

PVC: Advancing EU's Green Ambitions

Through VinylPlus®, the European PVC industry has been at the forefront of the circular economy and sustainable development in the plastics sector both in Europe and worldwide for more than two decades.

Manufacturing

- In September 2023, ECHA stated that **no follow-up for PVC production is needed** due to the contained and declining trend of dioxin releases in the EU, along with established regulatory measures
- PVC's high chlorine content of 57% means it **relies less on fossil resources** and as a result has a lower carbon footprint compared to other plastics
- PVC is an integral part of the **chlor-alkali industry**. Chlor-alkali is **vital to society**, e.g. medicines, water purification and batteries for electric vehicles. **30% of the chlorine** produced in Europe is used for PVC
- **Asbestos and mercury** technology to produce chlorine have been **legally phased out** in Europe since December 2017
- **Harmful chemicals** such as low molecular weight orthophthalates have been nearly 100% **substituted** with safer alternatives, and the use of lead phased out
- Eco-profiles show primary **energy demand** for PVC is typically lower than for other plastics like HDPE, LDPE and PP
- **Strict EU Occupational Exposure Limits and industry guidelines** for PVC intermediates are in place to prevent worker exposure and environmental emissions
- The Montreal Protocol and industry innovation aim to ensure that **ozone-depleting substances are not emitted** during chlorine production in Europe

Use

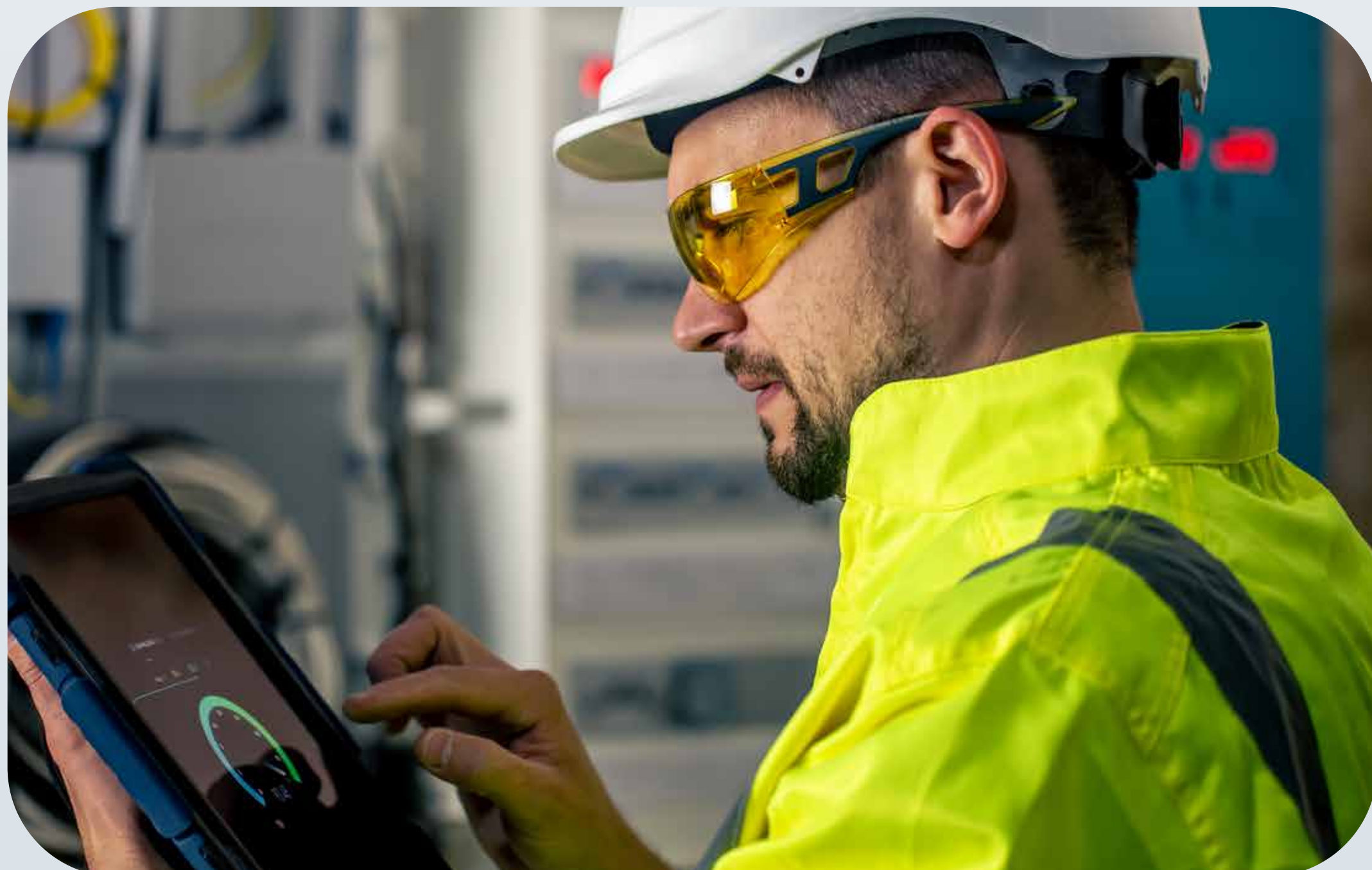
- PVC is in itself inert and **non-toxic**, and it has been recognised as a 'Polymer of Low Concern' by the OECD
- 70% of PVC is used for **durable building products**
- PVC is used for **life-saving medical devices** and the only material allowed for blood bags
- EU regulation and industry innovation have resulted in **substitution of unwanted substances** such as lead and SVHC phthalates during the last +20 years
- Additives are tightly bound within the PVC matrix and **do not readily migrate**
- PVC pipes meet most stringent regulations on **drinking water** contact
- PVC is comparable to most commercial materials in terms of smoke toxicity and **does not pose a greater risk of fume generation** during fires than other organic polymers

Circularity & End of Life

- PVC has the **longest history of recycling** among plastics
- Depending on application, PVC can be **recycled up to 10 times** without loss of functional properties
- It is estimated 35% of the PVC waste generated each year is recycled – **above the average** for plastics
- **8,100,000+ tonnes** of PVC have been safely recycled and used in new products since 2000 through VinylPlus
- **Legacy additives** in recyclates are being **handled safely** in accordance with the REACH regulation
- VinylPlus is investing in advanced recycling technologies to **remove legacy additives** prior to recycling



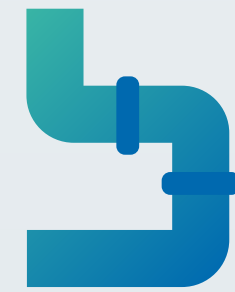
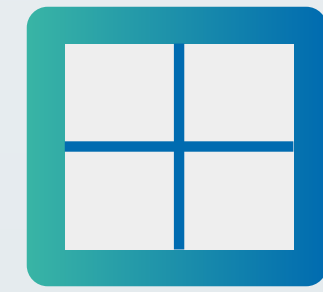
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1. Rodriguez, J. V. (2023). Investigation report on PVC and PVC additives. Presented at PVC Formulation, Cologne, Germany, September 12-14.
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2. S-PVC: 57.8 MJ/kg, E-PVC: 61.2 MJ/kg, HDPE: 80.2 MJ/kg, LDPE: 82.9 MJ/kg, PP: 77.9 MJ/kg. Plastics Europe & ECVM (2023). Eco-profiles and Environmental Product Declarations of the European Plastics Manufacturers: Vinyl Chloride (VCM) and Polyvinyl Chloride (PVC) (Revised June 2023, Water update March 2023).
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Use

vinyl plus[®]
COMMITTED TO
SUSTAINABLE DEVELOPMENT



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Circularity & End of Life



References

1. Fumire, J., & Tan, S.R. (2012). How much recycled PVC in PVC pipes? In Proceedings of the Plastic Pipes Conference XVI. Barcelona.
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