

AERODINÂMICA

EQUIPAMENTOS INDUSTRIAIS

C-PVC

Chlorinated polyvinyl chloride (CPVC) is a thermoplastic produced by chlorination of polyvinyl chloride (PVC) resin. Uses include hot and cold water pipe, and industrial liquid handling.

Production process

CPVC is PVC (polyvinyl chloride) that has been chlorinated via a free radical chlorination reaction. This reaction is typically initiated by application of thermal or UV energy utilizing various approaches. In the process, chlorine gas is decomposed into free radical chlorine which is then reacted with PVC in a post-production step, essentially replacing a portion of the hydrogen in the PVC with chlorine.

Depending on the method, a varying amount of chlorine is introduced into the polymer allowing for a measured way to fine tune the final properties. The chlorine content may vary from manufacturer to manufacturer; the base can be as low as PVC 56.7% to as high as 74% by mass, although most commercial resins have chlorine content from 63% to 69%. As the chlorine content in CPVC is increased, its glass transition temperature (T_g) increases significantly. Under normal operating conditions, CPVC becomes unstable at 70% mass of chlorine.

Various additives are also introduced into the resin in order to make the material processable. These additives may consist of stabilizers, impact modifiers, pigments and lubricants.

Physical properties

CPVC shares most of the features and properties of PVC. It is also readily workable, including machining, welding, and forming. Because of its excellent corrosion resistance at elevated temperatures, CPVC is ideally suited for self-supporting constructions where temperatures up to 200 °F (93 °C) are present. The ability to bend, shape, and weld CPVC enables its use in a wide variety of processes to the applications. It exhibits fire-retardant properties.

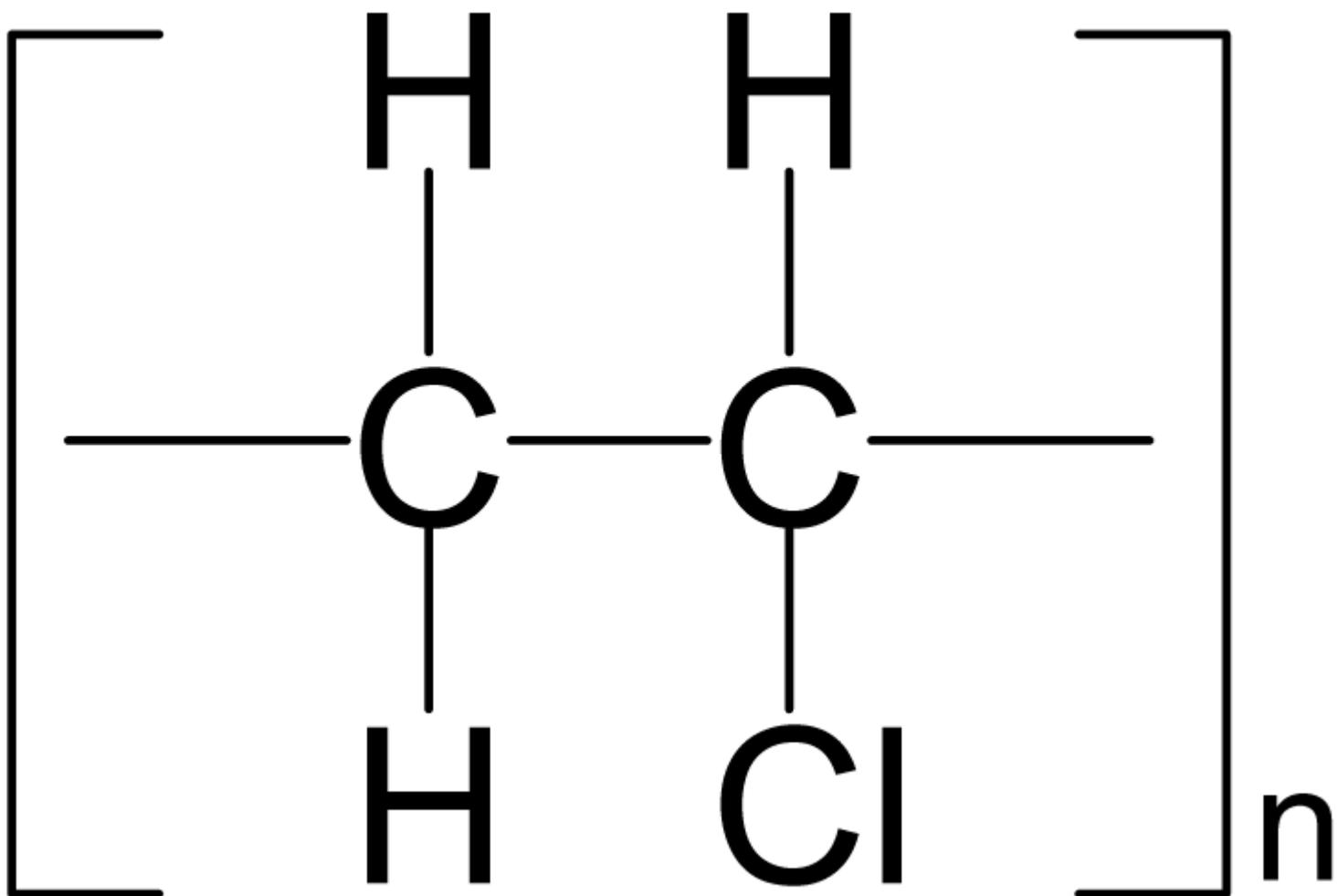
Uses

CPVC is a popular engineering material due to its relatively low cost, high glass transition temperature, high heat distortion temperature, chemical inertness, and flame and smoke properties. CPVC is used in a variety of industrial applications where a high functional temperature and resistance to corrosive chemicals are desirable. Besides pipe and fittings, it is used in pumps, valves, strainers, filters, tower packing, and duct, as well as sheet for fabrication into storage tanks, fume scrubbers, large diameter duct, and tank lining.

Pipe

In use as plumbing materials, CPVC exhibits comparatively high impact and tensile strength and is non-toxic in pressurized systems, it can be used with fluids up to 80°C and higher in low-pressure systems. It does require specialized solvent cement for assembly. Depending on local

building codes, it can be used in hot and cold water systems as well as hot and cold chemical distribution systems in conditions where metal pipe is not indicated.



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