

1. Record Nr.	UNINA9911020466303321
Titolo	Flexible flat panel displays // edited by Gregory P. Crawford
Pubbl/distr/stampa	Chichester, West Sussex, England ; ; Hoboken, NJ, : John Wiley & Sons, c2005
ISBN	9786610238828 9781280238826 1280238828 9780470300640 0470300647 9780470870501 0470870508 9780470870495 0470870494
Descrizione fisica	1 online resource (558 p.)
Collana	Wiley SID series in display technology
Altri autori (Persone)	CrawfordGregory Philip
Disciplina	621.3815/422
Soggetti	Information display systems Liquid crystal displays Electroluminescent display systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Flexible Flat Panel Displays; Contents; List of Contributors; Foreword; Series Editor's Foreword; Preface; 1 Flexible Flat Panel Display Technology; 1.1 Introduction; 1.2 Manufacturing; 1.3 Enabling Technologies; 1.3.1 Flexible substrates; 1.3.2 Barrier layers; 1.3.3 Inorganic conducting layers and mechanical properties; 1.3.4 Organic conducting layers and mechanical properties; 1.3.5 Optical coatings; 1.3.6 Thin film transistors; 1.3.7 Electro-optic materials; 1.3.8 Flexible display prototypes; 1.3.9 Markets; 1.4 Conclusions; References; 2 Engineered Films for Display Technologies 2.1 Introduction 2.2 Polymer Substrates; 2.3 Properties; 2.3.1 Optical properties; 2.3.2 Birefringence; 2.3.3 Thermal properties; 2.3.4 Moisture and solvent resistance; 2.3.5 Surface treatment; 2.3.6 Barrier;

2.3.7 Mechanical properties of the composite structure; 2.4 Polyester Films in Application; 2.4.1 Novel low-temperature processes for building silicon-based TFTs; 2.4.2 Adapting existing silicon processes to reasonably low temperature; 2.4.3 Organic-based TFTs with processing temperatures below 200 oC; 2.4.4 Use of Teonex in flexible displays; 2.5 Concluding Remarks; Acknowledgements
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3 Flexible Glass Substrates; 3.1 Introduction; 3.2 Display Glass Properties; 3.2.1 Overview of display glass types; 3.2.2 Glass properties; 3.3 Manufacturing of Thin "Flexible" Glass; 3.3.1 Float and drawdown technology for special glass; 3.3.2 Limits; 3.4 Mechanical Properties; 3.4.1 Thin glass and glass/plastic substrates; 3.4.2 Mechanical test methods for flexible glasses; 3.5 Improvement in Mechanical Properties of Glass; 3.5.1 Reinforcement of glass substrates; 3.6 Processing of Flexible Glass; 3.6.1 Cleaning; 3.6.2 Separation
3.7 Current Thin Glass Substrate Applications and Trends
3.7.1 Displays; 3.7.2 Touch panels; 3.7.3 Sensors; 3.7.4 Wafer-level chip size packaging; References;
4 Barrier Layer Technology for Flexible Displays; 4.1 Introduction; 4.2 Development of Thin Film Vapor Barrier Systems; 4.2.1 Organic electronics: packaging needs; 4.2.2 Single-layer gas barrier films on polymeric substrates; 4.2.3 Multilayer gas barrier films for OLEDs; 4.3 Measurement Techniques; 4.3.1 Steady-state transmission tests; 4.3.2 The calcium test; 4.3.3 Defect characterization; 4.4 Theories of Vapor Barrier Permeation
4.5 Deconvolution of Experimental Data
4.5.1 Transient and steady-state permeation models; 4.5.2 Methods to determine in situ properties; 4.5.3 Implications for multilayer barrier systems; 4.6 Discussion; 4.7 Conclusions; Acknowledgements; References;
5 Transparent Conducting Oxide Materials and Technology; 5.1 Introduction; 5.2 Materials Selection and Characterization; 5.2.1 Transparent conducting materials classes: why oxides?; 5.2.2 Transparent conducting oxides: general considerations; 5.3 Indium-Based Binary Oxides; 5.3.1 Background; 5.3.2 Crystalline indium tin oxide
5.3.3 Amorphous indium tin oxide

Sommario/riassunto

Flexible displays are currently one of the most researched topics within the flat panel display community. They promise to change our display-centric world by replacing bulky rigid devices with those that are paper-thin and can be rolled away or folded up when not in use. The field of flexible flat panel displays is truly unique in the sense that it is interdisciplinary to the display community, combining basic principles from nearly all engineering and science disciplines. Organized to bring the reader from the component level, through display system and assembly, to