The Complete Book on Biodegradable Plastics and Polymers (Recent Developments, Properties, Analysis, Materials & Processes)

Author:- NIIR Board of Consultants & Engineers
Format: paperback
Code: NI165
Pages: 672
Price: Rs.1275**US$** 125
Publisher: NIIR PROJECT CONSULTANCY SERVICES
Usually ships within **5** days

Biodegradable plastics made with plant based materials have been available for many years. The term biodegradable means that a substance is able to be broken down into simpler substances by the activities of living organisms, and therefore is unlikely to persist in the environment. There are many different standards used to measure biodegradability, with each country having its own. The requirements range from 90 per cent to 60 per cent decomposition of the product within 60 to 180 days of being placed in a standard composting environment. They may be composed of either bio plastics, which are plastics whose components are derived from renewable raw materials, or petroleum based plastics which contain additives. Biodegradability of plastics is dependent on the chemical structure of the material and on constitution of the final product, not just on the raw materials used for its production. Polyesters play a predominant role as biodegradable plastics due to their potentially hydrolysable ester bonds. Bio based polymers are divided into three categories based on their origin and production; polymer directly extracted from biomass, polymers produced by classical chemical synthesis using renewable biomass monomer and polymers produces by microorganisms or genetically modified bacteria. In response to public concern about the effects of plastics on the environment and in particular the damaging effects of sea litter on animals and birds, legislation is being enacted or is pending in many countries to ban non degradable packing, finishing nets etc.

This book basically deals with biodegradable plastics developments and environmental impacts, hydro biodegradable and photo biodegradable, starch synthetic aliphatic polyester blends, difference between standards for biodegradation, polybutylene succinate (pbs) and polybutylene, recent developments in the biopolymer industry, recent advances in synthesis of biopolymers by traditional methodologies, polymers, environmentally degradable synthetic biodegradable polymers as medical devices, polymers produced from classical chemical synthesis from bio based monomers, potential bio based packaging materials, conventional packaging materials, environmental impact of bio based materials: biodegradability and compostability, etc.

Environmentally acceptable degradable polymers have been defined as polymers that degrade in the environment by several mechanisms and culminate in complete biodegradation so that no residue remains in the environment. The present book gives thorough information to biodegradable plastic and polymers. This is an excellent book for scientists engineers, students and industrial researchers in the field of bio based materials.

BIODEGRADABLE PLASTICS â€” DEVELOPMENTS AND ENVIRONMENTAL IMPACTS
Biodegradable
The ASTM defines â€˜biodegradableâ€™ as
Compostable
â€˜Compostableâ€™ is defined by the ASTM as
Hydro-biodegradable and Photo-biodegradable
Bio-erodable
Thermoplastic Starch Products
Degradation Mechanisms and Properties
Starch Synthetic Aliphatic Polyester Blends
Degradation Mechanisms and Properties
Starch and PBS/PBSA Polyester Blends
Degradation Mechanisms and Properties
Starch-PVOH Blends
Degradation Mechanisms and Properties
PHA (Naturally Produced) Polyesters
Degradation Mechanisms and Properties
PHBH (Naturally Produced) Polyesters
Degradation Mechanisms and Properties
PLA (Renewable Resource) Polyesters
Degradation Mechanisms and Properties
PCL (Synthetic Aliphatic) Polyesters
Degradation Mechanisms and Properties
PBS (Synthetic Aliphatic) Polyesters
Degradation Mechanisms and Properties
AAC Copolyesters
Degradation Mechanisms and Properties
Modified PET
Degradation Mechanisms and Properties
Water Soluble Polymers
Polyvinyl Alcohol (PVOH)
Degradation Mechanisms and Properties
Ethylene Vinyl Alcohol (EVOH)
Photo-biodegradable Plastics
Degradation Mechanisms and Properties
Controlled Degradation Additive Masterbatches
Degradation Mechanisms and Properties
Coated Paper
Agricultural Mulch Film
Shopping Bags
Food Waste Film and Bags
Consumer Packaging Materials
Landfill Cover Film
Other Applications
Biodegradation Standards and Tests
American Society for Testing and Materials
ASTM D5338-93 (Composting)
ASTMD5209-91 (Aerobic, Sewer Sludge)
ASTM D5210-92 (Anaerobic, Sewage Sludge)
ASTM D5511-94 (High-solids Anaerobic Digestion)
ASTM Tests for Specific Disposal Environments

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes varies process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

NIIR PROJECT CONSULTANCY SERVICES, 106-E, Kamla Nagar, New Delhi-110007, India.
Email: npcs.india@gmail.com **Website**: NIIR.org

Mon, 11 Aug 2025 23:02:29 +0000