:

- 1)** The sleeves of the plug pins were found to be too thick, meaning that the chargers would not fit into a standard plug socket without forcing them, risking damage to both the charger and the socket.
- 2)** One of the current carrying plug pins on the counterfeit chargers mentioned in point 1) was found to be of insufficient strength, and during testing the end of the pin broke off.
- 3)** On the PCB the separation between live parts at mains voltage and accessible parts of the USB output circuit was insufficient - The minimum distance is required to be 5mm, but the measured distance was only 1mm. This insufficient clearance could result in damage to the charger, connected appliances and more importantly a risk of fire and electric shock to the user.

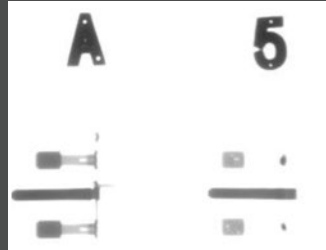


△ Photograph showing disassembled counterfeit charger.

4) There was no supplementary insulation (for example, a barrier or sleeving) to separate the thin insulation of the live wires attaching the plug pins to the printed circuit board from accessible metal parts on the PCB (for example, a USB socket). One of the wires showed evidence of being trapped.

5) The ends of the wires mentioned in 4) had not been secured independently of their soldered connections and the standard of soldering was poor. If one wire broke free, the detached end could contact accessible parts on the PCB and make the output live resulting in a serious electrical shock risk, as well as almost certain damage to any connected phone.

6) The capacitor between live and accessible parts was found to be both uncertified and inadequate for the task, which under simulated short-circuited fault condition tests, resulted in making the output live.

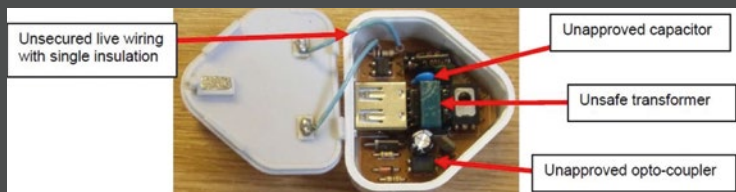


△ Top-down X-ray image of a genuine (A) and counterfeit (5) charger, showing differences in construction of the pins. This in particular shows the lower density and quality of the metal used in the live pins, which can result in the device overheating and reduced mechanical strength, increasing the possibility of the product breaking in the socket and exposing live parts. Above X-ray image is courtesy of the London Fire Brigade.

7) There was no evidence that an opto-coupler component connected between the live and accessible parts of the charger complied with the relevant standards.

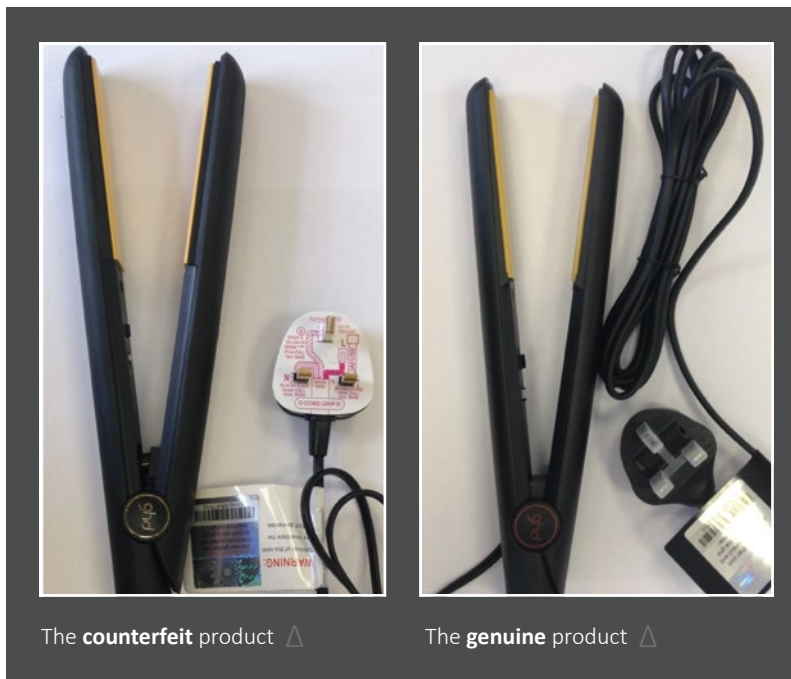
8) The transformer in the counterfeit charger was inadequate and unsafe, and flashed over when tested, terminally damaging the charger and posing a risk of fire.

London Fire Brigade has also reported that on the samples they have investigated the casing of the chargers provides further cause for concern. Firstly, unlike on the genuine chargers, the casing was not properly sealed, and was only clipped on. This means that the counterfeits are far less robust and so are more susceptible to breakage, potentially allowing access to live parts, and moisture ingress. Secondly, the plastic used in the counterfeits was not the polycarbon used on the genuine, but a poly-ABS, which is less resilient and has no fire retardant properties. Furthermore, this material gives off thick, toxic smoke when burning, posing an additional hazard.



△ Detail of counterfeit interior, provided by Nemko Ltd.

5. Hair Straighteners

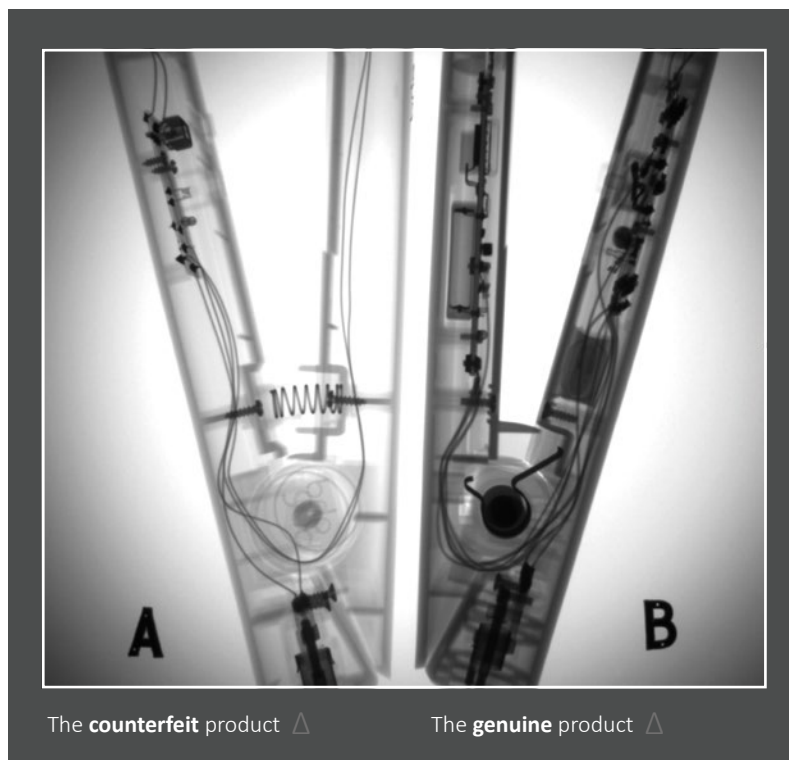


Upon x-raying the genuine and counterfeit hair straighteners, a number of differences are immediately obvious when upon viewing the image.

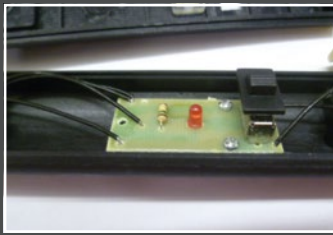
The genuine (Below, B, right hand side) has substantially more circuitry and components.

Hair straighteners are very commonly counterfeited, with a number of premium brands regularly faked. A genuine version of these usually retails at around £90-100, whilst the counterfeit was purchased from a market stall for approximately £30. However, counterfeits have been observed online retailing for around £70, which may seem to the consumer close enough to the real price to suggest that the product is a genuine one offered at a discount.

This is a good example of how, whilst the counterfeit may be as good quality on the outside, the internal components of the product are compromised and severely lacking in both function and basic, essential safety features.



Immediately obvious is the simple internal nature of the counterfeit, with only one very basic circuit board, which has just enough circuitry for the LED light and on/off switch:



Inside the **counterfeit** product ▲

This can be contrasted with the circuitry inside the genuine product, below:

It is also noted that on the counterfeit packaging the claim is made that the product possesses the same safety

feature as the genuine, that of an automatic cut-off which turns off the heating plates after 30 minutes. This is in order to reduce the risk of fire and burns to the user, who may forget that the device is still on after 30 minutes and attempt to handle the device incorrectly, or place it near combustible materials. This protection is entirely absent from the counterfeit product.

Other observations included the total lack of any safety instructions, an on-off switch with no required marking to indicate compliance with the relevant standards, poorly secured internal wiring and insufficient clearance between the “live” and “neutral” tracks printed on the switch / LED printed circuit board. This last deficiency could result in short-circuit and flashover of components, posing a potential risk of fire.



Inside the **genuine** product ▲

6. Plug Fuses

The vast majority of domestic electrical products sold in the UK are fitted with a British Standard 3-pin plug, incorporating a fuse in the design – typically 3A or 13A rated – to act as a protective device for the supply cable and sometimes the product itself. These fuses are designed to operate when exposed to a fault current, isolating the power supply to the lead and attached appliance, and so in theory preventing damage.

However, these fuses are well known to be frequently counterfeited, so completely undermining a basic safety protection. In order to investigate this, a number of counterfeit fuses were subjected to testing for Electrical Safety First.

Of the 15 counterfeit 13A fuses tested, 10 failed. Of these, three exploded, destroying the plug they were installed in, two did not operate and in doing so caused the destruction of the computers they were supplying, one caused sparks to emit from the appliance it supplied and the rest either did not operate or damaged the appliances they supplied.



△ An image taken during the testing, showing one of the plugs exploding away from the socket outlet as a result of the catastrophic failure of the fuse.

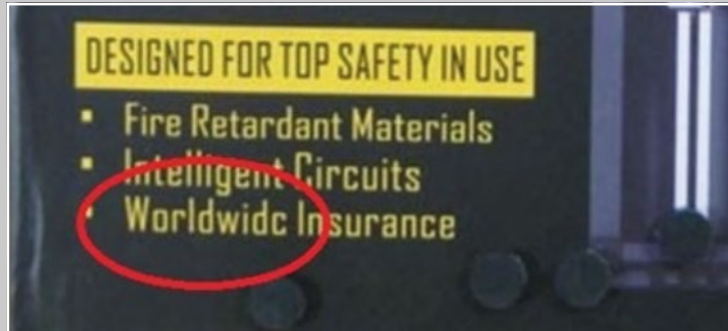
Example of anti-counterfeiting strategies

1. Battery Charger

The manufacturer of this product very generously provided Electrical Safety First with a product direct from the factory to compare with any counterfeit model, but unfortunately it was not possible to source a suitable counterfeit model within the investigation timeframe. However, this product is of interest as it demonstrates a number of approaches manufacturers can use to help consumers identify counterfeit products and reassure themselves that the product they have purchased is genuine.



△ Example of incorrect plug pins.



△ Example of a counterfeit, showing spelling error on packaging

This manufacturer has a page on their website on which they detail counterfeits they have inspected, and have visual guides for potential customers on how to identify them.

The manufacturer also affixes an anti-counterfeiting identification sticker to the packaging. Unique to each

product, a QR code is hidden under a scratch-off panel on this sticker. The QR code takes the purchaser to the manufacturer's official site, where they can register immediately and be given confidence that their product is genuine.



△ This initiative helps prevent the purchase of counterfeits by acting as an immediately visible symbol that the product is genuine, and is hard to counterfeit itself due to the unique number and the need for online verification.

Industry and Market Surveillance views

Several organisations assisted with this work, and their views on the issue of counterfeit electrical products in the UK are shown in this section.

London Fire Brigade statement

Charlie Pugsley, Head of Fire Investigation at the London Fire Brigade, made the following comment:

“If you are buying counterfeit goods, you are inviting a potential fire risk into your home. Faulty or counterfeit electrical goods cause a fire nearly every day in London. There have been some near misses in the last few months and unless people stop buying fake goods, it’s only a matter of time before we are called to a fatal fire.

For example; two genuine Apple iPhone chargers analysed by investigators had 60 or more components in their circuitry while the sub-standard chargers had on average, less than half that number. It is very difficult to see how the fake can be performing to the same standards as a genuine model.

For the sake of saving a few pounds is it worth putting the lives of your family at risk and taking the chance of potentially destroying your home?”

SCOTSS statement

The Society of Chief Officers of Trading Standards in Scotland (SCOTSS) is the professional body representing the lead officers for Scottish local authority trading standards services. We place the safety of consumers at the very core of our work, and welcome liaison with partners such as Electrical Safety First in the fight against counterfeit electrical products and their prevalence in the UK market.

We strive to identify and take robust enforcement action against the suppliers of fake electrical products, which not only damage legitimate business and economic stability in lost revenues, but most importantly risk the health and wellbeing of consumers who purchase products which could cause electrocution or fire, due to their not being manufactured in accordance with recognised standards in terms of performance and safety.

Our main concern, given that trading standards services are facing ever decreasing resources in local councils, is that we are less able to deal effectively with the supply of counterfeit products, national problems at source of manufacture/ importation and the required market surveillance capabilities to effect real change to the marketplace, increasing the risks to consumers and legitimate business.

ACG statement

The Anti-Counterfeiting group (ACG) is a not for profit trade association founded in the UK in 1980 and is recognised as a leading authority on the worldwide trade in counterfeit products. It now represents around 160 organisations globally and campaigns against the trade in fake goods on behalf of consumers and legitimate business interests.

The ACG kindly supplied a wealth of information on the issue, which has proven extremely useful in producing this report. Some extracts from their research is reproduced below.

“Currently there is a lack of data available to properly evidence the scale of the problem. This needs to be rectified to gain collective policy, political and enforcement support.

As counterfeiting has innate links with serious organised crime across the globe, there is now an urgent need for enforcement authorities and industry to exchange information and work alongside each other to prevent production at source, to disrupt supply chains and to ultimately stop the sale of counterfeit products. This should include a specific emphasis on counterfeits being shipped, distributed and delivered in small postal consignments.

Greater evidence and emphasis needs to be placed on raising the overall awareness of government officials, agencies and departments about the increasing number of detections of counterfeit products procured by governments, some of which are intended for military use.

Enforcement officials highlight the need for all information exchange platforms and databases to be interoperable across the EU, to foster more effective cross border collaboration. This should be supported, and industry bodies should be fully engaged in platforms created to exchange data, information and experiences to help improve and safeguard distribution channels.

Nowadays, counterfeits are almost visually identical to genuine products, and the price of a counterfeit can often be the same as a genuine product. The worrying problem, today, is that consumers appear to have no realisation that they are buying products that could maim or even kill them. Therefore, much more awareness work needs to be carried out. As a result, there needs to be more effective cross sector collaboration to build programmes and campaigns that will help to ensure that messages regarding dangerous fakes get through to the general public.

Industry should also take responsibility for helping to raise the overall awareness of younger generations about the dangers associated with counterfeiting.

Dangerous fakes pose a serious threat to public health and therefore all enforcement authorities require more continual training to help improve their understanding and knowledge about how to identify counterfeit, with a new focus on fraudulent shipping documentation, other falsified documents and e-waste.”

Public opinion towards counterfeit goods

Where are people purchasing counterfeits?

Some indication of where these products are being acquired can be gained from the results of a consumer survey conducted on behalf of Electrical Safety First in April 2015⁵.

Of those surveyed, a nationally representative sample, 7% have seen counterfeit electrical products for sale near to them or online.

Of those who claimed to have purchased counterfeit electrical products, 64% purchased online, 16% purchased at a market and 12% purchased in a shop.

This shows that whilst knowing exposure to counterfeit electrical products is relatively low as a percentage, the majority of these products are being viewed and purchased online rather than the traditional marketplace.

From investigation and the views of enforcement officials, this may be happening primarily through online portals, rather than dedicated sites. Separate research has shown that social media is now helping to facilitate the distribution of these products, with the number of sales via this route increasing by an estimated 15% every year. This route for the sale of counterfeit goods is particularly hard to monitor as it is usually conducted through private groups, meaning that it is necessary to be connected to the seller or other members of the sales group in some way, and these sales listings are rarely publically accessible.

However, whilst the percentages are small this still equates to large numbers – over a million people every year are likely to be purchasing counterfeit electrical products.

This figure is likely to be on the conservative side as many people will not know whether they have counterfeit products – many may assume that as long as the product came in good-looking packaging and looks authentic it must be genuine.

⁵ As part of an annual consumer survey conducted by Ipsos MORI on behalf of Electrical Safety First a number of questions were included on counterfeit goods. The results are nationally representative across Great Britain, based on 2013 interviews in April 2015.

Conclusion

As this report shows, the risks to public safety posed by counterfeit electrical products are clear.

The technical investigation, product testing and x-ray photography of each suspect counterfeit product uncovered a number of serious deficiencies. These ranged from poor performance and shoddy build quality to faults which could foreseeably result in a fire or the user receiving a serious electric shock.

As the laboratory concluded in their test report:

“... it was found that although all the fake products failed the relevant harmonised safety standard to a certain extent, the actual safety risk varied greatly. In particular, the [Mobile telephone] charger was considered to be very dangerous, the others less so. Of particular concern was the fact that most of the fake items were very well presented and it would be difficult for the average customer to realise that they were not genuine at the time of purchase.”

It should be considered that whilst this report has understandably concentrated on the electrical issues with the counterfeit products identified, there are numerous other causes for concern. These include the poor working conditions, a lack of rights for those making the products, a lack of social and environmental responsibility and the potential for the products to contain prohibited harmful chemicals and hazardous substances.

The difficulty of determining whether products are counterfeit is a major issue. Indeed, there is a genuine worry that extensive and in-depth guides to spotting counterfeit products may be counter-productive, and inadvertently act as guides for the counterfeiters on how to improve their offerings, evade detection and continue to fool the public. As a result, it is felt more appropriate to produce more general guides for the public on how to spot counterfeit products, and where possible reserve access to detailed studies to those in the market surveillance and enforcement communities.

The consumer research indicates that safety concerns are the most common reason expressed by consumers as to why they will avoid counterfeit goods, with a 2013 survey by Price Waterhouse Coopers showing 75% being of this view. However, Electrical Safety First research has shown that there is a small but not insignificant minority of people who may still buy counterfeit products intentionally.

Unfortunately, even manufacturers with fairly robust traceability over their supply lines can fall victim to counterfeiters. A recent example has been noted by Electrical Safety First of a manufacturer retailing equipment with a dangerous counterfeit plug lead - This illustrates the complexity of issues facing manufacturers, enforcement agencies and retailers, where even products which the manufacturer/retailer believes to be authentic are actually counterfeit.

Conclusion *(continued)*

One way to improve practice and help reduce exposure to counterfeits would be through the widespread adoption of an “Industry Charter”, which gives clear guidelines and places a responsibility on those signing up to help promote the good practice they themselves follow. Electrical Safety First and many other organisations have signed up to such an agreement, The Electrical Installation Industry Charter.

Legitimate, responsible manufacturers are locked into a costly and difficult “arms race” with counterfeiters, with the odds stacked against them as long as the public are willing to purchase fakes. The key action must be removing through education the driving force behind the growth in counterfeit sales - consumer demand.

This problem is only going to get worse as counterfeits increase in production volume, market share and sophistication, matching the growth in demand for consumer electronics.

The online sales platforms must take all reasonable steps to ensure that those listing items for sale agree to only sell authentic products. If, after having agreed to this condition they are found to be in breach they should

be quickly and permanently blocked from using the service and their details recorded and passed to the appropriate bodies for investigation.

The small selection of counterfeit products described in this report illustrates the risks such products pose and how close to the genuine products they are in appearance. Thankfully, whilst relatively commonplace online and in markets, it is still possible for the public to avoid buying fake products if they follow a few easy steps when shopping.

Unfortunately the trend of counterfeit products becoming increasingly sophisticated, and so harder to detect, is likely to continue. As such, whilst it is clearly unrealistic to ever be able to completely halt the flow of counterfeits into the country, a number of clear actions by government, industry and consumers would do much to reduce the negative impact these products will have. These actions are detailed in the following list of recommendations.

Recommendations

1. Manufacturers and Retailers

- Work with enforcement agencies, helping them to identify counterfeits and share intelligence and expertise
- Help to educate the public and promote the safety and quality benefits of genuine articles
- Promote an industry charter encouraging best practice and cooperation
- Manufacturers must take all practicable actions to ensure that products and their components are legitimate and traceable throughout the supply chain
- Have a centrally administered procedure in place to enable easy reporting of counterfeit products
- Online retail portals must take responsibility for the products sold through their services, take all reasonable steps to inform their users of the law and must not tolerate the listing of counterfeits

2. Government

- Work to raise public awareness of the risks and consequences of purchasing counterfeits
- Strengthen enforcement agencies and local government with adequate resourcing
- Make reporting counterfeit sellers as quick and easy as possible and help publicise this measure, particularly on online sales portals
- It must be a priority to take online retailers to task for failings and any lack of oversight. It needs to be made clear that online portals do not operate outside of normal commercial practice
- Promote guidance for retailers – SME's and micro businesses/sole and market traders in particular

3. The Public and other stakeholders

- The public should only purchase electrical products from trusted retailers, and inspect any product carefully before purchase, especially if the price is lower than expected
- All stakeholders should help in providing the public with advice and guidance on counterfeit goods to enable them to make informed decisions when purchasing electrical products

Your Notes



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Electrical Safety First is the UK charity dedicated to reducing deaths and injuries caused by electrical accidents. Our aim is to ensure everyone in the UK can use electricity safely

**Electrical
Safety First** 
The UK's electrical safety experts