
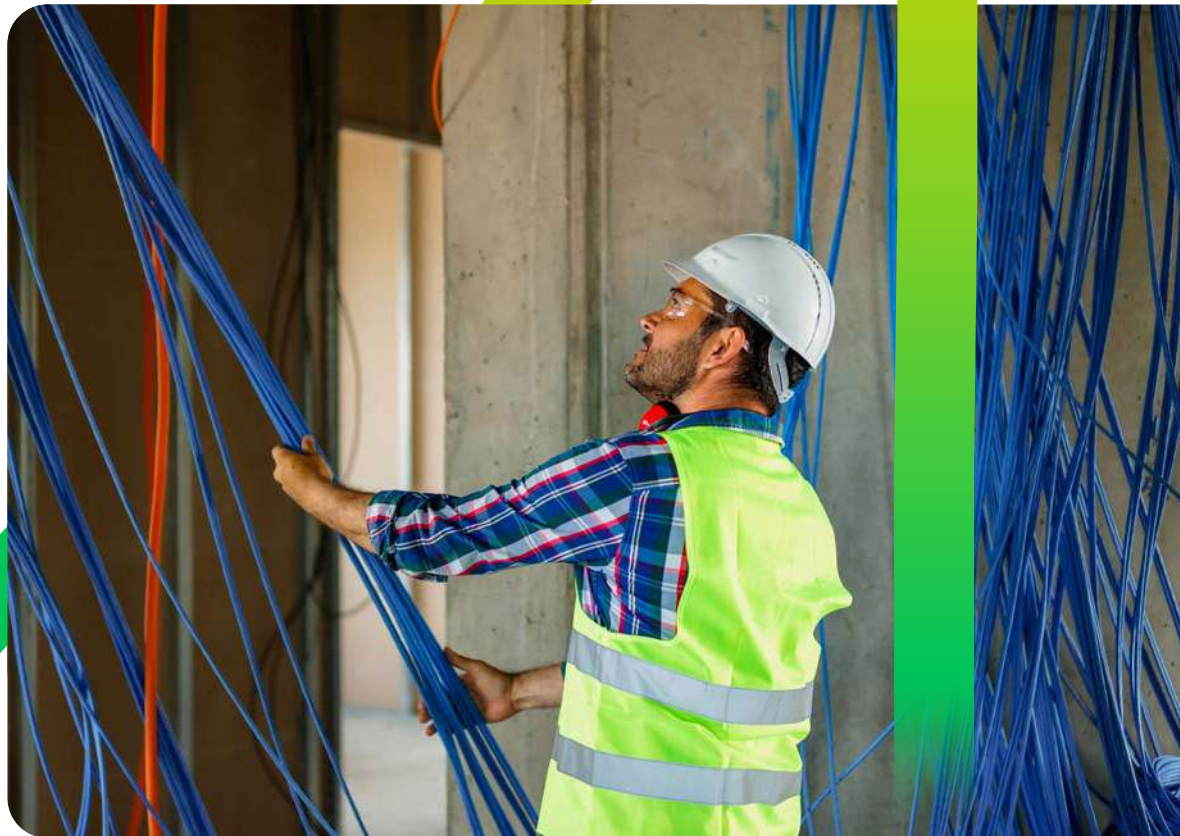


PVC  CABLES



POWERING THE FUTURE

CABLES POWER OUR DIGITAL LIVES



Cables bring power to our homes, charge our smartphones and connect us to the world. As a widely used material for cables in Europe, PVC has a vital role to play in shaping the digital future.

Cables are essential for modern society as they play a critical role in communication, power transmission, transportation, and various industrial applications. Without cables, many of our modern conveniences and systems would not be possible. PVC cables are found in all sectors where transmission of electricity or data is needed. PVC cables have a vital role to play in shaping our digital future.

PVC CABLES IN A CIRCULAR ECONOMY

Circular economy is a central pillar of the EU Green Deal, which sets the new agenda for sustainable growth. In a circular economy, the value of the products, materials and resources is kept as long as possible, the production of waste is minimised and innovation is at the centre of the entire value chain. These concepts lie at the foundation of the European PVC value chain, embodied in VinylPlus,[®] the European PVC industry's Commitment to sustainable development.

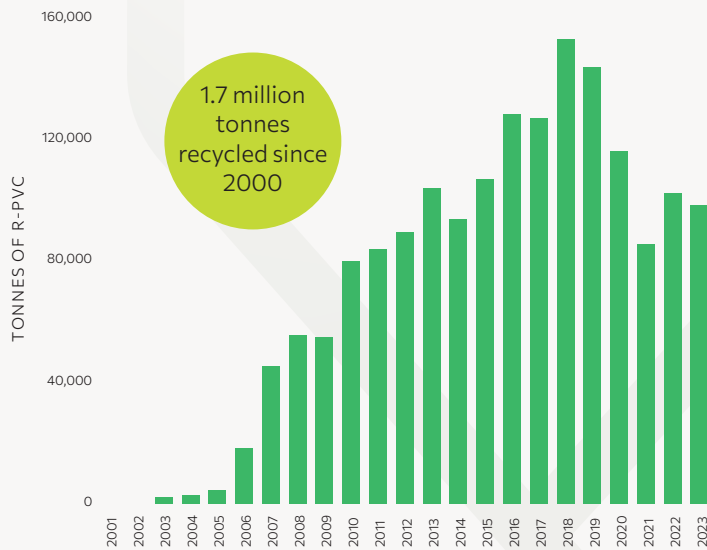
PVC CABLES RECYCLING

PVC cables are easy to recycle mechanically and have a high recycling track record rate in Europe. To be recycled, the sheathing and the insulation of electrical cables, or the single sheathing of telephone cables, is subjected to a mechanical process of micronisation, after having been separated from the conductor. The micronised PVC is sold on the market to be used in suitable applications for the production of new products.

PVC cables recycling typically follows two different streams:

- cables subject to one of both the European regulations: WEEE (Waste from Electrical and Electronic Equipment) or ELV (End of Life Vehicles). In these cases, there is a general obligation to recover and recycle end-of-life electrical and electronic equipment and vehicles sent to demolition, although without a direct, explicit obligation for cables;
- cables not subject to the to the WEEE and ELV directives, such as electric cables for power transmission and data transmission cables. This kind of end-of-life PVC cables are recycled within the framework of VinylPlus. Thanks to VinylPlus' collection and recycling schemes, almost 1.7 million tonnes of PVC from cables were recycled since 2000. This is equivalent to around 3.4 million tonnes of CO₂ emissions saved.

PVC CABLES RECYCLED THROUGH VINYLPLUS SINCE 2000



Nevertheless, PVC cable recycling registered a significant decrease in recent years. This is mainly due to regulatory uncertainties and constraints at the EU level in relation to the potential presence of legacy additives in old PVC cables,

even though new PVC cables produced in Europe today do not contain substances of very high concern (SVHC). But also, as for other PVC applications and plastics in general, to the persistent competitive prices of virgin material as well as to the slowdown of the building and construction sector.

PVC recycled from cables is sold on the market for production of new products. The recyclates are used for a wide range of applications such as garden and air hoses, geo-membranes, foils (roofing, flooring, waterproofing membranes, pool and pond foils), mats, speed bump and other road safety products, shoe soles and boots.

LOW CARBON TODAY, ZERO CARBON TOMORROW

PVC is intrinsically a low carbon plastic, as 57% of its molecular weight is chlorine derived from common salt. Thanks to innovation and investments, bio-attributed and bio-circular PVC resin and non-fossil additives are available on the market and are already being used in pipes, designer rugs, vinyl records, and other products.

The European PVC industry is committed to advancing towards carbon neutrality as part of the VinylPlus 2030 Commitment.





FIRE AND SMOKE BEHAVIOUR

Fire performance of construction products is a crucial factor in ensuring fire safety in building design. PVC cables represent an excellent choice due to their remarkable fire performance.

Studies and tests show that, due to its intrinsically self-extinguishing characteristics, PVC is difficult to ignite and does not sustain combustion.

The presence of chlorine in the polymer structure makes PVC ignitability rather difficult, even in absence of any flame retardant. This explains why, contrary to many other materials, there is no sustained lateral flame spread.

Furthermore, thanks to the charring properties of PVC, there are no flaming droplets with PVC products. Under standardised test conditions, in which the sample is forced to burn, PVC typically generates a dense smoke. However, in a real fire situation, when PVC products do not completely burn or represent a small part of burnt materials, the smoke contribution from PVC is generally not so relevant.

Unlike odourless toxic gases, such as carbon monoxide that is by far the most hazardous element in a fire, the presence of hydrogen chloride generated by PVC combustion can be detected at totally harmless trace levels, due to its distinctive smell. As such, the emission of HCl (hydrogen chloride) gas at an early stage of fire acts as a 'warning' signal to people to evacuate the area immediately.

INNOVATION

The PVC value chain is constantly engaged in the research and development of new formulations. Current efforts focus on further enhancing the fire performance of PVC cables. Recent formulations have demonstrated that PVC compounds for cables can obtain the highest fire reaction results compared with any other thermoplastic material, reaching B2_{ca} class, and d0 and s1 subclasses under the EU CPR Regulation.

WHERE ARE PVC CABLES USED?

PVC has long been the preferred material for wire and cable. This is due to the unique combination of outstanding technical properties and cost-efficiency.

Cables are the backbone of household, industrial, healthcare, and transportation systems. PVC cables are widely used, from home appliances like fridges and washing machines to everyday technologies such as TVs, computers, smartphones, tablets, and other IT devices. They are also vital for manufacturing, critical healthcare equipment, and transportation infrastructure, ensuring reliable power and connectivity. These cables play a key role in connecting homes, offices, hospitals, factories, warehouses, and transit systems, forming a strong network that supports seamless communication and power distribution globally.



10 KEY REASONS TO CHOOSE PVC CABLES



1. HIGH INSULATION VALUE

PVC provides excellent electrical insulation with high dielectric strength, preventing electrical leakage and breakdown. Its resistance to moisture, chemicals, and UV radiation ensures reliability in both outdoor and industrial settings.



2. VERSATILITY OF FORMULATIONS

Due to its unique molecular structure, PVC has the widest range of applications in the polymer family. Properties for PVC cable formulations include excellent flexibility, high insulation resistance, fire-retardancy, and ease of colouring.



3. PROCESSABILITY

PVC's low viscosity and wide processing window allow for easy extrusion and for co-extrusion in multi-layer cables, ensuring consistent quality and high productivity for cable manufacturers.



4. RESISTANCE TO TEMPERATURE

PVC cables can withstand a wide range of temperatures, from -40 to 125 degrees Celsius, making them suitable for use in demanding environments and climates.



5. RESISTANCE TO ATMOSPHERIC AGENTS AND HYDROCARBONS

PVC cables are durable against UV radiation, humidity, and various hydrocarbons like mineral oils and fuels, ensuring long-lasting performance in tough industrial and outdoor environments.



6. DURABILITY AND FLEXIBILITY

PVC cables can last up to 80 years. Due to their inherent flexibility, PVC cables for charging electronic devices rarely break.



7. FIRE RESISTANCE

PVC is difficult to ignite, has a moderate heat release and produces very little smoke. The PVC value chain is constantly engaged in the research and development of new formulations to further enhance the fire performance of PVC cables.



8. COST EFFICIENCY

Showing equal or better performance than other materials, PVC cables are more cost-efficient throughout their entire life in use and provide higher benefits when recycled.



9. RECYCLABILITY

PVC is a highly recyclable material. Through VinylPlus, more than 1.7 million tonnes of PVC from cables have been recycled since 2000, reducing CO₂ emissions and contributing to the circular economy. The PVC cable value chain is investing heavily in technologies to detect and separate end-of-life cables containing legacy additives and to extract these additives before recycling.



10. INNOVATION FOR THE FUTURE

PVC cables are constantly evolving, with ongoing R&D efforts focused on improving performance in areas like fire safety, sustainability, and recyclability. This innovation ensures that PVC remains a future-proof choice for cable applications in an ever-changing world.

ABOUT PVC4CABLES

PVC4Cables is the ECVm value chain platform dedicated to PVC cables. It brings together the producers of PVC resins, stabilisers and plasticisers, PVC compounders and cable producers. Participation is also open to PVC recyclers and value chain's associations.

PVC4Cables intends to act as a driver for environmentally responsible innovations in the PVC cables sector and as a focal point for dialogue and communications with all stakeholders: regulators, specifiers, installers, electricians, media and the general public.

The objective of the platform is to proactively engage in the promotion of PVC cables, highlighting their contribution to sustainable development and to the circular economy, as well as their numerous technical and functional benefits for final users and consumers.

ECVM (the European Council of Vinyl Manufacturers) is the organisation representing seven leading European PVC resin manufacturers, accounting for about 85% of the PVC resin produced in Europe. As founding member of VinylPlus,[®] ECVm is committed to sustainable development, and to address and promote health, safety, and environmental best practices over the PVC lifecycle.



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