half a century. New aspects of manufacturing, structure development and properties of practical relevance in nanoparticle-filled thermoplastic polymers are given in the third part of the book. The ideal carbon nanotube (CNT) is a small particle that can be regarded as a graphite plane rolled up to a tube with hemispherical cap at each end. The hexagonal structure, which is known from graphite sheets and carbon fibers, provides them with a high strength and stiffness at low density. Therefore, the art of carbon nanotube and nanofiber reinforced polymer systems is also described in the third part devoted generally to mechanical properties improvement and fracture behaviour.

This book offers the most current perspective recent research and results of scientists' works. It also explores the improvement of mechanical properties, such as strength and toughness, and physical properties such as heat resistance and conductivity. This book is directed particularly at polymer scientists in research institutes and in industry, but it might be also helpful for students of polymer physics, chemistry and engineering.

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Thomas J. Bruno, Paris D.N. Svoronos, CRC Handbook of Fundamental Spectroscopic Correlation Charts, CRC Press, Boca Raton, FL, USA, 2006 (vi+225 pp., £99-95, ISBN 0-8493-3250-8)

From forensics and security to pharmaceuticals and environmental applications, spectroscopic detection is one of the most cost-effective methods for identifying chemical compounds in a wide range of disciplines. For spectroscopic information, correlation charts are far more easily used than tables.

The Handbook of Fundamental Spectroscopic Correlation Charts provides useful analysis and assignment of spectra and structural elucidation of organic and organometallic molecules. The correlation charts are compiled from an extensive search of spectroscopic literature and contain current, detailed information that includes new results for many compounds.

This book also presents graphical data charts for nuclear magnetic resonance spectroscopy of the most useful nuclei, as well as infrared and ultraviolet spectrophotometry. Because mass spectrometry data is not best represented graphically, it is commonly used to present it in tabular form. Furthermore, mass spectrometry can be used for analyses and structural determinations in combination with other techniques.

To present absorption bands and intensities for variety of important functional groups and chemical families, this book also concentrates on instrument calibration, diagnostics, common solvents, fragmentation patterns and several conversion tables.

Laboratory safety is one of the last, but not least subject discussed in the handbook. As incapability between some chemicals may cause fire, explosion, or release of toxic gases, this book gives list of chemicals that react in certain chemical environments. What is more, it also provides useful information about abbreviations that are commonly encountered in presentations of laboratory and industrial hazards.

In conclusion, Handbook of Fundamental Spectroscopic Correlation Charts is an ideal laboratory companion for students and professionals in academic, industrial and government laboratories.

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Anilkumar G. Gaonkar, Andrew McPherson (Eds.), Ingredient Interactions: Effects on Food Quality, second edition, CRC Press, Boca Raton, FL, USA, 2006 (xvii+554, £79-99, ISBN 0-8247-5748-3)

Understanding the interactions among ingredients in food is critical for optimising ingredient performance and obtaining quality food products. Some ingredient' interactions are desirable and can positively affect food quality, but some of them need to be controlled in order not to spoil the food texture and taste.

The main components of food can be classified as macrocomponents (water, proteins, lipids, carbohydrates) and microcomponents (minerals, vitamins, enzymes). Interaction can take place between macrocomponents or between macro- and microcomponents. What is more, physical conditions such as pH, temperature, moisture and time affect intensity of reactions. To study those complex ingredient' interactions in food systems, both microscopic analysis and rheology can be employed. The use of the microscope has become recognised as an essential technique to reveal the relationship between structure and

functionality, to identify foreign bodies or to develop new products or new processing technology. Rheology helps to relate forces with deformations through mechanical properties of materials. The rheological texture analysis is more accurate and 'descriptive' than classical texture and sensory tests. Both techniques are widely discussed in the first three chapters of Ingredient Interactions – Effects on Food Quality.

Water in food processing and storage has been one of the main concerns of the food industry, as the aqueous systems are very complex and water properties are not yet fully understood. Presentation of some features and consequences of the interactions of water with food ingredients and several examples of transformations mediated by water and related to the quality of food can be found in Chapter 4.

Starches today are widely used not only to provide viscosity, they also contribute texture, gelling, film forming, and nutritional benefits to finished food products. Starch can interact with acetic acid, enzymes, lipids, proteins, sugars and sweeteners. Sweeteners are used in food to give sweet flavour, these can be found in milk, honey, maple syrup, corn syrup and many others. Sweeteners' interaction with starch give impact on gelatinisation properties of starch, which can change the production and processing of baked goods. They also interact with fats and oils, proteins and in the end with other sweeteners. Any of these interactions will cause change in viscosity, performance and texture. All starch and sweeteners' properties are discussed in two following chapters.

Proteins are fundamental in determining some of the major quality attributes of the final products. In many instances, protein interactions need to be controlled as they could have a negative impact on the quality of food products. Additionally, proteins undergo many interactions with small molecules. These complex reactions, mentioned in Chapters 8 and 9, serve a variety of purposes including transport of essential elements, reduction or enhancement of toxic and nutritional properties and changes in the organoleptic properties of food. Proteins and phospholipids coexist in some food ingredients (milk, egg yolk). Phospholipids can improve protein functionality by forming a conjugate with globular proteins that exhibit poor emulsifying properties. Enzymes are also proteins and they play a key role in the structure and functionality of the foods. Both phospholipids and added enzymes are mostly used to modify macromolecular interactions (Chapters 10 and 11).

Finally, the last three chapters reveal secrets of interactions between emulsifiers and flavour components with other food ingredients. Because of growing customers' demand, only food with appealing flavour and texture will be successful in the marketplace.

In conclusion, Ingredient Interactions – Effects on Food Quality is intended for scientists, engineers and technologists involved in food research and industry. It is an incisive and convenient reference that presents the latest technical information available on food ingredient interactions.

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Barbara A. Rasco, Gleyn E. Bledsoe, Bioterrorism and Food Safety, CRC Press, Boca Raton, FL, USA, 2005 (xv+416 pp., £79.99, ISBN 0-8493-2787-3)

Food terrorism has been defined by the World Health Organization (WHO) as "an act or threat of deliberate contamination of food for human consumption with chemical, biological or radionuclear agents for the purpose of causing injury or death to civilian populations and/or disrupting social, economic or political stability" (WHO, 2003). Biological terrorism or bioterrorism involves the use of etiologic or biological toxins in a terrorist act. The term Bioterrorism has commonly been applied to acts of ecoterrorism as well, since ecoterrorism often involves biological agents and targets (e.g., plots of allegedly genetically modified crops/0 or ecosystem issues (e.g., forest practices, biodiversity, sustainable agriculture). Food system is especially vulnerable to the introduction of disease, pests, or poisonous agents, as well as being highly susceptible to attack due to its open interconnected, and complex structure. Therefore, food security is an extension of food safety programs into a new arena.

"Bioterrorism and Food Safety" is a book which arose as a result of terrorist attacks of the last few years. It contains the explanations of terms and examples concerned with bioterrorist threat, terrorist strategies and tactics, extortion, information warfare and terrorism motivation (chapter 1). Threats from terrorism come in different forms and both civil and criminal laws to prevent or to limit the impact of terrorism are in effect or are being developed.

Potential biological (e.g., bacteria, rickettsia, viruses, toxins) and toxic chemical agents (e.g., metals, cyanide, nerve agents, industrial chemicals and pesticides), which might be used to contaminate food are broadly described in chapter 2. The purpose of these weapons would be primarily to terrorize unprotected civilians and not as a weapon of war. One of the features of terrorist is that they are not afraid of any laws. However, when they are caught, then should be subordinate by severe fines. Bioterrorism regulations and their impact on the safety of the food supply and trade are presented in chapter 3.

As Lawrence Dyckmann, Head of the Natural Resources and Environment Section of the US General Accounting Office (GAO) stated: "The way we produce things makes it somewhat easy for a terrorist to infiltrate our food supply,