

Coating Substrates and Textiles

A Practical Guide to Coating and Laminating Technologies

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Preface to the 2nd German Edition

Despite rising expectations of materials and products, their life cycles or yield potential are constantly declining. Global competition is a strong factor in classic markets, and the years ahead will be heavily affected by the prevailing current financial crisis. In view of the banking system's problems, the automotive industry's heavy decline and the downward spiral of a large proportion of the economy, innovations and special products are in demand more than ever. Only companies entering the market with new innovations which have profit potential will survive.

Viewed broadly, a vertical diversification is taking place in the added value chain which should lead to the formation of new industry branches. Many companies are trying to improve or completely change the attributes of their products, to ultimately achieve added value. The plastics industry, too, has new coating and laminating methods which are described in the 2nd edition of this practical book.

In addition to the improvement of existing products, the development of new products is also enormously important. This is the only way to counter the effects of the general recession. Great potential for expansion remains, particularly in the field of renewable energies as well as that of thin coatings for electronics applications. However, new developments occur continually in conventional markets, too, such as technical textiles and medical technology, which are described in the new edition of this book. The subject areas were supplemented as follows:

Section 3.2.6: Slot die and pouring technologies

Co-author: Andrea Glawe

Section 3.5.1.5: UV curing

Section 3.5.1.6: Electron beam curing

Co-author: Karin Timmermanns

Section 6.2: Medical and hygiene products

Co-author: Moritz Graf zu Eulenburg

Section 6.3: Prepreg

Co-author: Regina Reuscher

Section 6.4: Thin film coating for the field of electronics

Co-author: Christoph Dittrich

Also new is Chap. 7 which deals with common chemicals such as PVC, PU and acrylates, as well as diverse additives.

On the subject of systems, there is a trend towards higher production speed and finishing services, while continuing to meet quality requirements. More flexible production with easier operation, reduced production costs and energy savings also contribute to improvements in terms of technical competitiveness.

Dormagen, June 2009

Andreas Giessmann

Preface to the 1st German Edition

The coating of substrates made of textiles, paper or film applies to the original material the characteristics that satisfy the rising quality demands the industry makes on the materials used. For this reason, the coating industry has experienced strong growth for years. This book strives to present a holistic view in order to do justice to the complexity of coating and to the significance of the coating industry. However, the focus is on the coating of textiles, which is a component of textile finishing. Here, no new material is created, but the substrate is given an additional function instead. Methods in the field of classic textile finishing include the dressing or the dyeing of textiles, but these will not be dealt with here.

When coating a flexible sheet of material (i.e. through continuous application of one or more layers in a liquid or paste form), the usual goal is indeed the generation of new materials and thus new areas of application. As a result, the coating of textiles can be categorised in an area similar to finishing. This is not only of elementary importance for the sake of defining terms, but also underlines the immense importance of textile coating in the context of the textile industry, or respectively, coating in its entirety.

In order to create new products, in addition to the actual coating with all the associated machinery, chemicals and processes, the extended environment must also be considered. The fast-moving market of today, as well as the financial pressure prevalent in companies (topics such as Rating and Basel II) forces the coating industry to take an extremely economical and ecological approach. That is why this book devotes particular attention to the following topics: structure of a modern plant, processes and methods of coating, environmental protection, and economical aspects (investment).

Dormagen, November 2002

Andreas Giessmann