

## Formulation Additives By Basf

To meet changing market demands that have stringent emission standards and to ensure proper performance in refinery units, evaluation of novel catalyst designs and results from material characterization and testing of catalysts are of crucial importance for refiners as well as for catalyst manufacturers. This book highlights recent developments in the application of refinery catalysts in selected units such as fluid catalytic cracking (FCC), hydrogen production for hydroprocessing units, hydrotreating, hydrocracking, and sustainable processing of biomass into biofuels.

Research efforts in the past decade have led to considerable advances in the concepts and methods of smart manufacturing. *Smart Manufacturing: Applications and Case Studies* includes information about the key applications of these new methods, as well as practitioners' accounts of real-life applications and case studies. Written by thought leaders in the field from around the world, *Smart Manufacturing: Applications and Case Studies* is essential reading for graduate students, researchers, process engineers and managers. It is complemented by a companion book titled *Smart Manufacturing: Concepts and Methods*, which describes smart manufacturing methods in detail. Includes examples of applications of smart manufacturing in process industries Provides a thorough overview of the subject and practical examples of applications through well researched case studies Offers insights and accounts of first-hand experiences to motivate further implementations of the key concepts of smart manufacturing

Since UV curing (light induced polymerisation of multifunctional oligomers) is a very ecoefficient and energy saving curing method, the growth rates of UV curable coatings are in the range of 10% per year. The typical UV coatings are solvent free (100% solids), thus helping the industry and the environment to reduce significantly VOC (volatile organic compounds). Recently, the automotive industry has discovered that UV cured coatings are very scratch resistant, which stimulated very extensive work into the development of UV coatings for automotive applications. Since UV curing is very universal, also other systems besides the 100% solid (typical) UV coatings are developed, like waterbased UV- , UV powder and Dual cure (UV and thermal) systems. *UV Coatings* contains an overview of the technology, the curing process including the equipment necessary, the raw materials (resins, diluents, photoinitiators) used, the advantages and drawbacks of this fast emerging technology, as well as proposed technical solutions to tackle the disadvantages.

Structure-property relationships will be given, especially regarding the mechanical properties of coatings as well as scratch resistance, mainly dealing with automotive performance criteria. The main part of the book will deal with new developments, like water-based UV coatings, UV powder coatings and dual cure systems, cured by UV and thermal energy, which have been developed to cure the coating on three dimensional substrates in shadow areas. The main

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applications of UV Coatings will be described, starting with the classical ones on temperature sensitive substrates, like wood, paper and plastics, where the UV curable coatings are already well established. \* Looking at UV curing as a key to scratch resistant automotive clear coats \* Ecoefficiency of UV Coatings \* Comprehensive overview of the technology, materials and markets

Offers coverage of the environmental behaviour of detergent additives, focusing on physiochemical interactions with soil and sediments. This text presents the current state of knowledge on recently introduced detergent additives, including zeolites, polycarboxylate compounds, ethylene dinitrilotetraacetic acid (EDTA), and nitrilotriacetic acid (NTA).

Contains over 18,000 entries for chemical trademark products currently sold throughout the world.

Wood Coatings addresses the factors responsible for the performance of wood coatings in both domestic and industrial situations. The term 'wood coatings' covers a broad range of products including stains, varnishes, paints and supporting ancillary products that may be used indoors or outdoors. Techniques for coating wood go back many centuries but in recent decades there has been a move towards more environmentally-friendly materials, for example, the use of water-borne rather than solvent-borne chemicals. A major objective of Wood Coatings is to explain the underlying factors that influence selection, application and general operational issues. Basic information on the chemistry and technology of coatings is included for the benefit of students and laboratory technicians. Additionally, the book includes individual chapters of interest to architects, specifiers, and industrial users. \* Offers up-to-date guidance on current availability and usage of wood coatings \* Provides the reader with a basic understanding of both coating and substrate interactions \*

Covers both architectural (trade and DIY) and industrial sectors

Dedicated wholly to automotive coatings, this book is the first of its kind. It provides an in-depth coverage of the subject and in keeping with the international nature of the automotive business the book has a truly multinational flavour with authors selected from Australia, Japan, Europe and the USA. An authoritative and informative treatment of all aspects of coatings formulation are presented together with their manufacture and application. Numerous chapters written by experts in the field deal with substrate pretreatment, undercoats, surfacers and topcoats. Finishes for both metals and non-metals are described as well as speciality coatings such as sealers, antichip and underbody paints. Further valuable information on commercial support for the sale of finishes in the automotive industry and the licensing of technology is also given. Specialists involved in a wide range of disciplines in the coatings industry including chemists, chemical engineers and commercial staff will find this up-to-date source of exceptional interest.

\*\*\*\* The standard reference in the field of chemicals for commerce, cited in BCL3 and Sheehy. This extensively revised edition includes some 40,000 trade names and chemicals, of which about 18,000 entries are completely new; 13,500

entries that now contain CAS or EINECS numbers; and nearly 3,000 manufacturers, more than twice the number in the ninth edition. Entries give definitions, classification, chemical formulas/descriptions, functions/applications, and manufacturers. Annotation copyright by Book News, Inc., Portland, OR

Several ceramic parts have already proven their suitability for serial application in automobile engines in very impressive ways, especially in Japan, the USA and in Germany. However, there is still a lack of economical quality assurance concepts. Recently, a new generation of ceramic components, for the use in energy, transportation and environment systems, has been developed. The efforts are more and more system oriented in this field. The only possibility to manage this complex issue in the future will be interdisciplinary cooperation. Chemists, physicists, material scientists, process engineers, mechanical engineers and engine manufacturers will have to cooperate in a more intensive way than ever before. The R&D activities are still concentrating on gas turbines and reciprocating engines, but also on brakes, bearings, fuel cells, batteries, filters, membranes, sensors and actuators as well as on shaping and cutting tools for low expense machining of ceramic components. This book summarizes the scientific papers of the 7th International Symposium "Ceramic Materials and Components for Engines". Some of the most fascinating new applications of ceramic materials in energy, transportation and environment systems are presented. The proceedings shall lead to new ideas for interdisciplinary activities in the future.

The new Handbook on Basics of Coating Technology is a classic reference recently updated with 18 years worth of new technology, standards, and developments in the worldwide coating industry. This is an indispensable reference for anyone in the industry. Whether you are involved in traditional processes or the most innovative, this handbook will be a critical addition to your daily routine. Full of color images, graphs, and figures, the handbook comes complete with standard tables, general classification figures, definitions, and an extensive keyword index. Both engineers and technicians will find the answers they need within its pages. Instead of solving problems "after the fact," this handbook helps avoiding them in the first place, saving time and money. This reference also gives beginners and practically oriented readers a journey through the different coating segments clearly illustrated with lots of pictures. It also outlines the social changes in the industry concerning environmental compatibility and toxicology which have seriously affected product development.

A ready reference describing, in detail, properties of various commercial PVC resins available in the U.S. and Canada and how these, together with additives, are used in formulating PVC. Coverage includes economics of formulating, basic statistics and design of experiments, laboratory compounding and test methods, environmental and health concerns in formulating vinyl compounds. Also contains chapters on dry blending, powder coatings, plastisol and organosol preparation and electron beam radiation curing.

Although plastics are extremely successful commercially, they would never reach acceptable performance standards either in properties or processing without the incorporation of additives. With the inclusion of additives, plastics can be used in a variety of areas competing directly with other materials, but there are still many challenges to overcome. Some additives are severely restricted by legislation, others interfere with each other-in short their effectiveness varies with circumstances. Plastics Additives explains these issues in an alphabetical format making them easily accessible to readers, enabling them to find specific information on a specific topic. Each additive is the subject of one or more articles, providing a succinct account of each given topic. An international group of experts in additive and polymer science, from many world class companies and institutes, explain the recent rapid changes in additive technology. They cover novel additives (scorch inhibitors, compatibilizers, surface-modified particulates etc.), the established varieties (antioxidants, biocides, antistatic agents, nucleating agents,

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fillers, fibres, impact modifiers, plasticizers) and many others, the articles also consider environmental concerns, interactions between additives and legislative change. With a quick reference guide and introductory articles that provide the non-specialist and newcomer with relevant information, this reference book is essential reading for anyone concerned with plastics and additives.

Filling a need, this ready reference brings together the hard-to-get and recently acquired knowledge usually only found scattered in the original literature. Following an introduction to plastics as a class of engineering materials and an overview of their properties, the book comprehensively covers the characterization and quality control of manufactured plastic components, including an exhaustive treatment of the possible flaws of plastics inadvertently introduced during manufacturing along with viable solutions to prevent these faults. The second part is concerned with the testing of the resulting end products by various physical and chemical methods on the nano-, meso- and macroscale. An appendix with thermoanalytic data and international standards for the most commonly used polymers in plastics engineering rounds off the text. Written by experienced academics and industrial researchers and developers who intimately know the problems faced by plastics engineers in their daily work - as well as the solutions - this book provides first-hand practical knowledge and in-depth discussions for industrial chemists and materials scientists alike.

Papermaking is a fascinating art and technology. The second edition of this successful 2 volume handbook provides a comprehensive view on the technical, economic, ecologic and social background of paper and board. It has been updated, revised and largely extended in depth and width including the further use of paper and board in converting and printing. A wide knowledge basis is a prerequisite in evaluating and optimizing the whole process chain to ensure efficient paper and board production. The same is true in their application and end use. The book covers a wide range of topics: \* Raw materials required for paper and board manufacturing such as fibers, chemical additives and fillers \* Processes and machinery applied to prepare the stock and to produce the various paper and board grades including automation and trouble shooting \* Paper converting and printing processes, book preservation \* The different paper and board grades as well as testing and analysing fiber suspensions, paper and board products, and converted or printed matters \* Environmental and energy factors as well as safety aspects. The handbook will provide professionals in the field, e. g. papermakers as well as converters and printers, laymen, students, politicians and other interested people with the most up-to-date and comprehensive information on the state-of- the-art techniques and aspects involved in paper making, converting and printing.

This book is a good basic guide to the polymers that are used in the construction industry. The types of polymers that can be used are discussed and specific applications are also covered. There is also a very comprehensive section on the health and safety aspects of using polymers in buildings.

This report examines both the technological and commercial aspects of the current and future uses of functional additives. Materials and applications their Processing and Applications the current supply situation and the key players in the market are discussed.

As the field of tribology has evolved, the lubrication industry is also progressing at an extraordinary rate. Updating the author's bestselling publication, Synthetic Lubricants and High-Performance Functional Fluids, this book features the contributions of over 60 specialists, ten new chapters, and a new title to reflect the evolving nature of the

The phenomenon of catalysis is found in many homogeneous and heterogeneous systems undergoing chemical change, where it effects the rates of approach to the equilibrium state in processes as diverse as those found in the stars, the earth's mantle, living

organisms, and the various chemistries utilized by industry. The economies and the living standards of both developed and developing countries depend to varying degrees upon the efficacy of their chemical industries. Consequently, this century has seen a wide exploration and expansion of catalytic chemistry together with an intensive investigation of specific, essential processes like those contributing to life-supporting agricultures. Prime among the latter must surely be the "fixation" of atmospheric nitrogen by catalytic hydrogenation to anhydrous ammonia, still the preferred synthetic precursor of the nitrogenous components of fertilizers. In each decade contemporary concepts and techniques have been used to further the understanding, as yet incomplete, of the catalyst, the adsorbates, the surface reactions, and the technology of large-scale operation. The contributors to the present volume review the state of the art, the science, and the technology; they reveal existing lacunae, and suggest ways forward. Around the turn of the century, Sabatier's school was extending the descriptive catalytic chemistry of hydrogenation by metals to include almost all types of multiple bond. The triple bond of dinitrogen, which continued to be more resistant than the somewhat similar bonds in carbon monoxide and ethyne, defied their efforts.

The industry's most comprehensive handbook - now available in its 3rd edition: the BASF Handbook covers the entire spectrum from coatings formulation and relevant production processes through to practical application aspects. It takes a journey through the industry's various sectors, placing special emphasis on automotive coating and industrial coating in general. The new edition has been completely updated, featuring several new sections on nanoproducts, low-emissions, biobased materials, wind turbine coating, and smart coatings.

The Organisation for Economic Co-operation and Development (OECD)'s Co-operative Research Programme on Biological Resource Management for Sustainable Agricultural Systems sponsored the AHEAD 2017 workshop, bringing together experts from the farming and pharmaceutical industries, information and communications technology, policy, research (and more) to create a roadmap to the digital transformation of animal health surveillance. In many countries, policy supports the reduction of antibiotic use and a growing focus in the veterinary practice is to move away from blanket dosage of antibiotics, for example for mastitis. Significant and speedy improvements can take place, but only with coordinated actions supported by the entire value chain. Reducing the use of antibiotics is of massive societal importance, but changing on farm or veterinary methods requires thought and a user-centred approach. The most glaring and addressable challenge is the absence of near real-time data and information. AHEAD 2017 explored how governments globally can benefit from increased digitisation in animal health. For effective monitoring, it is important to first understand the relevant tasks of each stakeholder in the food value chain. In these proceedings we openly discuss and define these tasks, identify existing challenges to completion of these tasks, and suggest the business opportunities overcoming these challenges can create. Through this publication, it is our intention to encourage open discussion, design and co-creation of an improved digital approach to animal health and drug usage in agriculture. The Workshop was sponsored by the OECD Co-operative Research Programme on Biological Resource Management for Sustainable Agricultural Systems, whose financial support made it possible for most of the invited speakers to participate in the Workshop. The



opinions expressed and arguments employed in this publication are the sole responsibility of the authors and do not necessarily reflect those of the OECD or of the governments of its Member countries.

Discussing the manufacture technology of pressure-sensitive adhesive and products, Volume 2 of the Handbook of Pressure-Sensitive Adhesives and Products includes the synthesis of pressure-sensitive raw mater

Databook of Antiblocking, Release, and Slip Additives, Second Edition contains detailed information on over 300 important additives for polymers, including additives that are used to minimize adhesion, aid separation, and enhance processing and end-applications for polymers. Each additive is presented with data in the following categories: General Information, Physical Properties, Health and Safety, Ecological Properties, and Use and Performance. Data fields covered include state, odor, color, autoignition temperature, probability of biodegradation, and much more. Recommendations are given for specific products, processing methods, and mold materials, and an assessment is given for each additive's features and benefits. Contains the most extensive data available on a large number of antiblocking, release and slip additives for polymers Features 130 data fields for each additive that are divided into General Information, Physical Properties, Health and Safety, Ecological Properties, and Use and Performance Includes an assessment of the benefits and properties of each additive, recommended dosages and processing methods

Growing interest in the formulation of pressure-sensitive adhesives as described in the first edition of this book ( Pressure-Sensitive Formulation, VSP, 2000) required a new, enlarged edition including the design of pressure-sensitive adhesives as a separate volume. Developments in the understanding of pressure sensitivity were necessary to use macromolecular chemistry for pressure-sensitive design. Such developments include polymer physics and contact mechanics. Progress in coating technology, especially in in-line coating- and synthesis, opened new ways for the design of pressure-sensitive adhesives and products as well. Actually, pressure-sensitive-products with and without adhesives compete requiring a broad variety of material formulations and the corresponding manufacturing technology. The first volume of the book examines the theoretical aspects of pressure-sensitive design, based on macromolecular chemistry, macromolecular physics, rheology and contact mechanics. The second volume describes the practical aspects of pressure-sensitive design and formulation, related to product application. The advances in the various domains are described by specialists.

Agrochemical products and adjuvants are of vital importance in agriculture, to protect food and fibre crops from weeds, insect pests and diseases, in order to feed and clothe the growing world population. In recent years there have been increasing pressures to produce agrochemical formulations which have a lower environmental impact and are safer in use. Enormous changes have taken place in the chemistry and technology of agrochemicals over the last twenty years or so and this book provides a timely review of the most important area of technology in the development of new products. This book covers issues around international product quality and safety standards and describes the current and likely future trends which will carry the industry forward into the next millennium. It brings together well known international experts with many years of practical

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experience from agrochemical companies, consultancies, academic institutions and regulatory bodies. Chemists and technologists involved in developing new or improved agrochemical formulations will find this book an essential reference in the course of their work. The book will also be of interest to those working in research and development departments of raw material suppliers, as a concise review of this important field.

Additives for Coatings John Wiley & Sons

This book focuses on the polyolefin additives that are currently important in the plastics industry, alongside new additives of increasing interest, such as nanofillers and environmentally sustainable materials. As much as possible, each chapter emphasizes the performance of the additives in the polymer, and the value each relevant additive brings to polypropylene or polyethylene.

Where possible, similar additives are compared by capability and relative cost. With major sections for each additive function, this book provides a highly practical guide for engineers and scientists creating and using polyolefin compounds, who will find in this book a wealth of detail and practical guidance. This unique resource will enable them to make practical decisions about the use of the various additives, fillers, and reinforcements specific to this family of materials. ABOUT THE AUTHOR Michael Tolinski is a freelance writer and a lecturer at the University of Michigan's College of Engineering. He is a frequent contributor to *Plastics Engineering* and *Manufacturing Engineering*. Structured to make it easy for the reader to find solutions for specific property requirements Contains a number of short case studies about companies that have used or developed a particular additive to achieve a desired result Covers environmental resistance, mechanical property enhancement, appearance enhancement, processing aids, and other modifications of form and function

This book covers everything about the mode of action, application and possible side effects of the most important coatings additives - in a single volume, presented in a textbook style. It reflects the needs of practical work - thus it enables the reader to rapidly gain a solid grounding in these critical, yet complex constituents of all paint formulations. It provides both an overview and in-depth basic knowledge of the most important classes of additives. The various types of damage eliminated or prevented by additives are vividly illustrated with colour photos. An indispensable companion for formulators!

A detailed examination of China's increasingly important chemical and pharmaceutical industry. Numerous case studies describe how western companies, such as BASF, Bayer, Bicol, Ciba, Degussa, DSM and Novartis are managing their market entry in China.

This indispensable book describes lubricant additives, their synthesis, chemistry, and mode of action. All important areas of application are covered, detailing which lubricants are needed for a particular application. Laboratory and field performance data for each application is provided and the design of cost-effective, environmentally friendly technologies is fully explored. This edition includes new chapters on chlorohydrocarbons, foaming chemistry and physics, antifoams for nonaqueous lubricants, hydrogenated styrene–diene viscosity modifiers, alkylated aromatics, and the impact of REACH and GHS on the lubricant industry. This data- and factbook contains state-of-the-art information on the environmental aspects of 2,500 chemicals currently used in the

textile industry worldwide. The authors have worked closely with industrial practitioners and managers of textile plants to ensure that only state-of-the-art science and technology are included. The texts preceding the extended tables present comprehensive overviews of the processes presently in use, as well as of important and relevant governmental regulations. The data sheet for each chemical spans carefully selected, relevant environmental and production-related data. In addition, textile engineers and specialists involved in the risk assessment and control of these chemicals will find that the overviews given on each chemical, its field of application and its function in production processes make this volume a valuable tool for their frequent reference.

Sound formulation is a vital aspect of microbial products used to protect plants from pests and diseases and to improve plant performance. *Formulation of Microbial Biopesticides* is an in-depth treatment of this vitally important subject. Written by experts and carefully edited, this important title brings together a huge wealth of information for the first time within the covers of one book. The book is broadly divided into five sections, covering principles of formulation, organisms with peroral and contact modes of action, organisms with the power of search, and future trends. Each section contains comprehensive chapters written by internationally acknowledged experts in the areas covered; the book also includes three very useful appendices, cataloguing formulation additives, spray application criteria and terminology. This outstanding book is a vitally important reference work for anyone involved in the formulation of microbial biopesticides and should find a place on the shelves of agriculture and plant scientists, microbiologists and entomologists working in academic and commercial agrochemical situations, and in the libraries of all research establishments and companies where this exciting subject is researched, studied or taught.

The additive families are considered with an outline of the technical issues and the trends driving the markets. The main marketplaces for each additive type are discussed and the trends outlined. It contains an overview of the significant trends in the four largest plastics market sectors: packaging, construction, automotive and electrical and electronics. The report focuses on the important issues within Europe, with comment on the relevant trends in North America and Asia. The report provides discussion of the trends in material consumption and specific additive groups. It also includes brief company news and information for some of the leading additive suppliers.

A step-by-step introduction to coatings formulation: Insights into the chemical composition and binders of various types of paints; Exclusive selection, analysis, and annotation of existing recipes; Various examples of how to develop a real-life paint formulation

This is the first single-volume handbook with the information a researcher needs to select the best rheology modifiers for his/her project. Information on 20 different types of rheology modifiers manufactured by 26 companies worldwide is described. These range from Acrylic Polymers to Xanthan Gum. This handbook was written because, in the authors' experience, the selection of a rheology modifier for specific applications is an arduous task. It requires researching the technical literature of numerous suppliers, contacting them for current information and recommendations, and paring the list of candidates from hundreds to a few dozen. This book will enable readers to easily identify the best candidates for an application with a minimum investment of time. The book is divided into four sections. Part I reviews rheology fundamentals. Part II presents details on the products available from the 26 represented companies. Part III focuses on the selection of suitable rheology modifier candidates. Part IV is a formulary containing the contributions of the suppliers.



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No doubt: A perfect coating has to look brilliant! But other properties of coatings are also most important. Coatings have to be durable, tough and easily applicable. Additives are the key to success in achieving these characteristics, even though the amounts used in coating formulations are small. It is not trivial at all to select the best additives. In practice, many series of tests are often necessary, and the results do not explain, why a certain additive improves the quality of a coating and another one impairs the coating. This book is dedicated to developers and applicants of coatings working in research or production, and it is aimed at providing a manual for their daily work. It will answer the following questions: How do the most important groups of additives act? Which effects can be achieved by their addition? Scientific theories are linked to practical applications. Emphasis is put on the optical aspects that are most important for the applications in practice. This book is a milestone in quality assurance in the complete field of coatings!

Biphasic Chemistry and The Solvent Case examines recent improvements in reaction conditions, in order to affirm the role of chemistry in the sustainable field. This book shows that those who work within the chemistry industry support limits for the use of toxic or flammable solvents, since it reduces the purifications to simple filtrations. Thanks to commercial scavengers, solid phase syntheses are now available to all. Fluorine biphasic catalysis enables extremely efficient catalyst recycling and has a high applicability potential at the industrial level. This book also reviews the many studies that have shown that water is a solvent of choice for most synthetic reactions. Particular traits can be obtained and the effects on thermodynamics make it possible to operate at lower temperatures, thereby achieving energy savings. Finally the great diversity of application of the reactions without solvents is illustrated.

All aspects of the personal care industry will be comprehensively discussed in Polymers for Personal Care Products and Cosmetics, including polymer synthesis, safety issues, and potential applications of a variety of materials in this large industry. There will be a broad overview of cosmetic ingredients, vehicles and finished products as well as coverage of the main methodologies for synthesis, safety and application testing. The reader will be provided with a solid background of the fundamentals of the area, before being brought up to date on the future of this field, along with discussion of the latest materials trends and future perspectives. Written by a world renowned expert in the area, the book will provide a unique look into this fast developing industry from insights obtained from key experts in industry and academia. The advantages and disadvantages of the technologies involved in the development of these materials are highlighted, providing a balanced and thorough review of the current state-of-the-art research. This book will appeal to researchers, academics and students working in polymer and materials chemistry, particularly those with an interest in personal care products.

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