

Crystallization Behavior Of Pet Materials

Rubidium

element in seawater. Because of its large ionic radius, rubidium is one of the "incompatible elements". During magma crystallization, rubidium is concentrated

Rubidium is a chemical element; it has symbol Rb and atomic number 37. It is a very soft, whitish-grey solid in the alkali metal group, similar to potassium and caesium. Rubidium is the first alkali metal in the group to have a density higher than water. On Earth, natural rubidium comprises two isotopes: 72% is a stable isotope ⁸⁵Rb, and 28% is slightly radioactive ⁸⁷Rb, with a half-life of 48.8 billion years – more than three times as long as the estimated age of the universe.

Polyolefin

polyolefins closer to a circular economy of recovery of the monomers, more comparable to the existing situation with PET polyester bottles. Whiteley, Kenneth

A polyolefin is a type of polymer with the general formula (CH₂CHR)_n where R is an alkyl group. They are usually derived from a small set of simple olefins (alkenes). Dominant in a commercial sense are polyethylene and polypropylene. More specialized polyolefins include polyisobutylene and polymethylpentene. They are all colorless or white oils or solids. Many copolymers are known, such as polybutene, which derives from a mixture of different butene isomers. The name of each polyolefin indicates the olefin from which it is prepared; for example, polyethylene is derived from ethylene, and polymethylpentene is derived from 4-methyl-1-pentene. Polyolefins are not olefins themselves because the double bond of each olefin monomer is opened in order to form the polymer. Monomers having more than...

Crystallization of polymers

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Crystallization of polymers is a process associated with partial alignment of their molecular chains. These chains fold together and form ordered regions called lamellae, which compose larger spheroidal structures named spherulites. Polymers can crystallize upon cooling from melting, mechanical stretching or solvent evaporation. Crystallization affects optical, mechanical, thermal and chemical properties of the polymer. The degree of crystallinity is estimated by different analytical methods and it typically ranges between 10 and 80%, with crystallized polymers often called "semi-crystalline". The properties of semi-crystalline polymers are determined not only by the degree of crystallinity, but also by the size and orientation of the molecular chains.

Guinea pig

still consumed in some parts of the world. In Western society, the guinea pig has enjoyed widespread popularity as a pet since its introduction to Europe

The guinea pig or domestic guinea pig (*Cavia porcellus*), also known as the cavy or domestic cavy (KAY-vee), is a species of rodent belonging to the genus *Cavia*, family Caviidae. Breeders tend to use the name "cavy" for the animal, but "guinea pig" is more commonly used in scientific and laboratory contexts. Despite their name, guinea pigs are not native to Guinea, nor are they closely related to pigs. Instead, they originated in the Andes region of South America, where wild guinea pigs can still be found today. Studies based on biochemistry and DNA hybridization suggest they are domesticated animals that do not exist naturally in the wild, but are descendants of a closely related cavy species such as *C. tschudii*. Originally, they were domesticated as livestock (source of meat) in the Andean...

Tomislav Friš?i?

applications Hypergolic Triggers as Co-crystal Formers: Co-crystallization for Creating New Hypergolic Materials with Tunable Energy Content Hypergolic zeolitic

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Polylactic acid

2021). *"Relationship between the Stereocomplex Crystallization Behavior and Mechanical Properties of PLLA/PDLA Blends"*. *Polymers*. 13 (11): 1851. doi:10

Polylactic acid, also known as poly(lactic acid) or polylactide (PLA), is a plastic material. As a thermoplastic polyester (or polyhydroxyalkanoate) it has the backbone formula $(C_3H_4O_2)_n$ or $[-C(CH_3)HC(=O)O-]_n$. PLA is formally obtained by condensation of lactic acid $C(CH_3)(OH)HCOOH$ with loss of water (hence its name). It can also be prepared by ring-opening polymerization of lactide $[-C(CH_3)HC(=O)O-]_2$, the cyclic dimer of the basic repeating unit. Often PLA is blended with other polymers. PLA can be biodegradable or long-lasting, depending on the manufacturing process, additives and copolymers.

Polymer

Semi-crystalline polymers can undergo crystallization and melting transitions, whereas amorphous polymers do not. In polymers, crystallization and melting do not suggest

A polymer () is a substance or material that consists of very large molecules, or macromolecules, that are constituted by many repeating subunits derived from one or more species of monomers. Due to their broad spectrum of properties, both synthetic and natural polymers play essential and ubiquitous roles in everyday life. Polymers range from familiar synthetic plastics such as polystyrene to natural biopolymers such as DNA and proteins that are fundamental to biological structure and function. Polymers, both natural and synthetic, are created via polymerization of many small molecules, known as monomers. Their consequently large molecular mass, relative to small molecule compounds, produces unique physical properties including toughness, high elasticity, viscoelasticity, and a tendency to...

Shape-memory polymer

limited. If T_m is chosen for programming the SMP, strain-induced crystallization of the switching segment can be initiated when it is stretched above

Shape-memory polymers (SMPs) are polymeric smart materials that have the ability to return from a deformed state (temporary shape) to their original (permanent) shape when induced by an external stimulus (trigger), such as temperature change.

Glass transition

gradual and reversible transition in amorphous materials (or in amorphous regions within semicrystalline materials) from a hard and relatively brittle "glassy"

The glass–liquid transition, or glass transition, is the gradual and reversible transition in amorphous materials (or in amorphous regions within semicrystalline materials) from a hard and relatively brittle "glassy" state into a viscous or rubbery state as the temperature is increased. An amorphous solid that exhibits a glass transition is called a glass. The reverse transition, achieved by supercooling a viscous liquid into the glass state, is called vitrification.

There are currently reported and commercially used systems. However, the possibility of programming other polymers is present, due to the number of copolymers that can be designed: the possibilities are almost endless.

Thermally induced shape-memory effect (polymers)

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The thermally induced unidirectional shape-shape-memory effect is an effect classified within the new so-called smart materials. Polymers with thermally induced shape-memory effect are new materials, whose applications are recently being studied in different fields of science (e.g., medicine), communications and entertainment.

German chemists Robert Bunsen and Gustav Kirchhoff discovered rubidium in 1861 by the newly developed technique, flame spectroscopy. The name comes from the Latin word rubidus, meaning deep red, the color of its emission spectrum. Rubidium's compounds have various chemical and electronic applications. Rubidium metal...

The glass-transition temperature T_g of a material characterizes the range of temperatures over which this glass transition occurs (as an experimental definition, typically marked as 100 s of relaxation time). It is always lower than the melting temperature, T_m , of the crystalline state of the material, if one exists, because the...

PLA has become a popular material due to it being economically produced from renewable resources and the possibility to use it for compostable products. In 2022, PLA had the highest consumption volume...

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