

# Handbook on Oleoresin and Pine Chemicals (Rosin, Terpene Derivatives, Tall Oil, Resin & Dimer Acids)

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Pines are known to mankind from the time immemorial. It offers both direct uses, as well as indirect uses specially soil conservation. Initially it was used mainly for fuel; their branches were used for festivals etc. Pines besides being a source of valuable timber, pulpwood, yield pitch, tar, rosin, colophony and turpentine, collectively known as naval stores, a term coined to these owing to their use for construction and maintenance of sailing vessels as sealing compounds for their wooden hulls. The genus pine species tapped for their oleoresin in different countries. A variety of oleoresins are extracted from various plants. Pine oleoresin being the most important one is extracted from pine trees. Turpentine and rosin are two constituent parts of the pine oleoresins. The composition of turpentine varies considerably according to the species of pine exploited. More and more specialised uses are being found for pine resin products, particularly those of high quality. Turpentine derived from pine resin is also used as a source of aroma chemicals in flavour and fragrance industry. Pinewood chemicals are effectively gained from the trees in three principal ways; treatment of exuded gum from living pines, processing the wood stumps and wastes of aged trees and treatment of black liquor obtained as a byproduct in wood pulp industry. There are two steps involved in production of oleoresin; olustee gum cleaning process and recovery of turpentine and rosin: batch and continuous process. The panorama of base catalysed isomerisations of terpenes is an important part of aroma chemistry. Major contributions in this area are presented here under sections on hydrocarbons, alcohols, aldehydes, ketones, acids, esters and epoxides. Tall oil is a by product of the pine wood use to make sulfate pulp. Tall oil products find use in many product applications because of their economy and ready availability. The principal industrial applications of tall oil products are numerous; adhesives, carbon paper, detergents, driers, drilling fluids, oils, gloss oils, paper size, plasticizers, printing inks, soaps, textile oils etc.

Some of the fundamentals are pine oleoresin extraction methods, occurrence, formation and exudation of oleoresin in pines, processing of oleoresin, rosin derivatives and its potential, new developments in rosin ester and dimer chemistry, terpene based adhesives, effect of solvent, ozone concentration and temperature on yields were investigated, sylvestrene and some of its derivatives, homopolymers and copolymers of acrylates, polymers and copolymers of vinyl pinolate, base catalysed isomerisations of terpenes, components of pine roots, insecticides based on turpentine, the general characteristics of dimer acids, structure and properties of dimer acids etc.

The present book has been published having in views the important uses of pines. The book contains manufacturing process of different products extracted from pines like oleoresin, rosin, turpentine derivatives, tall oil, resins and dimer acids etc. This is the first book of its kind which is very resourceful for all from researchers to professionals.

# Contents

## 1. PINUS

Introduction  
Distribution  
Distribution in India  
Morphology  
Key to the Identification of Indian Species  
Anatomy  
Root  
Root-Stem Transition  
Shoot Apex  
Stem  
Leaf  
Embryology  
Male Cones  
Female Cones  
Pollination  
Receptive Spot  
Fertilization  
Embryogeny  
Seed Coat  
Wing  
Germination  
Cytology  
Seed Testing  
Seed Production and Dormancy  
Breeding  
Diseases  
Mycorrhiza  
Pests

## 2. PINE OLEORESIN EXTRACTION METHODS

Introduction  
Cup the Larger-Diameter Trees for Increased Yields and Greater Profits  
Double-Facing  
Gum Yield from Shoulders  
Use Correct Tin Lengths  
First-Year Installation of Spiral Gutters with Double-Headed Nails  
Shaving the Bark  
Attach the Apron First  
Attaching the Spiral Gutter  
Completed Installation  
Use of the Advanced Streak  
Turpentine and Growth  
Bark Chipping  
Mounting and Sharpening the Bark Hack  
Treating the Streak  
Acid Penetration Above the Streak  
Wounding the Tree for Gum Production  
Metal Cups, Acid Corrosion and Gum Grades  
Raising Tins Installed with Double-Headed Nails  
Bark Pulling and Acid Treatment

How to Use the Spray-Puller  
Acid Paste Method  
Applying the Paste  
Chipping and Paste Treatment  
Streak Height  
Turpented Section Suitable for Other Wood Products  
Beetle Attacks and Control Measures  
The Black Turpentine Beetle  
The Ips Beetle  
Solutions for Beetle Control  
3. PINES FOR THEIR OLEORESIN  
Occurrence, Formation and Exudation of Oleoresin in Pines  
Oleoresin Tapping  
French Methods  
Spanish Method  
Greek Method  
Indian Method  
Mexican Method  
American Bark-Chipping Method  
The Austrian and German "Herringbone" Methods  
Russian Methods  
Methods in Other Countries  
Felled Pine Wood as Source of Rosin and Turpentine  
Composition of Oleoresin  
Summary  
4. PROCESSING OF OLEORESIN  
Processing of Oleoresin  
Olustee Gum Cleaning Process  
Recovery of Turpentine and Rosin  
Stripping Column  
Multiple Tube Column  
Luwa Columns  
Fractionation of Turpentine  
Batch Operation  
Semi-Continuous Operation  
Continuous Operation  
Column Packings  
Isomerisation of  $\alpha$ -Pinene  
Camphene Via Bornyl Chloride  
Catalytic Isomerisation of  $\alpha$ -pinene  
Reaction Mechanism  
Design Aspect of an Isomerisation Reactor  
Liquid Phase  
Vapor Phase  
5. ROSIN DERIVATIVES AND ITS POTENTIAL  
6. HYDROGENLESS HYDROGENATION OF RESIN ACIDS  
Experimental  
Results and Discussion  
Transfer Hydrogenation of Isopimaric/Pimaric Acids  
Transfer Hydrogenation of Abietic Acids  
Reaction Mechanism  
7. NEW DEVELOPMENTS IN ROSIN ESTER AND

## DIMER CHEMISTRY

New Rosin Esters

Chemistry of Rosin Dimers

## 8. TERPENE RESINS

Physical Properties

Chemical Properties

Manufacture

Uses

## 9. TERPENE BASED ADHESIVES

Introduction

Chemistry

Beta-Pinene Resins

Initiation

Propagation

Termination

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

## 10. OZONOLYSIS OF ALPHA-PINENE

Effect of Solvent, Ozone Concentration and Temperature on Yields were Investigated

Experimental Conditions are Discussed

## 11. $\alpha$ -BROMOLONGIFOLENE

Steam Distilled Products

Residue

Chromic Acid Oxidation of Dilongifolenyl Ether

Lead Tetraacetate Oxidation of Longifolene

## 12. PEROXIDES FROM TURPENTINE

Peroxide Number and Degree of Unsaturation are Tests of Product Quality

Catalytic Hydrogenation of Pinene to Pinane is First Step in Hydroperoxide Production

Small and Large Scale Techniques of Pinane Oxidation are Investigated

Cold-Rubber Polymerization

Decomposition of Pinane Hydroperoxide

Over-all Yield of 85% is Realized in Production of High Purity Hydroperoxide

Peroxidation

Stripping of Oxidates

Polymerization

Heavy Metal Salts Accelerate Decomposition of Pinane Hydroperoxide

Decomposition

Summary

## 13. PINONIC ACID

Ozonolysis of  $\alpha$ -Pinene in Acetic Acid Solution Proved Best Method

Yields were Determined by Partition Chromatography

Ozone Source

Reagents

Ozonization

Calculations and Analyses

Direct Ozonolysis was not Successful

Ozonization in Methanol

Ozonization and Decomposition in Aqueous Acetic Acid at Room Temperature

Ozonization in Aqueous Acetic Acid at 0°C. Decomposition in the Presence of Oxidants

Ozonization in Nitromethane

#### 14. SYLVESTRENE AND SOME OF ITS DERIVATIVES

Sylvestrene

Sylvestrene Nitrosochloride

Sylvestrene Oxide

m-Terpeneols

Sylvedihydrocarvone

#### 15. 8-ACETOXYCARVOTANACETONE

#### 16. RECOVERY OF 3-CARENE FROM CHINESE

TURPENTINE AND SYNTHESIS OF

ACETYLCARENES

Introduction

Distillation of Wood and Sulfate Turpentine

Material and Methods

Distillation Results

Synthesis of Acetyl-Carene

Materials and Methods

Results and Discussion

Synthesis Products

#### 17. HOMOPOLYMERS AND COPOLYMERS OF

ACRYLATES

Introduction

Results and Discussion

Monomers

Homopolymerization

Copolymerization

Terpolymerization

Epoxidation

Curing

Hydrolysis of Polymethacrylate of I

Experimental

Reduction of  $\alpha$ -Campholene Aldehyde

Typical Preparation of a Monomer: Methacrylate of II

Typical Homopolymerization Recipe: Homopolymer Methacrylate of II

Typical Copolymerization Recipe: Copolymer of the Methacrylate of II and Acrylate of I

Solution Copolymer of the Methacrylate of II and Fumaronitrile

Typical Terpolymerization Recipe: Terpolymer of the Acrylate of I, Acrylonitrile and Butadiene

Typical Epoxidation Procedure

#### 18. POLYMERS AND COPOLYMERS OF VINYL

PINOLATE

Preparation of Vinyl Pinolate

Polymerization

Reaction of Vinyl Pinolate Copolymers with Isocyanates

Experimental

Preparation of Vinyl Pinolate

Polymerization of Vinyl Pinolate in Solution

Polymerization of Vinyl Pinolate in Suspension

Polymerization of Vinyl Pinolate in Emulsion

Copolymerization of Vinyl Pinolate and Vinyl Acetate in Solution

Copolymerization of Vinyl Pinolate and Vinyl Chloride in Solution  
Copolymerization of Vinyl Pinolate and Vinyl Chloride in Emulsion

Reaction of Polymers with Isocyanates

Evaluation of Vinyl Pinolate and Vinyl Chloride Copolymers

## 19. HOMOPOLYMERIZATION OF HYDRONOPYL

VINYL ETHER

Discussion

Experimental

Materials

Preparation of 2-Hydranopoxyethyl Vinyl Ether

Polymerization of HVE and HEVE

X-Ray Analysis of Poly (HVE)

Evaluation of Poly (HEVE)

## 20. TERPOLYMERS OF ETHYLENE AND PROPYLENE

WITH d-LIMONENE AND  $\alpha$ -PINENE

Introduction

Results and Discussion

Experimental

Materials

Preparation of EPT Rubber

Analysis of Unsaturation

Determination of Gel Content

Determination of Methyl Group Content in Polymer

## 21. LOW MOLECULAR WEIGHT POLYMERS OF

d-LIMONENE

Experimental

Materials

General Procedure

Results

Infrared Spectra

Nuclear Magnetic Resonance Spectra

Optical Activity

Perbenzoic Acid Oxidation

Discussion

## 22. BASE-CATALYSED ISOMERISATIONS OF

TERPENES

Hydrocarbons

Alcohols

Aldehydes

Ketones

Acids

Esters

Epoxides

Conclusion

## 23. COPOLYMERS OF VINYL CHLORIDE OF PINENE

Experimental

Homopolymerization

Copolymerization

Test of Heterogeneity of a Copolymer

Evaluation of New Polymers

## 24. POLYALLOXAN-CIMENE

Experimental

Monomer

Polymerizations  
Polymer  
Ozonolysis  
Discussion of Results  
25. ESSENTIAL OIL IN CHLOROPHYLL-CAROTENE  
PASTE FROM PINE NEEDLES AND TWIGS  
Abstract  
26. ESSENTIAL OIL OF THE CONE OF PINUS  
SYLVESTRIS VAR. MONGOLICA  
27. COMPONENTS OF PINE ROOTS  
Conclusions  
Composition of the Remaining Neutral Fraction  
Composition of the Carbonyl Fraction  
Composition of the Hydroxyl Fraction  
Results and Discussion  
Composition of Turpentine  
Composition of the Resin Acid Fraction  
28. WOOD TURPENTINE OIL FROM PINE STUMPS  
29. BLENDING OF TURPENTINE PRODUCTS  
Lilac  
Pine Bouquet  
Cuir De Russe (for leather)  
Violet  
Lavender Bouquet  
Oriental  
Gardenia  
Fougere  
Eau De Cologne  
Amber  
Chypre  
Ylang Syn  
Sweet Pea  
30. BIOLOGICALLY ACTIVE COMPOUND FROM  
TURPENTINE  
Terpenoids as Antimicrobials  
Terpenoids as Anthelmintics  
Terpenoids as Insecticides  
Terpenoids as Plant Growth Hormones  
Terpenoids as Anticancer Agents  
Terpenoids as Pharmacological Agents  
Terpenoid Derivatives as Biodynamic Agents  
Terpenoids as Intermediates for Synthesis of Bio-dynamic Agents  
31. INSECTICIDES BASED ON TURPENTINE  
Toxaphene (C<sub>10</sub>H<sub>10</sub>Cl<sub>8</sub>)  
Strobane (C<sub>10</sub>H<sub>11</sub>Cl<sub>7</sub>)  
32. TALL OIL  
History of Tall Oil  
Production Processes for Tall Oil  
Recovery of Tall Oil  
Acid Refining of Tall Oil  
Fractionation of Tall Oil  
Composition and Properties of Tall Oil  
Crude Tall Oil

Distilled Tall Oil  
Acid Refined Tall Oil  
Fractionated Tall Oil  
Analysis and Testing of Tall Oil Products  
Shipping, Storage and Handling of Tall Oil Products  
Crude Tall Oil  
Acid Refined Tall Oil  
Tall Oil Fatty Acids and Distilled Tall Oils  
Tall Oil Heads  
Tall Oil Pitch  
Tall Oil Rosin  
Safety Notes  
Applications of Tall Oil  
The Chemistry of Tall Oil Fatty and Rosin Acids  
Chemical Composition of Tall Oil Fatty Acids  
General Reactions of Tall Oil Fatty Acids  
Chemical Composition of Tall Oil Rosin  
General Reactions of Tall Oil Rosin  
Tall Oil Products in Surface Coatings  
Tall Oil in Alkyd Resins  
Tall Oil Formulations in Alkyd Resins  
Esters of Tall Oil Products  
Tall Oil Formulations in Esters  
Other Uses for Tall Oil Products  
Tall Oil in the Plasticizer Field  
Esterification of Tall Oil for Plasticizers  
Tall Oil in Adhesives and Linoleum Cement  
Tall Oil in Rubber-based Adhesives  
Tall Oil in Hot-Melt Adhesives  
Tall Oil Products in Linoleum Cements  
Formulation with Tall Oil  
Formulation with Tall Oil Esters  
33. DIMER ACIDS  
The General Characteristics of Dimer Acids  
Introduction  
Dimer Acids Manufacture and Feedstock  
By Products of the Dimerization Reaction  
Monomer Acids  
Trimer Acids  
Structure and Properties of Dimer Acids  
Structure of Dimer Acids  
Analysis of Dimer Acids  
Physical Properties of Dimer Acids  
Chemical Reactions of Dimer Acids  
Reactions of the Double Bonds and at the  $\alpha$ -Carbon Atoms  
Reactions of the Carboxyl Groups to Produce Monomeric Derivatives  
Reactions of the Carboxyl Groups to Produce Polymeric Derivatives  
Commercial Applications of Dimer Acids and Their Derivatives  
Introduction  
Applications of Dimer Acids  
Applications of Monomer Acids and Derivatives  
Applications of Trimer Acids and Derivatives  
Applications of Low-Molecular Weight Derivatives of Dimer Acids



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