

Creep Behavior Of Linear Low Density Polyethylene Films

Thermally induced shape-memory effect (polymers) Polymer International, 51:275-280 (2002). Creep Recovery of Acrylate The thermally induced unidirectional shape-shape-memory effect is an effect classified within the new so-called smart materials. effect of poly (methylene-1,3-cyclopentane) and its copolymer with polyethylene. Kawate, K. , medicine), communications and entertainment. g. Polymers with thermally induced shape-memory effect are new materials, whose applications are recently being studied in different fields of science (e df4d21b7aa

For many elements (but not all) the highest known oxidation state can be achieved in a fluoride. For some elements this is... df4d21b7aa

Silicone At this temperature, silicones In organosilicon and polymer chemistry, a silicone or polysiloxane is a polymer composed of repeating units of siloxane ($-O-R_2Si-O-SiR_2-$, where R = organic group). polydimethylsiloxane releases traces of formaldehyde (but lesser amounts than other common materials such as polyethylene). Silicones are used in sealants, adhesives, lubricants, medicine, cooking utensils, thermal insulation, and electrical insulation. Some common forms include silicone oil, grease, rubber, resin, and caulk. They are typically colorless oils or rubber-like substances df4d21b7aa

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. df4d21b7aa

Polybutylene Not be confused with polybutene, PB-1 is mainly used in piping. discuss] Because of its crystalline structure and high molecular weight, PB-1 has good resistance to hydrostatic pressure, showing very low creep even at elevated Polybutylene (polybutene-1, poly(1-butene), PB-1) is a polyolefin or saturated polymer with the chemical formula $(CH_2CH(Et))_n$ df4d21b7aa

Silicone is often confused with one of its constituent elements, silicon, but they are distinct substances. Silicon is a chemical element, a hard dark-grey semiconducting metalloid, which in its crystalline form is used to make integrated circuits ("electronic chips") and solar cells. Silicones are compounds that contain silicon, carbon, hydrogen, oxygen, and perhaps... df4d21b7aa

Self-healing material Generally, materials will degrade over time due to fatigue,

environmental conditions, or damage incurred during operation. stresses, metals exhibit premature and low-ductility creep fracture, arising from the formation and growth of cavities. In contrast, self-healing materials counter degradation through the initiation of a repair mechanism that responds. In general, cracks are hard to detect at an early stage, and manual intervention is required for periodic inspections and repairs. Those defects coalesce into cracks Self-healing materials are artificial or synthetically created substances that have the built-in ability to automatically repair damages to themselves without any external diagnosis of the problem or human intervention. Cracks and other types of damage on a microscopic level have been shown to change thermal, electrical, and acoustical properties of materials, and the propagation of cracks can lead to eventual failure of the material

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...

Shape-memory polymer copolymers also show the shape-memory effect, such as, block copolymer of polyethylene terephthalate (PET) and polyethyleneoxide (PEO), block copolymers containing 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

Single-walled carbon nanotubes (SWCNTs) have diameters around 0.5–2.0 nanometres, about 100,000 times smaller than the width of a human hair. They can be idealised as cutouts from a two-dimensional graphene sheet rolled up to form a hollow cylinder.

Carbon nanotube 4 g/cm³, its specific strength of up to 48,000 kN·m/kg is the best of known materials, compared A carbon nanotube (CNT) is a tube made of carbon with a diameter in the nanometre range (nanoscale). 3 to 1. carbon nanotubes have a low density for a solid of 1. Two broad classes of carbon nanotubes are recognized:. They are one of the allotropes of carbon

Multi-walled carbon nanotubes (MWCNTs) consist of nested single-wall carbon nanotubes in a nested, tube-in-tube structure. Double- and triple-walled carbon nanotubes are special cases of MWCNT.

Fluorine compounds As a part of a molecule Fluorine forms a great variety of chemical compounds, within which it always adopts an oxidation state of –1. Fluorine's chemistry includes inorganic compounds formed with hydrogen, metals,

nonmetals, and even noble gases; as well as a diverse set of organic compounds. Molecules containing fluorine may also exhibit hydrogen bonding (a weaker bridging link to certain nonmetals). Fluoride may act as a bridging ligand between two metals in some complex molecules. With other atoms, fluorine forms either polar covalent bonds or ionic bonds. Most frequently, covalent bonds involving fluorine atoms are single bonds, although at least two examples of a higher order bond exist. e. result of its small size and high negative charge density, the fluoride anion is the "hardest" base (i. , of low polarizability) df4d21b7aa

Carbon nanotubes can exhibit remarkable properties, such as exceptional tensile strength and thermal conductivity because of their nanostructure and strength... df4d21b7aa

Glass transition short-term creep compliance data is collected. An amorphous solid that exhibits a glass transition is called a glass. The Williams Landels Ferry is most useful and accurate for understanding the time temperature behavior of polymeric - 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. The reverse transition, achieved by supercooling a viscous liquid into the glass state, is called vitrification df4d21b7aa

Crystallization of polymers These chains fold together and form ordered regions called lamellae, which compose larger spheroidal structures named spherulites. classified as semicrystalline. Polymers can crystallize upon cooling from melting, mechanical stretching or solvent evaporation. Examples of semi-crystalline polymers are linear polyethylene (PE), polyethylene terephthalate (PET), polytetrafluoroethylene Crystallization of polymers is a process associated with partial alignment of their molecular chains. 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 df4d21b7aa

Hydrogel The term "hydrogel" was coined in 1894. The solid phase is a water insoluble three dimensional network of polymers, having absorbed a large amount of water or biological fluids. In order to describe the time-dependent creep and stress-relaxation behavior of hydrogel, a variety of physical lumped parameter models can be used A hydrogel is a biphasic material, a mixture of porous and permeable solids and at least 10% of water or other interstitial fluid. Hydrogels have several applications, especially in the biomedical area, such as in hydrogel dressing. Many hydrogels are synthetic, but some are derived from natural

materials. material df4d21b7aa

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