



Answers to the most common arguments against PVC

1. PVC is a toxic material

PVC is an inert and completely harmless material. It doesn't imply any health problems. Precisely because of its innocuousness, it is commonly used in sectors where a high degree of purity and quality is required, such as the food and hospital sectors, where it is widely used.

In addition, the globality of its life cycle is very controlled: The material's production processes comply with the criteria of the European Industrial Charters, which aim to minimize environmental impact. Throughout its useful life, being an inert material, it does not react with any other type of external element, thus avoiding any type of contamination. When they reach the end of their useful life, PVC products can be chemically or mechanically recycled and reused in the manufacture of new products.

2. PVC causes cancer

PVC, like all polymers, is an inert and completely harmless material; it cannot be carcinogenic, due to its chemical inertness.

PVC has been used for more than 50 years without any evidence or serious studies supported by the scientific community to prove that it can be responsible for the generation of tumors.

3. PVC is prohibited for the transport of drinking water.

PVC is totally suitable for the transport and supply of drinking water. Last year, the Ministry of Development and Environment, through CEDEX, published the "*Technical*

guide on pipes for the transport of pressurized water. In the this guide, both PVC and bioriented PVC appear as recommended materials.

4. PVC food bottles and containers are harmful to health...

On the contrary. PVC is an ideal material for packaging liquids and food. Its characteristics allow, not only the protection of the content against external agents, but also the perfect preservation of its properties. For example, PVC bottles, given their impermeability to air, better maintain the characteristics of oils. LIn 1998, the Committee of Experts appointed by the Ministry of the Environment, after having studied this material in depth for 10 months, highlighted its excellent qualities as a packaging material.

...why are most bottles made of PET, then?

Bottles are manufactured by bottling companies. For these companies, the most important part of their market corresponds to the bottling of carbonated beverages. In this case, PET has a competitive advantage over other plastics: better preservation of carbon dioxide gases.

In other cases, such as in the medical-hospital sector, PVC is the material of choice because it preserves red blood cells better than any other material.

In all markets, the materials have their own niches.

In any case, today thousands of liters of water and oil are still bottled in PVC bottles.

5. PVC toys have been banned

PVC toys have not been banned. Specifically, in December 1999, the European Union temporarily banned phthalates (a type of plasticizer) that is used with PVC in childcare articles intended to be placed in the mouth by infants under three years of age. It was a precautionary measure because there was no common measure validated by all countries to determine the real levels of phthalate migration.

Four years later, the EU published a scientific risk analysis, in agreement with a technical control and monitoring committee formed by the Member States, which shows that Diisononyl phthalate (DINP), the phthalate that was mostly used in this type of toys, does not represent any risk either for the environment or for human health.

In the USA, in 2003, the US Consumer Product Safety Commission recognized that DINP does not represent any type of risk and denied a petition to ban it.

6. The PVC industry is highly polluting

The PVC industry is a leading sector in terms of environmental management. It incorporates the highest technologies and carries out strict controls. It not only complies with current Spanish regulations, which guarantee environmental protection, but also goes further by committing to always using the best available techniques at the manufacturing points. The three Spanish PVC production plants have the ISO 14001 Environmental Management certification awarded by AENOR, which guarantees respect for the environment.

In addition, they are EMAS (Eco-Management and Audit System) certified, which is the highest international level of environmental management. To obtain this certification it is not only necessary to have the ISO 14001 certification, but also to present plans that involve the employees in the continuous improvement of the company's environmental performance. In addition, those applying EMAS must make public an environmental statement that includes the objectives proposed and achieved in the improvement of their environmental effects.

These certifications demonstrate that the PVC industry is one of the most aware of the challenges and requirements of maximum respect for the environment and the need to develop its business in a sustainable manner, and that is how they invest.

7. PVC cannot be recycled

PVC is an easily recyclable material. In fact, it is the second most recycled plastic in Spain, as stated in the National Waste Plan. Recycled PVC is used to manufacture pipes, cable sheathing, shoe soles, slabs, flooring, etc.

There are currently two types of recycling: chemical recycling (which splits PVC molecules to obtain the original raw materials - also called feedstock recycling) and mechanical recycling (which grinds PVC products back into a resin that is incorporated into the production of a new product).

Different technologies are used for these two types of recycling. One of them is called Vinyloop and allows separating PVC from other materials (rubber, plastics, glass, etc.) and obtaining a resin of similar quality to the original ones.

8. PVC is not an ecological material for construction

Because of its strength and durability, PVC is an ideal material for construction applications. It is also easily recyclable, helping to reduce the felling of trees. Also, the perfect thermal insulation provided by PVC windows, doors and closures contribute to energy savings. In addition, it is the only plastic that does not depend entirely on petroleum, since 57% of the raw materials come from common salt (a practically inexhaustible resource) and only 43% from petroleum.

9. PVC is responsible for dioxin generation

PVC has no impact on the presence of dioxins in the environment in any of its life stages. In terms of production, the PVC industry incorporates the highest technologies and carries out strict controls of its emissions, which are well below the limits established by current standards. As for incineration, it has been shown that the presence or absence of PVC in the waste (which is otherwise minimal) does not affect the level of dioxins emitted. A recent study commissioned by the European Commission to analyze the influence of PVC on incineration has confirmed this fact. At a national level, the Commission of Experts appointed by the Ministry of Environment (1998) to analyze the material in depth, recognized that the presence or not of PVC in Municipal Solid Waste had no influence on the levels of dioxins and furans formed during the waste incineration processes.

10. PVC is found in large quantities in landfills

PVC waste accounts for a minimal portion of the total waste present in landfills. On the one hand, the amount of this material destined for packaging is very small (less than 7% of PVC consumption). On the other hand, it should be noted that more than 65% of PVC applications have a lifespan of between 15 and 100 years and are mainly used in construction, so they do not form part of Solid Urban Waste either. PVC waste represents 0.2% of total Municipal Solid Waste, and less than 0.4% in the case of packaging.

11. PVC is mainly used for packaging

Packaging applications represent a small part of the total number of PVC applications. Only 7% is used for this purpose.

12. PVC deteriorates over time

PVC is a highly resistant and long lasting material. More than 65% of construction applications, such as pipes, cladding or window profiles, are made of PVC. In addition, PVC products are very easy to maintain and do not require the application of any type of weather protection product.

13. Numerous Spanish cities have banned the use of PVC

Some minority political parties and radical environmental groups have requested, at the proposal of these organizations, the adoption of measures limiting the use of this material. In most cases, this request has been denied in the municipal plenary. The reality is that at the moment only about 50 municipalities in Spain (out of a total of 8,104), most of them small towns, have approved motions against PVC (**not banning it but recommending alternative materials**). Moreover, practically none of these municipalities have actually adopted these measures.

14. Several European cities have banned the use of PVC

With the exception of the temporary and provisional ban on childcare articles (which is about to be withdrawn), there is no European country that bans the use of PVC in any of its applications.

15. PVC is highly flammable

On the contrary, PVC is flame-retardant and has excellent fire behavior (classification M1 according to French standards, B according to the new Euro-Classes). Very high temperatures are necessary for the PVC to burn and a constant application of the heat source on the material itself to start burning.

When the temperatures to which it is subjected are not high enough to burn, PVC softens (like all thermoplastics) but never leaks. This characteristic is very important when assessing fire propagation capacity.

In addition, **PVC is self-extinguishing**. This means that as soon as the heat source is removed, PVC stops burning. This feature also contributes to PVC's better fire behavior than alternative materials.

16. PVC generates hydrochloric acid when burning

If the conditions necessary for the combustion of PVC are met, it gives off hydrogen chloride gas, not hydrochloric acid. This gas is not asphyxiating and is not narcotic in nature. On the other hand, it is irritating and detectable at a very low concentration, which also confers the property of alertness. HCl is much less dangerous than carbon monoxide (CO), which is produced by the incomplete combustion of most of organic substances and, being colorless and odorless, is fatal at small doses.