Linear Low Density Polyethylene Lldpe Plasticseurope

The use of plastic materials has seen a massive increase in recent years, and generation of plastic wastes has grown proportionately. Recycling of these wastes to reduce landfill disposal is problematic due to the wide variation in properties and chemical composition among the different types of plastics. Feedstock recycling is one of the alternatives available for consideration, and Feedstock Recycling of Plastic Wastes looks at the conversion of plastic wastes into valuable chemicals useful as fuels or raw materials. Looking at both scientific and technical aspects of the recycling developments, this book describes the alternatives available. Areas include chemical depolymerization, thermal processes, oxidation and hydrogenation. Besides conventional treatments, new technological approaches for the degradation of plastics, such as conversion under supercritical conditions and coprocessing with coal are discussed. This book is essential reading for those involved in plastic recycling, whether from an academic or industrial perspective. Consultants and government agencies will also find it immensely useful.

Because we are living in an era of Green Science and Technology, developments in the field of bio- and nano- polymer composite materials for advanced structural and medical applications is a rapidly emerging area and the subject of scientific attention. In light of the continuously deteriorating environmental conditions, researchers all over the world have focused an enormous amount of scientific research towards bio-based materials because of their cost effectiveness, eco-friendliness and renewability. This handbook deals with cellulose fibers and nano-fibers and covers the latest advances in bio- and nano- polymer composite materials. This rapidly expanding field is generating many exciting new materials with novel properties and promises to yield advanced applications in diverse fields. This book reviews vital issues and topics and will be of interest to academicians, research scholars, polymer engineers and researchers in industries working in the subject area. It will also be a valuable resource for undergraduate and postgraduate students at institutes of plastic engineering and other technical institutes.

This handbook provides an exhaustive description of polyethylene. The 50+ chapters are written by some of the most experienced and prominent authors in the field, providing a truly unique view of polyethylene. The book starts with a historical discussion on how low density polyethylene was discovered and how it provided unique opportunities in the early days. New catalysts are presented and show how they created an expansion in available products including linear low density polyethylene, high density polyethylene, copolymers, and polyethylene produced from metallocene catalysts. With these different catalysts systems a wide range of structures are possible with an equally wide range of physical properties. Numerous types of additives are presented that include additives for the protection of the resin from the environment and processing, fillers, processing aids, anti-fogging agents, pigments, and flame retardants. Common processing methods including extrusion, blown film, cast film, injection molding, and thermoforming are presented along with some of the more specialized processing techniques such as rotational molding, fiber processing, pipe extrusion, reactive extrusion, wire and cable, and foaming processes. The business of polyethylene including markets, world capacity, and future prospects are detailed. This handbook provides the most current and complete technology assessments and business practices for polyethylene resins.

Only a few reported studies have involved the uniaxial orientation of LPDE and even less on LLDPE. It is our purpose to report on characteristics of uniaxially oriented films of LLDPE that contribute to property development. The LLDPE has been coextruded at 25 and at 80 C layered as ribbons within longitudinally split billets of HDPE. The LLPDE so drawn were characterized by thermal analysis, birefringence, elastic recovery and wide-angle x-ray measurements. As a result we can conclude that the drawing of LLDPE at the low temperature produces a relatively high content of monoclinic crystals. Originator supplied keywords include: Orientation; birefringence; elastic recovery; wide-angle x-ray; monoclinic; low-density; polyethylene.

Thermorheology and Processing of Polyethylene Blends

Polymer Processing Instabilities

Interactions with Food and Pharmaceuticals

Food Industry and the Environment

Plastics in Medical Devices

The Combine Results of PD Characteristics and Tensile Properties

No book has been published that gives a detailed description of all the types of plastic materials used in medical devices, the unique requirements that the materials need to comply with and the ways standard plastics can be modified to meet such needs. This book will start with an introduction to medical devices, their classification and some of the regulations (both US and global) that affect their design, production and sale. A couple of chapters will focus on all the requirements that plastics need to meet for medical device applications. The subsequent chapters describe the various types of plastic materials, their properties profiles, the advantages and disadvantages for medical device applications, the techniques by which their properties can be enhanced, and real-world examples of their use. Comparative tables will allow readers to find the right classes of materials suitable for their applications or new product development needs.

This book addresses the fields of biodegradation, environmental degradation, and photochemical degradation. The purpose of the book is to establish guidelines for terminology, nomenclature, characterization techniques and methodology, mechanisms of degradation, standard reference materials, and issues and needs. This is the first scientific book of this nature based on the findings of the world's leading scientists (academic, industrial, and federal) in this field. Hard data is presented and soft data is identified under issues and needs. New areas covered are such topics as: biodegradation with in vivo applications, environmental degradation, including anaerobic, aerobic, characterization techniques and methodology, photochemical degradation, and secondary issues associated with degradation. This publication contains information vital to environmental scientists and engineers, biomaterials scientists, pharmaceutical technologists, and chemists.

This book addresses plasma modification of polyolefin surfaces. It comprises 21 chapters divided into three major sections. The first section covers the different techniques used for plasma modification of polyolefin surfaces and the effects of various gases as a surrounding medium, while the second provides a detailed analysis of the physics and chemistry of plasma modification and discusses various innovative characterization techniques, as well as ageing of the modified surface. It focuses on the analysis of changes in polymers' surface chemistry using various spectroscopic techniques, and of changes in their surface morphology after plasma treatment using optical microscopy, electron microscopy and atomic force microscopy. In addition, it provides detailed information on the characterization of modified polymer surfaces. The book's third and last section covers a range of applications of plasma-modified polyolefin surfaces varying from the packaging industry to the biomedical field, and shares valuable insights on the lifecycle analysis of plasma modification and modified surfaces.

All areas of industry are facing increasing pressure from governments and consumers to be more environmentally aware. The food industry is no exception, and an increasing number of companies have made the decision to implement an environmental policy. These organisations will benefit from this book, which has been written to provide a broad but detailed introduction to the topic of environmental issues and their cost implica tions to the food industry. Throughout the text the authors have approached the subject from a practical angle, and have borne in mind the environmental, production or site manager who is grappling with the problem of how to implement such a policy. This book begins by considering the raw materials that are used in the food industry, whether derived from animals, fruit and vegetables, or the products of genetic engineering, as may increasingly be the case in the future. Environmental and cost considerations of food processing opera tions are then examined, encompassing energy conservation and the con trol of air, noise and water pollution; all topics that are uppermost in the priorities of the environmental manager. The finished food product also has an impact on its environment, and so the storage, distribution and packaging of foods, post food factory, is discussed in detail. Finally, the principles involved in management accounting for food industry environ mental issues are highlighted. All the authors of this book are respected experts in their chosen field, each of whom could have written a complete book on their subject.

Properties, Requirements and Applications

Feedstock Recycling of Plastic Wastes

Green Chemistry and Technology

Comparison Between Linear Low Density Polyethylene (LLDPE)/natural Rubber (NR) and Linear Low Density Polyethylene (LLDPE) Ethylene Octene Copolymer (POE) Blends

Preparation and Characterization of Linear Low Denstity Polyethylene LLDPE/thermoplastic Starch (TPS)/banana Fiber Composites

World Perspectives and Developments : Hotel Palace Madrid, Spain, 3-5 November 1986 : (also: LLDPE in Europe)

Automotive Plastics and Composites: Materials and Processing is an essential guide to the use of plastic and polymer composites in automotive applications, whether in the exterior, interior, under-the-hood, or powertrain, with a focus on materials, properties, and processing. The book begins by introducing plastics and polymers for the automotive industry, discussing polymer materials and structures, mechanical, chemical, and physical properties, rheology, and flow analysis. In the second part of the book, each chapter is dedicated to a category of material, and considers the manufacture, processing, properties, shrinkage, and possible applications, in each case. Two chapters on polymer processing provide detailed information on both closed-mold and open-mold processing. The final chapters explain other key aspects, such as recycling and sustainability, design principles, tooling, and future trends. This book is an ideal reference for plastics engineers, product designers, technicians, scientists, and R&D professionals who are looking to develop materials, components, or products for automotive applications. The book also intends to guide researchers, scientists, and advanced students in plastics engineering, polymer processing, and materials science and engineering. Analyzes mechanical, chemical, physical, and thermal properties, enabling the reader to select the appropriate material for specific applications Explains polymer processing, with thorough coverage of operations across both closed-mold and open-mold processing Provides systematic coverage of materials, including commodity and engineering thermoplastics, bio-based plastics, thermosets, composites, elastomeric polymers, and 3D-printed plastics

This report presents a cost analysis of Linear Low Density Polyethylene (LLDPE) production from polymer grade (PG) ethylene and 1-octene using a solution process. The process under analysis is similar to NOVA Chemicals SCLAIRTECH process. This report examines one-time costs associated with the construction of a United States-based plant and the continuing costs associated with the daily operation of such a plant. More specifically, it discusses: * Capital Investment, broken down by: - Total fixed capital required, divided in production unit (ISBL); infrastructure (OSBL) and contingency - Alternative perspective on the total fixed capital, divided in direct costs, indirect costs and contingency - Working capital and costs incurred during industrial plant commissioning and start-up * Production cost, broken down by: - Manufacturing variable costs (raw materials, utilities) - Manufacturing fixed costs (maintenance costs, operating charges, plant overhead, local taxes and insurance) - Depreciation and corporate overhead costs * Raw materials consumption, products generation and labor requirements * Process block flow diagram and description of industrial site installations (production unit and infrastructure) This report was developed based essentially on the following reference(s): EP Patent 0527144, issued to DuPont in 1996 Keywords: Ethene, DuPont Canada, Cyclohexane, Stirred-Reactor, Swing Technology, Multi-Reactor

The scope of this study is to investigate the effect of strain rates on the compressive properties of rice husk reinforced linear low density polyethylene composites under static and dynamic loading. Five different compositions of RH/LLDPE composites will be prepared and mixed using twin screw extruder. Then, the specimens will be compacted using hot press machine. The sample will be compressed under three different strain rates loading at both static and dynamic loading, respectively. Besides, the effect of surface treatment and particle sizes of RH/LLDPE composites under both static and dynamic loading also will be investigated. The specimens will be characterized using Fourier Transform Infrared (FTIR) for compound identification and Scanning Electron Microscopy (SEM) for morphology study. At the end of this study, the compressive properties, strain rate sensitivity and thermal activation volume of the composites are analyzed based on the effect of strain rates toward filler contents, surface treatment and particle sizes.

The blending of linear low density polyethylene (LLDPE) with thermoplastic strach (TPS) and filled with banana fiber (BF) were investigated. Two types of systems were prepared; the LLDPE/TPS matrix with different blend ratio and (LLDPE/TP) (80/20) composites filled with 5 - 30 wt% of BF. Morphological changes using scanning electron microscope (SEM) were observed and its showed that TPS particles are homogenously dispersed in LLDPE matrix.

International Conference LLDPE: Linear Low Density Polyethylene in Europe

Chemical Resistance of Commodity Thermoplastics

LLDPE Production via Slurry Process - Cost Analysis - LLDPE E21A

Synthesis of Linear Low-density Polyethylene (LLDPE)

Plastic Packaging

Structure—Property Relationships in Polymers

A series of linear low-density polyethylene (LLDPE)-natural rubber (NR) blends of composition 80/10, 70/20, 60/30, 50/40 and 40/50 containing nano-sized fillers montmorillonite (MMT) and Titanium(IV) Oxide (TiO2) were produced by a twin-screw extruder with maleic anhydride grafted linear low-density polyethylene (LLDPE-g-MAH) of 10 wt% as a compatibilizer. An electrical performance test through partial discharge (PD) characteristics using CIGRE Method II test was conducted to study the electrical performance of the samples. Morphological analysis using scanning electron microscope (SEM) and Energy Disperse X-ray spectroscopy (EDX) also conducted after the samples of composite were subjected to high voltage stress. The degradation of composite surfaces were analyzed. Then tensile test carried out to investigate the mechanical performance of the composites. The combine results of PD characteristics and tensile properties described the insulating performance of the composites. The results revealed that total PD numbers decrease with increasing of weight percentages of natural rubber in the composition of the composite without any filler.

*This report presents a cost analysis of Linear Low Density Polyethylene (LLDPE) production from polymer grade (PG) ethylene and 1-hexene using a slurry process. The process examined is similar to Chevron Phillips process. This report examines one-time costs associated with the construction of a United States-based plant and the continuing costs associated with the daily operation of such a plant. More specifically, it discusses: * Capital Investment, broken down by: - Total fixed capital required, divided in production unit (ISBL); infrastructure (OSBL) and contingency - Alternative perspective on the total fixed capital, divided in direct costs, indirect costs and contingency - Working capital and costs incurred during industrial plant commissioning and start-up * Production cost, broken down by: - Manufacturing variable costs (raw materials, utilities) - Manufacturing fixed costs (maintenance costs, operating charges, plant overhead, local taxes and insurance) - Depreciation and corporate overhead costs * Raw materials consumption, products generation and labor requirements * Process block flow diagram and description of industrial site installations (production unit and infrastructure) This report was developed based essentially on the following reference(s): (1) US Patent 20120282144, issued to Chevron in 2012; (2) US Patent 7629421, issued to Chevron in 2009 Keywords: Ethene, PE, Isobutane, Slurry Reactor, Loop Reactor*

Comparison Between Linear Low Density Polyethylene (LLDPE)/natural Rubber (NR) and Linear Low Density Polyethylene (LLDPE) Ethylene Octene Copolymer (POE) BlendsMechanical and Morphology PropertiesTensile Properties of Linear Low Density Polyethylene (LLDPE) Blown FilmsPreliminary Studies on Linear Low Density Polyethylene (LLDPE) Toughened Polylactic Acid NanocpositesLLDPE Production via Gas Phase Process - Cost Analysis - LLDPE E31AIntratec Solutions

*This report presents a cost analysis of Linear Low Density Polyethylene (LLDPE) production from polymer grade (PG) ethylene and 1-butene using a gas phase process. The process examined is similar to Univation UNIPOL and INEOS Innovene G processes. This report examines one-time costs associated with the construction of a United States-based plant and the continuing costs associated with the daily operation of such a plant. More specifically, it discusses: * Capital Investment, broken down by: - Total fixed capital required, divided in production unit (ISBL); infrastructure (OSBL) and contingency - Alternative perspective on the total fixed capital, divided in direct costs, indirect costs and contingency - Working capital and costs incurred during industrial plant commissioning and start-up * Production cost, broken down by: - Manufacturing variable costs (raw materials, utilities) - Manufacturing fixed costs (maintenance costs, operating charges, plant overhead, local taxes and insurance) - Depreciation and corporate overhead costs * Raw materials consumption, products generation and labor requirements * Process block flow diagram and description of industrial site installations (production unit and infrastructure) This report was developed based essentially on the following reference(s): (1) US Patent 8957167, issued to Univation in 2015; (2) US Patent 20030171512, issued to Univation in 2003 Keywords: Ethene, PE, Gas Reactor, Copolymer*

Mechanical and Morphology Properties

Preparation, Characterization and Degradation of Linear Low Density Polyethylene

LLDPE Production via Gas Phase Process - Cost Analysis - LLDPE E31A

Definitive Guide to Manufacturing, Properties, Processing, Applications and Markets Set

Introduction to Industrial Polyethylene

Mechanical and Morphological Properties of Polypropylene (PP)/Ethylene Octane Copolymer (POE)/ Linear Low Density Polyethylene(LLDPE) Ternary Blends

Chemical Resistance of Commodity Thermoplastics provides a comprehensive, cross-referenced compilation of chemical resistance data that explains the effect of thousands of reagents, the environment and other exposure media on the properties and characteristics of commodity thermoplastics – plastics which are generally used in higher performance applications. A huge range of exposure media are included, from aircraft fuel to alcohol, corn syrup to hydrochloric acid, and salt to silver acetate. This information has been substantially updated, curated, and organized by the engineers at M-Base Engineering + Software, a leading supplier of material databases, material information systems, product information systems, and material related simulation software. This book is a must-have reference for engineers and scientists designing and working with plastics and elastomers in environments where they come into contact with corrosive or reactive substances, from food, pharmaceuticals, and medical devices, to the automotive, aerospace, and semiconductor industries. Explains the effect of thousands of reagents, the environment and other exposure media on the properties and characteristics of commodity thermoplastics Organized by the engineers at M-Base Engineering + Software, a leading supplier of material databases, material information systems, product information systems, and material related simulation software A must-have reference for engineers and scientists designing and working with plastics and elastomers in environments where they come into contact with corrosive or reactive substances

Polymer Processing Instabilities: Control and Understanding offers a practical understanding of the various flows that occur during the processing of polymer melts. The book pays particular attention to flow instabilities that affect the rate of production and the methods used to prevent and eliminate flow instabilities in order to increase production rates and enhance manufacturing efficiency. Polymer Processing Instabilities: Control and Understanding summarizes experimental observations of flow instabilities that occur in numerous processing operations such as extrusion, injection molding, fiber spinning, film casting, and film blowing for a wide range of materials, including most commodity polymers that are processed as melts at temperatures above their melting point or as concentrated solutions at lower temperatures. The book first presents the fundamental principles in rheology and flow instabilities. It relates the operating conditions with flow curves, the critical wall shear stress for the onset of the instabilities, and new visualization techniques with numerical modeling and molecular structure. It reviews one-dimensional phenomenological relaxation/oscillation models describing the experimental pressure and flow rate oscillations, analyzes the gross melt fracture (GMF) instability, and examines how traditional and non-traditional processing aids eliminate melt fracture and improve polymer processability. It supplies a numerical approach for the investigation of the linear viscoelastic stability behavior of simplified injection molding flows and examines a newly discovered family of instabilities that occur in co-extrusion. Polymer Processing Instabilities: Control and Understanding is unique in that it fills a gap in the polymer processing literature where polymer flow instabilities are not treated in-depth in any book. It summarizes state-of-the-art developments in the field, particularly those of the last ten years, and contains significant data based on this research.

The first concern of scientists who are interested in synthetic polymers has always been, and still is: How are they synthesized? But right after this comes the question: What have I made, and for what is it good? This leads to the important topic of the structure-property relations to which this book is devoted. Polymers are very large and very complicated systems; their character ization has to begin with the chemical composition, configuration, and con formation of the individual molecule. The first chapter is devoted to this broad objective. The immediate physical consequences, discussed in the second chapter, form the basis for the physical nature of polymers: the supermolecular interactions and arrangements of the individual macromolecules. The third chapter deals with the important question: How are these chemical and physical structures experimentally determined? The existing methods for polymer characterization are enumerated and discussed in this chapter. The following chapters go into more detail. For most applications-textiles, films, molded or extruded objects of all kinds-the mechanical and the thermal behaviors of polymers are of pre ponderant importance, followed by optical and electric properties. Chapters 4 through 9 describe how such properties are rooted in and dependent on the chemical structure. More-detailed considerations are given to certain particularly important and critical properties such as the solubility and permeability of polymeric systems. Macromolecules are not always the final goal of the chemist-they may act as intermediates, reactants, or catalysts. This topic is presented in Chapters 10 and 11.

This report presents a cost analysis of Linear Low Density Polyethylene (LLDPE) production from polymer grade (PG) ethylene and 1-octene using a solution process. The process under analysis is similar to NOVA Chemicals Advanced SCLAIRTECH process. This report examines one-time costs associated with the construction of a United States-based plant and the continuing costs associated with the daily operation of such a plant. More specifically, it discusses: * Capital Investment, broken down by: - Total fixed capital required, divided in production unit (ISBL); infrastructure (OSBL) and contingency - Alternative perspective on the total fixed capital, divided in direct costs, indirect costs and contingency - Working capital and costs incurred during industrial plant commissioning and start-up * Production cost, broken down by: - Manufacturing variable costs (raw materials, utilities) - Manufacturing fixed costs (maintenance costs, operating charges, plant overhead, local taxes and insurance) - Depreciation and corporate overhead costs * Raw materials consumption, products generation and labor requirements * Process block flow diagram and description of industrial site installations (production unit and infrastructure) This report was developed based essentially on the following reference(s): US Patent 6319996, issued to Nova Chemical in 2001 Keywords: Ethene, PE, Methylpentane, Stirred-Reactor, Dual-Reactor

Chemical Resistance of Thermoplastics

Degradable Materials

Research and Applications

Evaluation of Synergism Between Creep and Defects in a Low Linear Density Polyethylene (LLDPE) Geomembrane

Properties of Compatibilized Linear Low Density Polyethylene (LLDPE)/organophilic Modified Montmorillonite (OMMT) Nancomposite Prepare by Melt Intercalation

Chemical Resistance of Thermoplastics is a unique reference work, providing a comprehensive cross-referenced compilation of chemical resistance data that explains the effect of thousands of exposure media on the properties and characteristics of commodity thermoplastics. The two volumes cover thermoplastics grouped within the following parts: - Acrylic Polymers and Copolymers - Acrylonitrile Polymers - Cellulosics Polymers - Ionomers - Olefinic Polymers - Polyacetals - Polyacetals - Polyamides - Polycarbonates - Polyesters - Polyurethanes - Polycarbonates - Styrene Copolymers - Styrene Copolymers - Vinyl Chloride Polymers - Vinyl Polymers The single most comprehensive data source covering the chemical resistance properties of high consumption volume commercial thermoplastics A rating number is provided for each test, summarizing the effect of the exposure medium on the given thermoplastic The data covered in the two volumes is also provided as an online publication offering extended navigation and search features

Demystifies the largest volume manmade synthetic polymer by distillingthe fundamentals of what polyethylene is, how it's made and processed,and what happens to it after its useful life is over. Endorsement for Introduction to Industrial Polyethylene "I found this to be a straightforward, easy-to-read, and useful introductory text on polyethylene, which will be helpful for chemists, engineers, and students who need to learn more about this complex topic. The author is a senior polyethylene specialist and I believe we can all benefit from his distillation of knowledge and insight to quickly grasp the key learnings." —R.E. King III; Ciba Corporation (part of the BASF group) Jargon used in industrial polyethylene technology can often be bewildering to newcomers. Introduction to Industrial Polyethylene educates readers on terminology commonly used in the industry and demystifies the chemistry of catalysts and cocatalysts employed in the manufacture of polyethylene. This concise primer reviews the history of polyethylene and introduces basic features and nomenclatures for this versatile polymer. Catalysts and cocatalysts crucial to the production of polyethylene are discussed in the first few chapters. Latter chapters provide an introduction to the processes used to manufacture polyethylene and discuss matters related to downstream applications of polyethylene such as rheology, additives, environmental issues, etc. Providing industrial chemists and engineers a valuable reference tool that covers fundamental features of polyethylene technology, Introduction to Industrial Polyethylene: Identifies the fundamental types of polyethylene and how they differ. Lists markets, key fabrication methods, and the major producers of polyethylene. Provides biodegradable alternatives to polyethylene. Describes the processes used in the manufacture of polyethylene. Includes a thorough glossary, providing definitions of acronyms and abbreviations and also defines terms commonly used in discussions of production and properties of polyethylene. Concludes with the future of industrial polyethylene.

Aims to use the recently developed Flow Injection Polymer Analysis (FIPA) for the development of a method which will be used to characterise the hexane extractable portions from selected grades of LLDPE and LDPE.

Plastics are the most important class of packaging materials. This successful handbook, now in its second edition, covers all important aspects of plastic packaging and the interdisciplinary knowledge needed by food chemists, pharmaceutical chemists, food technologists, materials scientists, process engineers, and product developers alike. This is an indispensable resource in the search for the optimal plastic packaging. Materials characteristics, additives and their effects, mass transport phenomena, quality assurance, and recent regulatory requirements from FDA and European Commission are covered in detail with ample data.

Cellulose Fibers: Bio- and Nano-Polymer Composites

Properties, Catalysts, and Processes

LLDPE Production via Solution Process - Cost Analysis - LLDPE E12A

Control and Understanding

Partial Discharge Characteristics of LLDPE-NR Composite

Plasma Modification of Polyolefins

Rheological and processing behavior of a number of linear low-density polyethylene(LLDPE)/low-density polyethylene (LDPE) blends was studied with emphasis on the effects of long chain branching. First, a linear low-density polyethylene (LL3001.32) was blended with four LDPE's having distinctly different molecular weights. At high LDPE weight fractions, DSC melting thermograms have shown three different polymer phases; two for the pure components and a third melting peak of co-crystals. Different rheological techniques were used to check the thermo rheological behavior of all blends in the melt state and the effect of long chain branching. It was found that all blends are miscible in the melt state at small LDPE concentrations. The elongational behavior of the blends was studied using a uniaxial extensional rheometer, SER. The blends exhibit strain hardening behavior at high rates of deformation even at LDPE concentrations as low as 1%, which suggests the strong effect of branching added by the LDPE component. On the other hand, shear rheology was found to be insensitive to detect addition of small levels of LDPE up to lwt%. The second set of blends prepared and studied consisted of two Ziegler-Natta LLDPE's (LL3001.32 and Dowlex2045G) and two metallocene LLDPE's(AffinityPL1840 and Exact 3128) blended with a single LDPE. In DSC melting thermograms, it was observed that blends with metallocence LLDPE's exhibit a single melting peak at all compositions; whereas the Ziegler-Natta blends exhibit three melting peaks at certain compositions. It was found also that the metallocene LLDPE's are miscible with the LDPE at all concentrations. On the other hand, the Ziegler-Natta LLDPE's were found to be miscible with LDPE only at small LDPE concentrations. The processing behavior of all blends with emphasis on the effects of long chain branches was also studied in capillary extrusion. The critical shear stresses for the onset of sharkskin and gross melt fracture are slightly del.

It is known that linear low-density polyethylene (LLDPE) can be synthesized by copolymerization of ethylene and 1-olefins using metallocene catalysts. However, the properties of LLDPE can be improved by adding organic or inorganic fillers. It should be mentioned that by adding nanoscale fillers into LLDPE, LLDPE-nanocomposites can be achieved. Among methods to produce polymer nanocomposites such as solution blending, melt mixing process and in situ polymerization, the in situ polymerization is perhaps the most promising method to produce the LLDPE-nanocomposite with an exceptional dispersion of nanoparticles inside the polymer matrix. This is due to the direct lingkage of active centers to the surface of nanoparticles. Therefore, it is necessary to immobilize the active centers onto nanoparticle surface or fillers. In this present study, LLDPE/Al[subscript 2]O[subscript 3] - nanocomposites were synthesized by the in situ polymerization with dried-modified methylaluminoxane (d-MMAO)/zirconocene catalyst. The nano-Al[subscript 2]O[subscript 3] was commercially obtained from Aldrich. The amounts of nanomaterials filled were also varied. Yields, activities, and polymer morphologies were discussed. It was found that the polymerization activity strongly depended on the [Al][subscript d-MMAO]/[Zr] ratios. The samples were further characterized using SEM/EDX, DSC, [superscript 13]C NMR, and GPC.

This new volume focuses on different aspects of composite systems that are associated with research and development, helping to bridge the gap between classical analysis and modern real-life applications. The chapters look at the experimental and theoretical aspects of composite materials, regarding preparation, processing, design, properties, and practical implications. It also presents recent advancements, research, and development prospects of advanced composite materials that provide new solutions for advanced technologies.

The flow of bis-phenol-A-polycarbonate (PC) and linear low density polyethylene (LLDPE) blend was investigated. On the basis of the test results, their repeatability and reproducibility conclusions regarding suitability of the procedure for drawing a standard test method can be assessed.

Handbook of Industrial Polyethylene and Technology

The Effect of Recycled Low Density Polyethylene Substituted in Virgin Linear Low Density Polyethlene as Polymer Blends on Mechanical Properties

Improvement of Impact Strength in Linear Low Density Polyethylene (LLDPE) by Blending with Amorphous Polymers

Tensile Properties of Linear Low Density Polyethylene (LLDPE) Blown Films

Macromolecular Structure Effects

Synthesis, Characterization and Applications

This study focused on the development of degradable polymers by incorporating RPF into the LLDPE. The addition of adipic acid into RPF filler helps in dispersing RPF homogeneously within the LLDPE matrix. The composites are subjected to tensile, morphological and thermal properties testing. Then, the effect of natural weathering and soil burial test to the composites are investagated to determine their degradability. Other than that, the addition of cobalt stearate is aimed to accelerate the degradation process by accelarating the oxidation of LLDPE.

Previous studies have not verified the relationship between creep and defects in geomembranes. Thus, a series of creep tests using the Stepped Isothermal Method (SIM) was conducted to evaluate the synergism between creep and defects in Linear Low Density Polyethylene (LLDPE) geomembranes. Specifically, three different sizes of defects were used in this research: no defects, 1.6 mm in diameter, and 3.2 mm in diameter. In addition, two different load levels were applied to each sample: 18 %, and 27 % of the Ultimate Tensile Strength (UTS). We found that the creep behavior of LLDPE geomembranes is not significantly affected by the existence of defects. However, the axis of defects in geomembranes elongated during the creep test. These results imply that a leakage rate through a defect increases as time increases if geomembranes containing defects undergo creep condition. Future research is needed to verify the creep behavior of different types of geomembranes with various sizes and shapes of defects.

This text provides the basic history, molecular structure and intrinsic properties, practical applications and future developments of polyethylene production and marketing - including recycling systems and metallocene technology. It describes commercial processing techniques used to convert raw polyethylene to finished products, emphasizing special properties and end-use applications.

LLDPE Production via Solution Process - Cost Analysis - LLDPE E11A

Hexane Extractables in Linear Low and Low Density Polyethylene by FIPA Method

Handbook of Polyethylene

Practical Issues and Cost Implications

Materials and Processing

Final Research Report a Study on Chemical Composition Distribution (CCD) of Linear Low Density Polyethylene (LLDPE) Using Crystallization Analysis Fractionation (Crystaf)