

The facts about TempRite® CPVC. How it impacts the environment, our welfare and everyday lives.



All materials and products have some effect on the environment. As a result, society must carefully weigh the environmental impact against the benefits that are derived from a particular material or product - an ecobalance approach.

In this first 2003 Newsflow edition, we would like to provide more details concerning the benefits of TempRite® CPVC and its impact on the environment throughout its entire life cycle, and the role of TempRite® materials with respect to specific environmental issues.

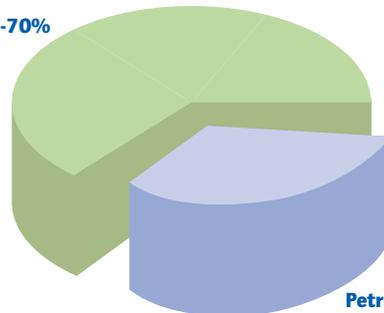


CPVC : Friendly to the Earth's resources.

CPVC is derived from petroleum (30-37% of the finished product) and common table salt (63-70%), of which there is an almost limitless supply.

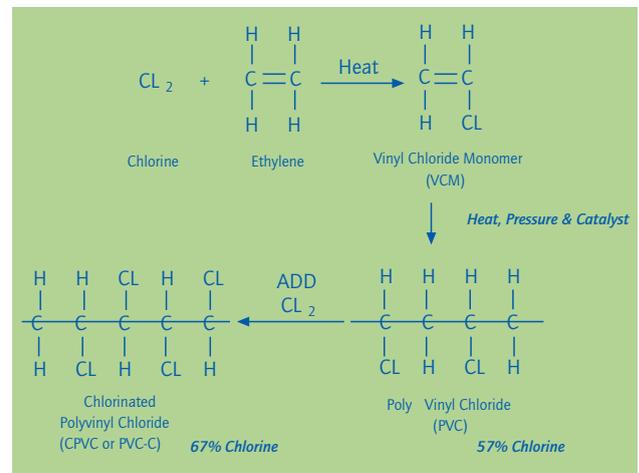
CPVC Composition

Salt 63-70%



Petroleum 30-37%

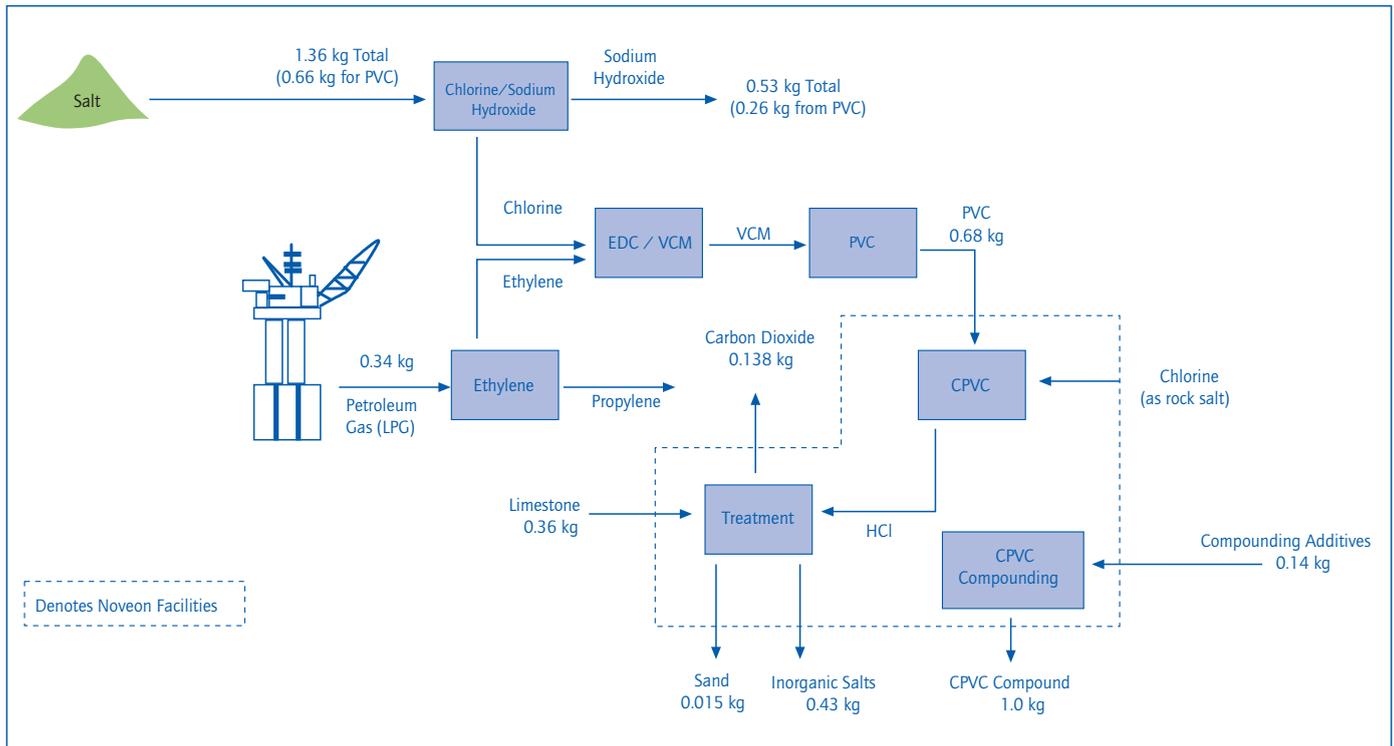
What is CPVC?



This production process can be seen in more detail in Figure 1.

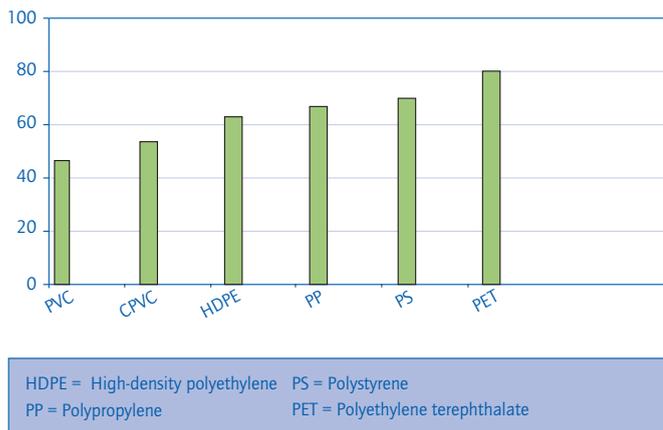


Fig. 1: The CPVC production process: a very resource- efficient process



Because of the low petroleum content of CPVC, its **production process uses less of our non-renewable oil reserves than do most plastics, making it a very energy efficient process as well.** (See table 1.)

Table 1: Total energy equivalent (by material)



CPVC : Pure and Healthy

TempRite® CPVC is **approved for potable water applications world- wide** by several reputable organisations, such as NSF International in the U.S.A., DVGW in Germany, WRAS in the UK, KIWA in the Netherlands. These agencies are strictly

controlled and government regulated, to ensure that drinking water is indeed pure and safe to drink.

The approval is a guarantee that a TempRite® CPVC potable water system does not contribute any harmful and dangerous products to the drinking water it transports. TempRite® compounds do not contain plasticizers, flame retardants, biostabilizers, anti-static agents nor heavy metal ingredients.

Also, studies have shown that **the bacteria build-up with CPVC is far lower than with alternative piping materials** such as copper, steel and other thermoplastics. (see our Newsflow on bacteria build-up in January 2002)

In the 1970's, **VCM** (one of the building blocks for PVC and CPVC) came under scrutiny. Since then VCM levels have been reduced by 99% through the use of new manufacturing technology. Today, VCM is strictly regulated by government agencies. The maximum permissible levels of residual VCM (RVCM) are now 2ppm in PVC and CPVC, for potable water applications. In fact, during the post-chlorination process to produce CPVC from PVC, the RVCM levels in CPVC are further reduced by a factor of 300.

Testing by NSF indicates that the levels of RVCM in TempRite® CPVC are so low as to be undetectable.

(Copy of the NSF testing results available on request)



The NSF mark is widely recognised for its scientific and technical expertise in the health and environmental sciences.

CPVC and Combustion

TempRite® CPVC has an outstanding fire safety profile. CPVC is **self-extinguishing**, it must be forced to burn owing to its very high Limiting Oxygen Index (LOI) of 60. LOI is the percentage of oxygen needed in an atmosphere to support combustion. Since the Earth's atmosphere is only 21% oxygen, CPVC will not burn unless a flame is constantly applied. When it does burn, the combustion products are **'not considered to be more toxic than Douglas fir'** - a commonly used type of wood for construction.

(Testing results from United States Testing Company, Inc.)

Waste Disposal

The durability of CPVC leads to its use in products having a long service-life, so disposability is less of an issue than with many other plastics. Even so, the relatively small amount of CPVC solid waste can be safely recycled, incinerated or placed in landfills. Manufacturers of CPVC and CPVC products routinely recycle and rework their own off-grade and scrap material into the main process at levels between 10 and 30 percent. When CPVC is incinerated, the hydrogen chloride formed is removed by air pollution control equipment to meet environmental regulations. CPVC products in landfill situations are inert and will not leach any harmful substances into the groundwater or soil.

Conclusion

TempRite® CPVC provides many important benefits while having relatively little effect on the environment. The material's **durability** is the key to its favourable eco-balance, providing long-lasting, high performance products that generate solid waste. Corollary benefits include its **purity, resistance to fire, mechanical strength, corrosion resistance, low bacterial growth and affordability**.

Moreover, the manufacture and use of TempRite® CPVC consumes less of our non-renewable energy resources compared to other materials. CPVC's low petroleum content, **energy-efficient** manufacturing process and light weight all factor into its low energy requirements.

Finally, CPVC does not play a significant role in any of the major environmental issues facing the world today. Throughout its entire life cycle - from manufacture and use to its eventual disposal - CPVC presents a very favourable balance, with benefits that far outweigh its environmental costs.



Noveon Europe B.V.B.A., Chaussée de Wavre, 1945, B-1160 Brussels, Belgium, Tel. : +32.2.678.19.02, Fax : +32.2.678.20.01, www.noveoninc.com

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