

Flexible PVC in wire and cable.

ENABLING MODERN LIFE, SAFELY AND EFFICIENTLY

Plasticisers make PVC flexible, which is essential for producing wires and cables. In Europe, this is the biggest use of flexible PVC, powering a huge range of appliances and electrical equipment. From fridges and washing machines to TVs, computers, and smartphones, PVC cables provide a strong and reliable connection for homes, offices, and industries around the world.

BUILT-IN SAFETY PERFORMANCE

PVC's inherent properties make it ideal for electrical applications, ensuring reliable and safe performance indoors and outdoor:

Fire retardant – reduces or suppresses combustion and prevents flame propagation

- High insulation & strength – protects against electrical faults and mechanical wear
- Wide temperature tolerance – performs reliably at very low (underground or subsea) and very high temperatures (e.g. near engines in vehicles).

A SUSTAINABLE AND DURABLE CHOICE

- Affordable & durable – cables can last up to 80 years under normal use
- Recyclable – supporting circular use and resource efficiency
- A good insulator – ensuring energy efficiency and long-term safety

THE STANDARD FOR CONSUMER ELECTRONICS

Nearly all major electronics manufacturers rely on flexible PVC in their products. Since the 1980s, PVC cables have been the industry standard for powering and connecting computers, screens, and digital devices. Today, PVC cables charge smartphones, smartwatches, digital cameras, and more, and run through homes, offices, and public buildings, connecting them to the electricity grid that keeps them running.

INEMI^[1] lifecycle assessment

on the manufacturing of brown goods

- ✓ Substituting PVC would lower industry environmental standards
- ✓ PVC generates 3× fewer greenhouse gases than alternatives
- ✓ Its footprint continues to decline as recycling expands across the EU

PVC and its plasticisers are readily available in volumes and at prices that can support the growing demand of electronic manufacturers. In contrast, developing and commercialising viable alternatives would take years of testing and major investments.

<http://www.inemi.org/project-page/pvc-alternatives-completed>

[1] International Electronics Manufacturing Initiative

PVC-FREE CABLES

A few companies have tried to replace PVC cables as a result of pressure from environmental pressure groups.

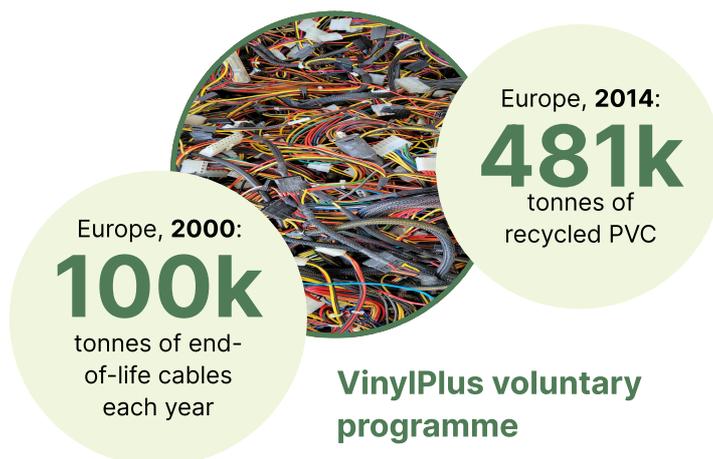
For example, in 2009 Apple became the first and only large producer of consumer electronics to stop using PVC. The company has phased out PVC made cables and changed the design and materials used in power cables used to charge MacBooks, iPhones and other products.

However, soon after it became very evident that the new cables were not performing as well as PVC-made ones.

They broke easily and wore out fast, frustrating Apple users. In 2011, consumers won a class-action case that forced Apple to replace faulty MacBook power cords. Later, iPhone 5 cables were also criticised for poor durability, overheating and causing skin injuries.

RECYCLING

Cable recycling focuses on separating the PVC sheath from valuable metals like copper and aluminium, which can be recovered with ease. Cables and wires are also a major input stream at the Vinyloop plant in Ferrara, Italy, which uses selective dissolution and filtration to separate PVC compounds from other materials such as plastics, rubber, metals and textiles.



REGULATION

Flexible PVC in the EU is regulated under **REACH**, one of the strictest chemical frameworks in the world. Every plasticiser is assessed by EU authorities, and only a few with confirmed negative health effects have been banned. The plasticisers used today in flexible PVC are considered **safe for consumers and the environment**.

Safety for PVC in cables and wires is also covered by the **RoHS Directive**, which restricts DEHP, BBP, DBP and DiBP in electrical equipment through **Annex II of RoHS2**.

Together, **REACH**, **RoHS** and the strong commitment of the **flexible PVC value chain** ensure that PVC made in Europe meets the **highest safety standards**.