

counterfeit

Tackling counterfeit with IEC and ISO standards



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In Roman times it was wine,
in mediaeval times it was textiles
and weapons, today it is everything
from personal computers to potency
pills. Counterfeit goods are nothing
new, but with globalization, the Internet
and increased movement of goods,
the fakes business is booming.



The global value of counterfeit goods was estimated as being worth between USD 923 billion and USD 1.13 trillion in 2016 alone¹⁾, costing millions of jobs and funding further abuses such as corruption and violence.

Counterfeit affects virtually every country in the world, fuels illegal activities and harms you and your family. Aircraft, automotive parts, medicines, toys, electronic equipment, clothing and foodstuffs are just some of the products tarnished by the counterfeit industry.

IEC and ISO have dedicated committees working on standards and solutions to help combat counterfeit and provide increased confidence to consumers. These include standards that test for authenticity, provide guidelines to measure the competency of testing laboratories and provide quality and minimum safety guidelines. For electric and electronic goods, the IEC offers testing and certification services that assist in quality and supply chain management, ensuring that suppliers deliver authentic parts and end products are safe to use.

1) Global Financial Integrity

What exactly are counterfeit goods?

The World Trade Organization (WTO) defines product counterfeiting as the “unauthorized representation of a registered trademark carried on goods identical or similar to goods for which the trademark is registered, with a view to deceiving the purchaser into believing that he/she is buying the original goods”.²⁾

IEC defines counterfeit as “goods made to imitate something of value, which may not be made with the same level of safety, quality or reliability”.

ISO defines a counterfeit as a “material good imitating or copying an authentic material good”.³⁾

Definitions vary, but there is a distinction between trademark misuse and pure product fraud, even if counterfeiting is often understood to cover both cases.

How does counterfeit affect you?

At best, buying counterfeit goods is a waste of money. At worst, they can pose a significant risk to health and safety.

In addition, measures to prevent or combat counterfeit cost regulators and industry time and money, which consumers ultimately pay for.

2) WTO Glossary

3) ISO 12931:2012, def. 2.6





IEC standards

Today, electrical and electronic products and their components may be manufactured and assembled in, and transit through, any number of countries. Along the way, they may be handled by different manufacturers and distributors before reaching the final users. To ensure the safe use of these products and systems, it is essential to be able to guarantee their safety, quality, reliability and interoperability. IEC helps achieve this by developing consensus-based International Standards, against which these products are tested in the four global Conformity Assessment Systems it operates.

The Systems are :

IECEE : electrical and electronic equipment (e.g. electric vehicles, garden and household appliances, medical devices, office equipment, toys, batteries, cables, capacitors)

IECEX : equipment used in explosive atmospheres (e.g. gas and oil refineries, farm grain storage and personnel operating equipment in such areas)

IECQ : quality of electronic components, associated materials, assemblies and processes (e.g. automotive components, avionics parts and assembly management, LED lighting and more)

IECRE : equipment for use in renewable energies, including solar, marine and wind



ISO standards

By defining internationally agreed requirements related to products, services and systems, ISO International Standards can help to make supply chains more transparent and secure, instilling confidence in consumers that what they are buying is legitimate, as well as assisting regulators in implementing preventive policies. ISO also has a number of standards that can be used specifically for authenticating products, to demonstrate that they are what they claim to be.

These include:

ISO 12931, *Performance criteria for authentication solutions used to combat counterfeiting of material goods*

ISO 16678, *Guidelines for interoperable object identification and related authentication systems to deter counterfeiting and illicit trade*

ISO 28000, *Specification for security management systems for the supply chain*

ISO 22000, *Food safety management systems – Requirements for any organization in the food chain*

The role of conformity assessment

IEC and ISO work on a number of standards that help with conformity assessment, namely standards that demonstrate that products, services or systems meet the requirements of standards and are thus legitimate. These include a “toolbox” of standards and guides that assist regulators and market surveillance authorities, under the responsibility of ISO’s committee for conformity assessment, CASCO:

- **ISO/IEC 17000**, *Conformity assessment – Vocabulary and general principles*
- **ISO/IEC 17020**, *Conformity assessment – Requirements for the operation of various types of bodies performing inspection*
- **ISO/IEC 17021-1**, *Conformity assessment – Requirements for bodies providing audit and certification of management systems – Part 1: Requirements*
- **ISO/IEC 17025**, *General requirements for the competence of testing and calibration laboratories*
- **ISO/IEC 17065**, *Conformity assessment – Requirements for bodies certifying products, processes and services*
- **ISO/TS 22003**, *Food safety management systems – Requirements for bodies providing audit and certification of food safety management systems*
- **ISO/IEC Guide 23**, *Methods of indicating conformity with standards for third-party certification systems*
- **ISO Guide 27**, *Guidelines for corrective action to be taken by a certification body in the event of misuse of its mark of conformity*





Fake or illegally reproduced goods are found across almost every industry. Below are some examples of where they are most prevalent.

Pharmaceuticals

Initially the preserve of developing countries, fake drugs are now widespread virtually everywhere.

A culture of self-prescribing and more informed consumers, coupled with the proliferation of unregulated Websites, has enabled the fake medicines industry to flourish into a multibillion dollar industry, affecting countries rich and poor.

Counterfeit medications include those with the right ingredients but in the wrong amounts, those with harmful or inactive ingredients, and medication that is expired but relabelled with a different expiration

date. They may cause harm to users from incorrect ingredients used or simply not treat the condition they were designed for. Counterfeit drugs affect the entire supply chain, from rogue pharmaceutical companies to corrupt local officials, pharmacists and physicians.

In 2013, the World Health Organization (WHO) launched a global surveillance and monitoring system to encourage countries to report incidents of counterfeit drugs and, as at January 2016, more than 920 medicines were reported, representing all the main therapeutic areas.

What are the risks of fake drugs ?

Antibiotic resistance: Fake antibiotics with a low concentration of active ingredients do damage worldwide by stimulating the development of drug resistance in surviving bacteria. Ineffective or incomplete courses of antibiotic treatment are dangerous, even life-threatening.

Death and illness: When a medication contains toxic or harmful substances or, on the contrary, no active ingredients, patients may, at best, miss out on potentially life-saving treatment ; at worst, they could suffer from the effects of a toxic, untested or non-approved product.

How can I spot a fake ?

There are a number of things you can look out for when purchasing medicines :

Buying online

- Does the Website look reputable ?
- Is it free from spelling mistakes ?
- Does it display a physical address or contact details ?
- Is it offering prescription-only drugs without requiring a prescription ?

The medication itself

- Is it the correct dosage ?
- Does the product look right in terms of colour and texture ?
- Are the security seals intact with no signs of tampering ?
- Is the packaging in good condition, with no spelling mistakes and with a patient information leaflet ?
- Does the customs declaration declare the contents as medicine ?
- Is the price too good to be true ?



Standards that can help

Healthcare regulators, medicine suppliers and other providers in the health-care industry face increasing pressure to ensure their supply chains are safe and secure and prevent falsification of medicinal products. Machine-readable coding is a reliable way of achieving that.

ISO/TS 16791, *Health informatics – Requirements for international machine-readable coding of medicinal product package identifiers*, provides guidance for machine-readable coding based on globally harmonized and interoperable standards, which can be used internationally on a wide scale, thus providing essential support to the industry in preventing counterfeit products.

ISO 28000, *Specification for security management systems for the supply chain*, specifies the requirements for a security management system, including those aspects critical to security assurance of the supply chain and all activities controlled or influenced by organizations that impact on supply chain security.

Electronics

Of the many types of counterfeit goods, electrical and electronic products now occupy second place in volume after pharmaceuticals. Today, we use and come into contact with countless such devices and appliances, including household goods, office equipment and toys, which may contain numerous components that can become the target of counterfeiters. Additionally, the advent of the Internet of Things has increased the number of connected devices, such as smartphones, tablets, home appliances or receivers, which we use for communicating, making purchases, online banking and more. Smart medical (wearable) devices monitor, regulate and can share information pertaining to different health conditions of the user directly with health-care professionals. In the transport industry, electronics and their systems form key parts of aeroplanes and are transforming the automobile as we head towards driverless vehicles.

Across the board, in order for manufacturers and consumers to have confidence in the components and devices they make and use, these products must fulfil all safety, quality, reliability and interoperability criteria as they move through global supply chains.

Moreover, inspection and third-party testing can be especially effective, enabling such products to be discovered before they enter a manufacturer's supply chain or a country's distribution system.





What are the risks of counterfeit electrical or electronic devices?

If counterfeit components or products enter the manufacturing supply chain, they may represent severe safety hazards, which could result in fires, shocks and explosions. Faulty counterfeit products can cause accidents, cost lives and/or damage property.

Additionally, a fake component can compromise entire systems and installations, which may result in serious financial losses and liabilities.

How to spot a fake

In addition to third-party testing and inspection, you can discover fakes by checking packaging and labelling for strange use of language, grammatical errors, odd layout, unusual print fonts, lack of a certification stamp or label, or the legibility and sharpness of markings and logos. Finally, touch the product to see if it seems heavier than usual, or if a cord is the correct thickness.

Buyers may want to verify test certificates and documentation shipped with goods. Check for potential discrepancies between shipping documents and part numbers. Take active measures to identify and report fake products.



Standards that can help

Another way to help spot fake merchandise is to address the important issue of counterfeit certificates. IEC Conformity Assessment Systems are unique in that they contain online databases, which allow immediate verification of the originally issued “Certificates of Conformity” and/or “Testing Certificates”. This means that if the certificates cannot be found on these databases, they are not authentic.



Food

Sometimes what you put in your mouth isn't what you think it is. The extent of food fraud can make you (literally) sick. Not to mention the drain on resources of legitimate food retailers, who are estimated to lose up to USD 15 billion per year⁴⁾.

Food fraud is when food is put into the marketplace with the deliberate intention of misleading the consumer, generally to save money. There are many types, including recycling animal by-products back into the food chain, selling foods that are past their "use by" date, deliberate mislabeling, substituting ingredients with cheaper alternatives and making false claims about their origin.

An example is manuka honey, an expensive variety of honey produced only in New Zealand. Manuka honey manufacturers in New Zealand estimate that 1700 tonnes are produced each year, yet up to 10 000 tonnes are sold around the world, meaning the cheaper kinds are falsely labelled.

In 2013, Europeans were outraged to discover that horsemeat was a key ingredient in burgers and ready meals sold in supermarkets under the guise of other more expensive meats such as beef. A major British supermarket chain selling the offending items suffered a EUR 300 million drop in market value as a result⁵⁾.

More harmful examples include the melamine scandal⁶⁾ in 2008 where melamine was added to milk and infant formula to increase its protein content. This led to the hospitalization of around 54 000 infants, six deaths from kidney stones and, ultimately, a number of criminal prosecutions, including two executions.

Governments everywhere have attempted to crack down on food fraud. In an operation⁷⁾ conducted in December 2014 and January 2015, Interpol and Europol collected more than 2500 tonnes of counterfeit foods, including items such as eggs and cooking oil, from 47 countries.

4) PwC

5) BBC news

6) Forbes magazine

7) Europol

What are the risks of fake food?

Risks to health : Consumers risk allergic or toxic reactions when ingredients are replaced by cheaper alternatives that they are not aware of.

Consumer deception : Even if the ingredients don't pose a risk to consumer health, false labelling can result in people consuming foods that are against their religious or moral beliefs, or undermining the trust that consumers have in all food manufacturers, even those that are honest.

How can I spot a fake?

Check the price : If it's too cheap to be true, it probably is.

Check the labelling : Are there spelling mistakes? Does it look how you would expect?

Check the food : If you suspect it is not how it should be, contact your local authorities or consumer group.



Standards that can help

ISO 22000, *Food safety management systems – Requirements for any organization in the food chain*, helps food producers demonstrate the authenticity of their products through the implementation of a food safety management system. Conformity to the standard requires an organization to demonstrate its ability to control food safety hazards to ensure that food is safe at the time of human consumption as well as demonstrate compliance with applicable statutory and regulatory food safety requirements.

Other examples are **ISO 17367**, *Supply chain applications of RFID – Product tagging*, which assists with the traceability of products at each stage of the production process, **ISO/IEC 20243** (English only), *Information Technology – Open Trusted Technology Provider, TM Standard (O-TTPS) – Mitigating maliciously tainted and counterfeit products*, and **ISO/IEC TR 24729-1**, *Information technology – Radio frequency identification for item management – Implementation guidelines – Part 1: RFID-enabled labels and packaging supporting ISO/IEC 18000-6C*.

Many of IEC and ISO's conformity assessment standards (see Box, page 6) help to ensure food safety through defining requirements for certification, testing and traceability.

Consumer products

Children's toys, clothing, handbags, DVDs, cigarettes and cosmetics are just some of the other items that often get hit by counterfeit, costing consumers wasted money and damaging legitimate brands.





What are the risks?

Harmful materials: With no controls in place regarding the manufacture of fake products, the materials used in their production can sometimes pose a huge risk to consumers' health. For example, fake cigarettes often contain much higher levels of tar and nicotine, while counterfeit clothing or electronics have been known to include higher-than-safe levels of chemicals such as formaldehyde, lead or other harmful substances.

Safety: Children's toys are a key area of concern for counterfeit products, as they are less likely to adhere to regulations regarding safety. Some counterfeit toys have been known to contain harmful levels of phthalates which can increase the risk of cancer, asthma and infertility later in life. Many toys contain batteries, electronics or electrical parts, and counterfeit toys can cause shocks or have small batteries that are accessible to children, or moving parts that are not properly protected, causing serious injuries.

Economic decline: While it may be tempting to buy a fake watch or handbag at a fraction of the real price, supporting the counterfeit market at the expense of the legitimate market can contribute to unemployment and economic decline.

How can I spot a fake?

Check the price: If it's too cheap to be true, it probably is

Check the labelling: For inconsistencies and errors such as spelling

Check the product: For inconsistent finishing or details (i.e. paint, metal work, sizing)



Check with the manufacturer

Companies sometimes make product databases or directories available to the general public, which allow people to access information themselves on specific products. One such example is the UL Online Certification Directory.⁸⁾

8) Jason Daniels, Senior Investigation Manager, Americas, Global Security & Brand Protection, Underwriters Laboratories, LLC

Standards that can help

ISO has many standards for authenticating the origins and supply chain of all products as well as product-specific standards that ensure they meet internationally recognized safety requirements.

These include the following:

ISO 8124 (series), *Safety of toys*, defines requirements and test methods for toys intended for use by children under 14 years of age, and sets age limits for various requirements. It also covers aspects such as flammability, migration of chemical substances, and gives specific guidance for swings, slides and other activity toys.

ISO 12931, *Performance criteria for authentication solutions used to combat counterfeiting of material goods*, specifies performance criteria and evaluation methodology for authentication solutions used to establish material good authenticity throughout the entire material good life cycle.





ISO 22380⁹⁾, *Security and resilience – Authenticity, integrity and trust for products and documents – General principles for product fraud risk and countermeasures*, provides general principles for an organization to identify the risks related to various types of product fraud and product fraudsters. It recommends that organizations establish strategic business countermeasures in order to prevent or reduce any harm, tangible or intangible loss and cost from such fraudulent attacks in a cost-effective manner.

ISO 10377, *Consumer product safety – Guidelines for suppliers*, assists suppliers of all sizes in assessing and managing the safety of consumer products from design to production, distribution, use and disposal.

9) Under development

IEC also has many standards that promote the safety and reliability of electronic and electrical devices, for example :

IEC 62115 for the safety of toys using different power sources, with at least one function dependent on electricity, such as a dolls house with a lamp. It includes toys which function like appliances, and some with screens and means of activation, such as a joystick.

IEC 60335 (series) for the safety of household and similar electrical appliances comprises requirements and test criteria for hazards such as electric shock, fire and toxicity.

IEC also produces International Standards that deal with the performance, safety and testing of many of the product components ; for example, appliance couplers, automatic controls for household use, batteries, connecting devices, electric cables and switches for appliances.

Testing and certification help verify that manufacturer promises have been kept and can be trusted. The four IEC Conformity Assessment Systems provide the testing and certification services that ensure that electrical and electronic equipment and components are safe to use and work properly, while ISO standards for conformity assessment help companies demonstrate that their products meet the requirements of a standard and are legitimate. ISO also has standards to validate the work of auditors and those performing inspection.

If counterfeit products concern you and you wish to report a suspected case, contact a market surveillance authority, fair trading association or a consumer organization in your country.



Some international enforcement agencies and bodies performing verification activities

The OECD's publication *Trade in Counterfeit and Pirated Goods – Mapping the Economic Impact*
www.oecd.org

International AntiCounterfeiting
Coalition (IACC)
www.iacc.org

Interpol
www.interpol.int

International Organization
of Legal Metrology (OIML)
www.oiml.org

International Consumer Protection
and Enforcement Network (ICPEN)
www.icpen.org

Consumers International
www.consumersinternational.org

For further information about ISO
standards, contact the ISO member
in your country. **www.iso.org**

About IEC

The IEC is an independent, not-for-profit organization that includes 170 countries representing over 99% of the world population and energy generation.

The IEC worldwide, neutral and independent platform allows 20 000 experts from the private and public sectors to cooperate and develop state-of-the-art, globally relevant IEC International Standards that support economic development and protect people and the environment. The IEC also administers four Conformity Assessment Systems whose members verify that devices operate as promised.

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ISO (International Organization for Standardization) is an independent, non-governmental organization with a membership of 162* national standards bodies. Through its members, ISO brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant International Standards that support innovation and provide solutions to global challenges.

ISO has published more than 22 000* International Standards and related documents, covering almost every industry, from technology to food safety, to agriculture and healthcare.

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