

# Thermoplastic Material Selection

A Practical Guide



Eric R. Larson



# Thermoplastic Material Selection A Practical Guide

**Cornelia Vasile,Mihaela Pascu**

## **Thermoplastic Material Selection A Practical Guide:**

Thermoplastic Material Selection Eric R. Larson,2015-05-05 Thermoplastic Material Selection A Practical Guide presents current information on how proper material selection is a critical component of any manufactured product The text is a practical guide to a difficult process giving the reader a fundamental grounding in thermoplastic materials and providing the tools they need to save time money and frustration The book provides an overview of the most commonly used thermoplastic materials including discussions of the different chemical families plastics categories and material grades and the implications of these differences on the material selection process It provides fresh insights on the traditional methods of material selection based on performance and cost and also discusses the use of non traditional methods based on subjective evaluation Subsequent sections include references on tools that can be used to conduct further exploration how to accurately select the most suitable material writing an effective material specification and working with material suppliers and distributors

## **13th International Conference on Theory and Application of Fuzzy Systems and Soft Computing –**

**ICAFS-2018** Rafik A. Aliev,Janusz Kacprzyk,Witold Pedrycz,Mo. Jamshidi,Fahreddin M. Sadikoglu,2018-12-28 This book presents the proceedings of the 13th International Conference on Application of Fuzzy Systems and Soft Computing ICAFS 2018 held in Warsaw Poland on August 27 28 2018 It includes contributions from diverse areas of soft computing such as uncertain computation Z information processing neuro fuzzy approaches evolutionary computing and others The topics of the papers include theory of uncertainty computation theory and application of soft computing decision theory with imperfect information neuro fuzzy technology image processing with soft computing intelligent control machine learning fuzzy logic in data analytics and data mining evolutionary computing chaotic systems soft computing in business economics and finance fuzzy logic and soft computing in the earth sciences fuzzy logic and soft computing in engineering soft computing in medicine biomedical engineering and the pharmaceutical sciences and probabilistic and statistical reasoning in the social and educational sciences The book covers new ideas from theoretical and practical perspectives in economics business industry education medicine the earth sciences and other fields In addition to promoting the development and application of soft computing methods in various real life fields it offers a useful guide for academics practitioners and graduates in fuzzy logic and soft computing fields

## **Designing Successful Products with Plastics** Mark T. MacLean-Blevins,2024-05-03

Designing Successful Products with Plastics Fundamentals of Plastic Part Design 2e provides expert insight into design considerations required to bring a concept product or part through design and ready for production Rather than focusing on design rules and engineering equations used during product development the emphasis of the book is on what the designer needs to consider during the early conceptual visualization stages and in the detailed stages of the design process This fully updated edition features new practical advice on how to design sustainably throughout the book This approach will bridge the gap between the industrial designer tasked with the big picture product design and use and the part designer tasked with

the detailed plastic part design for manufacture Useful to both experienced and novice designers this book brings valuable design process information through specific examples enabling designers and engineers in the plastics industry to effectively use the available technical information to successfully design and manufacture new products Brings together the worlds of the plastic part designer and the industrial designer and shows how each impacts the success of a development project Teaches the Four Pillars considerations Materials Processes Tooling and Design required for every design decision to be made during a plastic part design project The interrelationship of these considerations with the sustainability intent for the product being developed is taught and illustrated within this new edition Illustrates the product design process roadmap from creation of the concept through implementation into manufacturing highlighting steps and methods used throughout the process to limit risk and ensure success Includes methods and design project management techniques used to ensure an efficient design process and successful manufacturing of the product or part **A Practical Guide to the Selection of High-Temperature Engineering Thermoplastics** A.A. Collyer,2016-01-22 Helps the individual without formal training in plastic materials through the maze of materials selection to his final goal Those with a basic knowledge of this area will benefit from the more practical aspects of the guide **Practical Guide to Plastics Applications** Edward G.

Crosby,Stephen N. Kochis,1972 Handbook of Thermoplastics Olagoke Olabisi,Kolapo Adewale,1997-03-19 Offers coverage of all known commodity transitional engineering high temperature and high performance thermoplastics and analyzes emerging developments in the creation of new thermoplastics The text examines important issues in the field for each substance discussed including history development and commercialization polymer formation mechanisms and process technologies the affect of structural and phase characteristics on properties the commercial relevance of thermoplastic blends alloys copolymers and composites and more **Detailed Mechanical Design** James G. Skakoon,2000 This new volume presents principles rules guidelines and tips that are useful in designing mechanical parts and assemblies It includes examples of real world practical ideas that come from successful design experience and which result in superior mechanical design Special Features focuses on mechanical design at the detail level examines high level principles that have general significance for all mechanical design describes in depth the basic design practices that will improve the strength robustness function user handling and manufacturability of parts and assemblies presents guidelines for electing plastic rubber and metal materials includes useful tips for selecting and designing components such as bolts nuts screws springs and adhesive joints **Plastics Materials and Processes** Seymour S. Schwartz,Sidney H. Goodman,1982 Kempe's Engineers Year-book ,2002 **Materials Protection** ,1966 Handbook of Product Design for Manufacturing James G.

Bralla,1986 A Practical Guide to Low Cost Production offers a detailed overview of common manufacturing processes for the designer or manufacturing engineer Covers a full range of processes from metal stamping forging casting molding thermoforming and more Specifies optimum material grades and dimensional tolerance data for each production process

**Engineered Materials Handbook** Cyril A. Dostal, 1988-11-01

Material Selection for Thermoplastic Parts Michel

Biron, 2015-09-02 As new applications are developed and plastics replace traditional materials in a widening spectrum of existing applications the potential personal injury property damage financial and legal consequences of failure can be high. However nearly half of plastics failure can be traced back to the original specification and selection of the material. This book gives engineers the data they need to make an informed decision about the materials they use in their products imparting a thorough knowledge of the advantages and disadvantages of the various materials to choose from. The data also suggests other candidate materials which the reader may not have originally considered. More than 30 000 thermoplastics grades are grouped into circa 300 subfamilies within which over 20 properties are assessed. The abundance or scarcity of a material and its cost are also often important deciding factors. In this book an economical overview of the plastics industry helps clarify the actual consumption and costs of thermoplastics including bioplastic and the relationship of cost vs performance is also examined for each thermoplastic subfamily. Immediate and long term common properties are reviewed including mechanical behavior impact thermal properties and many more. Environmental considerations are also covered including ease of recycling and sustainability. Helps engineers to implement a systematic approach to material selection in their work. Includes more than 300 subfamilies of thermoplastic and a wide range of properties including chemical resistance thermal degradation creep and UV resistance. Evaluates cost performance relations and environmental considerations.

*Advanced Polymers Abstracts*, 1996    **Product Engineering**, 1960 Vol for 1955 includes an issue with title Product design handbook issue 1956 Product design digest issue 1957 Design digest issue    *Reciprocating Machinery Dynamics* Abdulla S.

Rangwala, 2001 An exploration of developments in and effects of internal combustion engines compressors and pumps on the structural dynamic characteristics of components and systems covering the fundamentals of vibration theory design construction and equipment operation. It includes software for evaluating system and component performance spreadsheet calculations and program modules arranged to determine a full array of design parameters dimensions and dynamic characteristics.

**Practical Guide to Polyethylene** Cornelia Vasile, Mihaela Pascu, 2005 This practical guide begins with general background to the polyethylene family with price production and market share information. It describes the basic types of polyethylene including virgin and filled polyethylene copolymers block and graft polymers and composites and reviews the types of additives used in polyethylene. It gives the low down on the properties including amongst others rheological mechanical chemical thermal and electrical properties. It goes on to describe the processing issues and conditions for the wide range of techniques used for polyethylene and also considers post processing and assembly issues. It offers guidance on product design and development issues including materials selection. It is an indispensable resource for everyone working with this material.

*Plastics World*, 1997    **Thermal Characterization of Polymeric Materials** Edith A. Turi, 1981 The Second Edition of Thermal Characterization of Polymeric Materials edited by Edith A Turi provides an

overview of thermal analysis by focusing on instrumentation and an array of applications in research development production quality control and technical service     *Engineered Materials Abstracts* ,1992-03

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