

Entrepreneur India

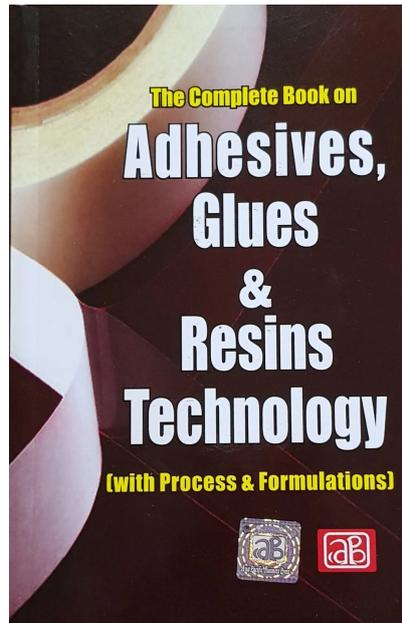
106-E, Kamla Nagar, New Delhi-110007, India.

Tel: 91-11-23843955, +91 9097075054

Mobile: +91-9097075054

Email: npcs.ei@gmail.com, info@entrepreneurindia.co

Website: www.entrepreneurIndia.co



The Complete Book on Adhesives, Glues & Resins Technology (with Process & Formulations) 2nd Revised Edition

Code	NI185
Format	paperback
Indian Price	₹1675
US Price	\$150
Pages	616
ISBN	9788178331614
Publisher	Asia Pacific Business Press Inc.

Description

An adhesive is a material used for holding two surfaces together. In the service condition that way adhesives can be called as “Social” as they unite individual parts creating a whole. A useful way to classify adhesives is by the way they react chemically after they have been applied to the surfaces to be joined. There is a huge range of adhesives, and one appropriate for the materials being joined must be chosen. Gums and resins are polymeric compounds and manufactured by synthetic routes. Gums and resins largely used in water or other solvent soluble form for providing special properties to some formulations. More than 95% of total adhesive used worldwide are based on synthetic resins. Gums and resins have wide industrial applications. They are used in manufacture of lacquers, printing inks, varnishes, paints, textiles, cosmetics, food and other industries.

Increase in disposable income levels, rising GDP and booming retail markets are propelling growth in packaging and flexible packaging industry. Growth of disposable products is expected to increase, which leads to increase in consumption of adhesives in packaging industry. The global value of adhesive resins market is estimated to be \$11,339.66 million and is projected to grow at a CAGR of about 4.88% in coming years. Rapid urbanization coupled with growing infrastructure and real estate construction projects is projected to further fuel demand for adhesives in India.

This handbook covers photographs of plant & machinery with supplier’s contact details and manufacturing aspects of various adhesives, glues & resins. The major contents of the book are glues of animal origin, fish glues, animal glues, casein glues & adhesives, blood albumen glues, amino resin adhesives, cyanoacrylate adhesives, epoxy resin adhesives, phenolic resin adhesives, polychloroprene resin adhesives, polysulfide sealants & adhesives, resorcinolic adhesives, furan resin adhesives, lignin adhesives, polyamide adhesives, rosin adhesive, tannin adhesives, terpene based adhesives, starch adhesives, acrylic adhesives and sealants, pressure sensitive adhesives, hot melt adhesives, alkyd resins, acrylic modified alkyd resins, alkyd –amino combinations based on neem oil, amino resins, carbohydrate modified phenol- formaldehyde resins, epoxy resins etc.

It will be a standard reference book for professionals, entrepreneurs, those studying and researching in this important area and others interested in the field of adhesives, glues & resins technology.

Content

ADHESIVES

1. Glues of Animal Origin

Properties

Methods of Manufacture

Commercial Grades and Specifications

Methods of Analysis

Sampling

Procedure

Identification

Physical Measurements

Determination of Other Constituents

2. Fish Glues

Introduction

Manufacturing Process

Properties

Applications & Formulations

Rubber-to-Steel

Strawboard-to-Steel

Rubber-or Cork-to-Plywood

Paper-to-Steel

Straight Line Gluing

3. Animal Glues

Introduction

Chemical Composition

Manufacture of Animal Glues

Properties

Liquid Animal Glues

Formulation & Applications

Methods of Application

4. Casein Glues and Adhesives

Introduction

Properties

Casein Blend Glues

Lime free Casein Adhesives

Applications

Casein Adhesives for Bonding Paper

Casein Adhesive for Binding Dissimilar Materials

5. Blood Albumen Glues

Introduction

Solubility Categories

Properties

Blood-Soybean Flour Combinations

Mold Resistance

Application

6. Amino Resin Adhesives

Introduction

Manufacturing Technology

Urea Adhesive for Plywood

Urea Adhesive for Particle Board

Spray Dried Melamine-formaldehyde Resins

Foundry Resin

Aniline-Formaldehyde Resin

Ø Represents benzene ring

Sulfonamide-Formaldehyde Resins

Applications

Adhesives for Hardwood Plywood

Sand Core Binder

Water Proof Corrugated Board

Compounding and Formulation

7. Cyanoacrylate Adhesives

Introduction

Bonding with Cyanoacrylates

Adhesive Properties

Applications

8. Epoxy Resin Adhesives

Introduction

Chemistry

Epoxy Novolac Resins

Flexible Epoxy Resins

Epoxidized Olefins

Speciality Epoxy Resins & Derivatives

Epoxy Esters of Rosin

Epoxy Esters of Styrenated Rosin

Epoxy Esters of Disproportionated Rosin

Epoxy Novolac Esters

Epoxy Ester of Maleopimaric Acid

Compounding

Curing Agents

Diluents

Modifiers

Flexibilizers

Fillers

Accelerators
Speciality Additives
Manufacture of Adhesives
9. Phenolic Resin Adhesives
Introduction
Resole resin
Novalac Resins
Manufacture
Applications and Formulations
Contact Adhesives
Adhesive Compounding
Nitrile/Phenolic Contact Adhesives
Structural Adhesives
Vinyl/Phenolic
Epoxy/Phenolic
Hot Melt Adhesives
Hot Melt Vinyl Film to Wood Laminating Adhesives
Pressure Sensitive Adhesives (PSA)
10. Polychloroprene Resin Adhesives
Introduction
Types of Polychloroprene
 Applications and Formulations
Applications

11. Polyester Resin Adhesives
Introduction
Linear Polycarbonates
Polymerized Oils
Alkyd Resins
Unsaturated Polyester Adhesives
Adhesives for Flexible Printed Circuit
Allyl Ester Adhesives
12. Polyethyleneimine in Adhesives
Introduction
Applications
General Adhesives
Tie Coat Adhesives
13. Polysulfide Sealants and Adhesives
Introduction
Polysulfide Sealants
Chemistry

Compounding
Curing Agent
Retarder
Reinforcement
Adhesion Additives
Primers
Improved Heat Resistance
Applications
Adhesives from Polysulfide Liquid Polymer
Epoxy Resin Reactions
14. Resorcinolic Adhesives
Introduction
Resorcinol-Phenol Formaldehyde Resins
Modified Resorcinol Resins
Aspects of Adhesion Mechanism
Formulation of Glue Mixtures
Laminating
 15. Ethylene Copolymer Hot Melt Adhesives
Introduction
Crystallinity
Compatibility
Pressure Sensitive Tack
Hot Melt Adhesive Formulating
Book Binding Adhesives
Carton and Case Sealing Adhesives
Carpet Application
Shoe Adhesives
Pressure Sensitive Adhesives (PSA)
Furniture Adhesives
16. Furan Resin Adhesives
Introduction
17. Isocyanate Adhesives
Introduction
Advantages of Isocyanate Adhesives
Disadvantages of Isocyanates
Applications
Types and uses of Isocyanate based Adhesive System
18. Lignin Adhesives
Introduction
Formulations
19. Polyamide Adhesives

Introduction

Class I: Thermoset Adhesives Containing Liquid
Polyamide Curing Adhesives

Class II: Nylon-Epoxy Resins

Class III: Thermoplastic Hot Melt Polyamide Adhesives

Class IV: Thermoplastic-Thermoset Adhesives

20. Polyimide Adhesives

Introduction

Adhesive and Bonding Technology

Foam System

21. Rosin Adhesives

Introduction

Applications

Formulations

Solvent Adhesives

Emulsion Adhesives

Hot Melt Adhesives

Methods of manufacture

22. Silicone Adhesives and Sealants

Introduction

Chemistry

Oxime silane

Properties

Rheological Characteristics

Thermal Stability

Weathering Characteristics

Adhesion Characteristics

Applications

Industrial

Construction

23. Tannin Adhesives

Introduction

Formulation

24. Terpene Based Adhesives

Introduction

Chemistry

Beta-pinene resins

Dipentene resins

Alpha-pinene resins

Physical characteristics of resins

Pressure sensitive adhesives

Hot melt adhesives
Analytical methods
Commercial resins and their uses
Commercial production
Applications in pressure sensitive adhesives
Applications in hot melt adhesives
 25. Starch Adhesives
 Introduction
 Unmodified Starches
 High Strength Adhesive
 Cheap Diluted Adhesive
 Non-weather Proof Corrugated Board Adhesive
 Water Resistant Corrugated Paper Box Adhesive
 Final Mixture
 Acid Modified or Thin Boiling Starch Adhesive
 Oxidised Starch Adhesives
 Dextrin Based Adhesives
 Properties
 26. Acrylic Adhesives and Sealants
 Polymerization
 Solution Polymerization
 Properties of the product
 Emulsion polymerization
 Properties of the dispersion
 Properties
 Formulations and Applications
 Adhesives to paper coated with PVDC
 Delayed tack adhesive
 Adhesives for Laminating
 Laminating Plasticized PVC film to textiles
 Laminating PVC film to particle board
 Laminating plasticized PVC film to split leather
 High temperature & pressure lamination
 Flocking Adhesives
 Building Adhesives
 Adhesives for plasticized PVC floor tiles
 Adhesives for ceramic tiles
 Pressure-Sensitive Adhesives
 Flame Resistant & Pressure Sensitive Adhesive
 Acrylic Sealants
 Aqueous Acrylic Sealants

Solvent-Based Acrylic Sealants

27. Pressure Sensitive Adhesives

Adhesive Strip for Automotive Trim

Eva-Trialkyl Cyanurate Copolymer Adhesive

Carboxylate Polymer Based Adhesives

Fumaric Diester Vinyl Acetate Polymer

28. Hot melt Adhesives

Introduction

Advantages

Disadvantage

Formulations

Ethylene-vinyl Acetate

Amorphous polypropylene and Petroleum Resin

Isopropenyltoluene Copolymers as Tackifiers

Chlorinated Polyphenyl, Chlorinated

Polyisoprene and Nitroso Compound

Carpet Backing Formulation

Other Polyolefin Compositions

Amorphous Polyolefin and Styrene Butadiene

Block Copolymers

α -Methylstyrene Tert Butyl Styreneolefin terpolymers

Alkoxy styrene-Acrylonitrile, Copolymers

Boric Acid as Viscosity Stabiliser in Ethylene-

Propylene Adhesives

Thermoplastic Polymer and Chelate of Aminoacetic

Acid

Coal Tar Pitch and Ethylene-Acrylic-Acid Copolymer

Water-Moistenable Vinyl Pyrrolidone-Vinylacetate

Product

RESINS

1. Alkyd Resins

Introduction

Classification

Synthesis

Etherification

Addition reactions of unsaturated monobasic

fatty acids

Addition reactions with other unsaturated alkyd
ingredients

Reactions during coating formation with drying

alkyds

Reactions during coating formation in alkyd blends

Raw materials

Manufacture

Health and Safety

Quality Control and Specifications

Analysis

Calculations

Uses

Use of Alkyds in Trade-Sales Finishes

Methods of Analysis

Determination of Composition

Chemical Methods

Determination of Properties and Impurities

2. Acrylic Modified Alkyd Resins

Traffic paints

Industrial applications

Conclusion

3. Alkyd-Amino Combinations Based on Neem Oil

Aim of present investigation

Uses of oils in surface coatings

Neem oil

Alkyd resins

Amino resins

Experiments & Results

Preparation of alkyd resin

Alkyd resin preparation

Preparation of amino resin

Testing of performances of resin samples

Discussion

Analysis of neem oil

Preparation of alkyd from neem oil

Preparation of urea formaldehyde resin

Preparation of thiourea formaldehyde resin

Preparation of various samples (mixtures)

Performances of various resin samples

Scratch hardness

Conclusion

4. Amino Resins

Introduction

Raw materials

Chemistry of resin formation

Typical resin formulations and techniques
Urea formaldehyde resins
High solids urea-formaldehyde adhesive resin
Protective coating resin with high mineral spirits tolerance
Methylated urea formaldehyde textile resins
Urea-formaldehyde particle board adhesive
Melamine-formaldehyde resins
Butylated melamine protective coating resin
Chlorine resistant melamine resin
Trimethoxymethyl melamine
Hexamethoxymethyl melamine
Melamine resin molding powder
Melamine resin acid colloid
Control of the extent of the reaction
Free formaldehyde estimation
Viscosity tests
Solubility tests
Cure tests
Urea versus melamine resins
Package stability
Competitive product analysis
Chemical modification for water soluble products
Chemical modification for oil soluble products
Ethyleneurea
Methylated uron textile resins
Uron resins
Glyoxal resins
Miscellaneous resins
Amino resins in the paper industry
Formulations for regular and HE colloids
Toxicity
Methods of Analysis
Competitive Product Analysis
 5. Carbohydrate Modified Phenol-formaldehyde Resins
Introduction
Research on Carbohydrate Modified Resins
Carbohydrate-Modified Base-Catalyzed PF resins
Bonding Veneer Panels
Bonding Flakeboard Panels

Carbohydrate-Modified PF Resins Cured at
Neutral Conditions

Bonding Veneer Panels

Color of Bondline

Conclusions

6. Epoxy Resins

Introduction

Synthesis of Resin Intermediates

Cycloaliphatic epoxies

Epoxidized polyolefins

Epoxidised oils and fatty acid esters

Aliphatic-cycloaliphatic glycidyl type resins

Epoxy novolac resins

Resins from phenols other than bisphenol A

Resins from aliphatic polyols

Resins from long chain acids

Fluorinated epoxy resins

Epoxy resins from methylepichlorohydrin

Miscellaneous epoxy resins

Epoxy esters

Water borne epoxy resins and derivatives

Diluents and modifiers

Epoxide reactions and curing mechanisms

Curing of epoxy esters

7. Photographs of Plant & Machinery with Supplier's Contact Details

About Niir

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Pre-feasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project

engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.