What Is Chlorinated Polyethylene (CPE)

Présentation détaillée :

Chlorinated polyethylene (CPE) is a saturated polymer material, white powder in appearance, non-totasteless, with excellent weather resistance, ozone resistance, chemical resistance, aging resistance, resistance, flame retardancy, and coloring properties. Good toughness (still flexible at -30), good cor with other polymer materials, high decomposition temperature, decomposition produces HCl, HCl ca catalyze the dechlorination reaction of CPE.

What are the physical properties of CPE?

Chemicals

CPE is a polymer, meaning it consists of many repeating units. The repeating unit in CPE is ethylene o is not particularly reactive with other chemicals.

Physical Properties

CPE is a solid at room temperature and has a melting point of about 100°C (212°F). When heated to t temperature, the polymer changes from a solid-state to a liquid state. The polymer returns to its solid when cooled down from this temperature. Its density is about 1.0 g/cm3 at 25°C (77°F), which means cubic centimeter (cc) of this material weighs 1 gram (g). The polymer's melting point depends on its meight; higher molecular weights have higher melting points.

What are the uses of CPE?

CPE is a chemical that can be used to make many different products. It is used in the production of p adhesives, and many other products. It can also be used to make fertilizers and pesticides.

One of the most common uses for CPE is as a solvent in paints and coatings. This makes it possible for to dry more quickly and evenly, so they don't leave streaks on walls or require multiple coats to cover evenly.

CPEs are also used in various types of plastic manufacturing processes. Injection molding machines u as lubricants when creating new plastic parts. This prevents the machine from overheating while wor your product and working more efficiently.

CPEs are also found in many different adhesives, including those used in packaging, paper production construction materials such as cement blocks or bricks. They help these materials bond together to f strong bonds without being glued together manually each time they're assembled into something ne Overview of uses: Chlorinated polyethylene resin is a new synthetic material with a series of excellent properties. It is an excellent impact modifier for PVC plastics and a synthetic rubber with good overal performance. It has a wide range of application fields. It has been widely used in cables, wires, hoses, rubber and plastic products, sealing materials, flame retardant transportation belts, waterproof rolls, and various profiles. CPE can be regarded as a random copolymer of ethylene, polyethylene, and 1,2dichloroethylene, with saturated molecular chains and random distribution of polar chlorine atoms. I widely used in machinery, electric power, chemical industry, building materials, and mining because of excellent physical and chemical properties. Nitrile rubber (NBR), neoprene rubber (CR), aging resistar than chlorosulfonated polyethylene (CSM); acid, alkali, salt, and other corrosive properties, non-toxic, flammable, no explosion risk.

Mainly used in: wire and cable (coal mine cable, UL and VDE standards for wire), hydraulic hoses, auto hoses, adhesive tape, rubber sheet, PVC profile pipe modification, magnetic materials, ABS modificat Chlorinated Polyethylene (CPE) Application Compatibility

Reinforcement filling system

CPE is a non-self-reinforcing rubber that needs a reinforcement system to achieve better strength. Its reinforcement filling system is similar to general rubber; the reinforcing agent is mainly carbon black silica. Silica can improve the tear resistance of CPE and can form the inter-methacrylic system to improduing of CPE and skeleton. CPE has a high filler, and the filling system mainly has calcium carbonat powder, clay, etc.

Plasticizing system

Ester plasticizers and aromatic hydrocarbon plasticizers are the most commonly used for CPE, such a terephthalate (DOTP) and dioctyl adipate (DOA) aromatic oil, etc. Their solubility parameters are close and their compatibility is good. Dioctyl phthalate (DOP) has been discontinued due to environmental problems. DOA and DOS are used in adhesives to give them excellent cold resistance, and DOS is ver for situations where heat and cold resistance are required at the same time.

Stabilization and protection system

CPE will be dehydrogen chloride when heated or vulcanized (non-peroxide vulcanization system), so i necessary to use stabilizers with acid absorbing effects such as calcium stearate and barium stearate trisulfate or magnesium oxide in the formulation.

Vulcanization system of CPE

CPE is a saturated rubber, and the general common sulfur vulcanization system can not be effective to vulcanization.

The vulcanization system is divided into four major: 1. thiourea system, 2. peroxide system, 3. thiadia system, 4. triazole dimercaptoamine salt system.

First, the CPE vulcanization system is applied earlier in the thiourea system, the most effective is Na-2 Na-22 vulcanization speed is slow, poor aging performance, a high permanent deformation in compr and Na-22 is a serious carcinogenic substance, vulcanization produces an unpleasant odor, has been restricted in foreign countries. Second, at this stage, the CM vulcanization system is the more mature application of the peroxide vulcanization system. Its faster vulcanization speed, good physical properties of the product, and smapermanent deformation in compression. A peroxide system can be used in the production of adhesive The product's physical properties are good, heat resistance and oil resistance performance. The system the addition of cross-linking agents such as TAIC, TAC, TMPTM, and HVA-2, can significantly improve in physical and mechanical properties and heat resistance. As peroxide is a free radical reaction to proce cross-linking, some acidic fillers will affect the generation of free radicals, so such fillers should not be However, peroxides are not suitable for lower pressure, moldless vulcanization, and high process requirements, so it is difficult to be used in most rubber products process.

Third, EataMix TCHC is a compound type CPE special vulcanizing agent, and the product is non-toxic. use cheap aromatic oil as a plasticizer and excellent vulcanization rubber performance. The activity o the TCHC system vulcanization rubber physical properties and aging performance, ultra-fine Mg(OH)2 absorber and iodine absorption value of 150 high activity magnesium oxide equivalent, can replace the expensive Imported high activity magnesium oxide, greatly reduce the manufacturing cost.

The application cost is much lower than the foreign thiadiazole system, and it can be applied to vario vulcanization processes, including lower temperature, moldless and low-pressure vulcanization. TCH slower than peroxide but can be vulcanized at a lower temperature, with no pressure, mold, and excerperformance.

The Thiadiazole system mainly consists of cross-linking agents and accelerators. The main cross-linkin are ECHO.A, ECHO, TDD, PT75, and TDDS. The main accelerators are Vanax 808, EataAccelDH, NC, Ac and BF. these promising additives classes.

Fourth is the triazole ethionamide salt system.

Triazole dimercaptoamine salt vulcanizing agent is the integration of thiadiazole vulcanizing agent an accelerator (n-butyl aldehyde and aniline condensate) effective group of a single substance to overco thiadiazole and accelerator on the rubber cross-linking, the irregular distribution of bonds shortcomi making the rubber cross-linked body into a stable structure. Compared with the thiadiazole system, t also changes the pH value of the system from strongly acidic to neutral due to the introduction of spe groups, which changes the adverse effect of acidic fillers on the system and makes the rubber cross-linker cross-linker of acidic fillers on the system and makes the rubber cross-linker cross-linker of acidic fillers on the system and makes the rubber cross-linker cross-linker cross-linker of acidic fillers on the system and makes the rubber cross-linker cross-l

Therefore, the CPE rubber cross-linked by this system has a qualitative improvement in physical or ch properties. It can use aromatic oil, magnesium oxide, and magnesium hydroxide as raw materials, su low temperature and low-pressure vulcanization process conditions, fast vulcanization speed, faster thiadiazole, low addition amount (2 parts), favorable unit price, no decomposition within the vulcaniz temperature, no odor, environmental protection and non-toxic.