

Modern Technology of Petroleum, Greases, Lubricants & Petro Chemicals (2nd Revised Edition)

Author: NIIR Board of Consultants & Engineers

Format: Paperback

ISBN: 9789381039618

Code: NI45

Pages: 704

Price: Rs. 1,875.00 US\$ 150.00

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Usually ships within 3 days

Lubricants, greases and petrochemicals are most versatile on the Industrial Plateau now a day. The significance of Lubricants, Greases and specialty products in the day to day functioning of nearly every machine part, instrument, appliance & device cannot be over emphasized lubricants reduce friction & wear between rubbing parts, thereby enhancing their life. A lubricant is a substance introduced to reduce friction between moving surfaces. It may also have the function of transporting foreign particles. The property of reducing friction is known as lubricity. The broad types of lubricating oils are as under; crankcase oils, gear oils, metal working oils, metal drawing oils, spindle and other textile oils, steam turbine oils. Synthetic lubricants have a higher viscosity index, but are less stable to oxidation. They are suitable for high temperature applications. In the modern industrial year, greases have been increasingly employed to cope with a variety of difficult lubrication problems, particularly those where the liquid lubricant is not feasible. Greases are essentially solid or semi solid lubricants consisting of gelling or thickening agent in a liquid lubricant. Greases and lubricants are one of the important products derived from crude petroleum. Petroleum is formed by hydrocarbons (a hydrocarbon is a compound made up of carbon and hydrogen) with the addition of certain other substances, primarily sulphur. Petroleum in its natural form when first collected is usually named crude oil, and can be clear, green or black and may be either thin like gasoline or thick like tar. The principal product of petroleum refining are motor gasoline, aviation gasoline, kerosene, jet fuels, diesel fuels, lubricating oils and fuel oils. Considerable quantities of petroleum wax, bitumen, liquid petroleum gases (LPG), industrial naphtha and coke are also produced. Petrochemicals are chemicals made from petroleum (crude oil) and natural gas. Petroleum and natural gas are made up of hydrocarbon molecules, which are comprised of one or more carbon atoms, to which hydrogen atoms are attached. The Indian lubricants industry claims to be the sixth largest in the world. The petrochemical industry in India has been one of the fastest growing industries in the country. This industry also has immense importance in the growth of economy of the country and the growth and development of manufacturing industry as well.

Some of the fundamentals of the book are types of lubricating oils, crankcase oils, gear oils, metal working oils, metal drawing oils, spindle and other textile oils, steam turbine oils, synthetic lubricants, formulations and compounding of lubricants, additives for straight mineral oil gear lubricants, raw materials for lubricants, equipments for lubricants manufacture, reclamation of used lubricating oil, nature of contaminants in used lubricating oil, gravity methods of purification, metal forming and deforming lubricant, cutting oils, heat treatment oils, greases, sodium soap greases, lithium soap greases, aluminium soap greases, mixed soap greases, complex soap greases etc.

The objective of this book is to furnish comprehensive information about nearly all prominent types of lubricants, greases and petrochemicals. This book covers formulae, processes of various petroleum items.

This book is an invaluable resource for entrepreneurs, existing units, professionals, institutions etc.

Contents

1. Types of Lubricating Oils

Crankcase Oils

Gear Oils

Metal Working Oils

Metal Drawing Oils

Spindle and Other Textile Oils

Steam Turbine Oils

Synthetic Lubricants

Miscellaneous Oils

Fatty Oils

Residual and Petrolatums as Lubricants

Asphalt Residual as Lubricants

Application of Asphalt Residual as Lubricants

Petrolatums as Lubricants

Paraffin Wax as Lubricant

Resinous Materials as Lubricants

Solid Lubricants

Thickeners

Carbohydrates and Proteins as Thickeners

Polymers as Thickening Agents

Acetylene Black as a Thickener

Petroleum Lubricants

Bolt Lubricants

Cryogenic Bearing Lubricants

Lubricants for Missile Systems

Lubrication with Glass

2. Formulations and Com-pounding of Lubricants

Additives for straight Mineral Oil gear Lubricants

Formulation of Open or Exposed Lubricants

Formulation of mild type E.P. Lubricants

Aircraft Lubricant

Miscellaneous Formulation

3. Raw Materials for Lubricants

Test for good fatty acid

Preformed Soaps

Advantages and the Use of Preformed Soaps

Lubricating Oil

Gravity of Lubricating Oil

Pour Point of Oil

Dyes for Colour

Perfume

Filler

Synthetic Lubricants

4. Equipments for Lubricants Manufacture

Equipments

Handling Packaged Raw Material

Equipment for Saponification

Equipment for Dispersion of Thickening Agents
Manufacture of Lubricating Oils
Milling Equipment
5. Reclamation of used Lubricating Oil
Nature of Contaminants in Used Lubricating Oil
Gravity Methods of Purification
Filtration
Regenerating Process of Used Lube Oil
Contaminants present in Used Lube Oil
Principles of Used Lub Oil
Existing Process for Regeneration of Used Lubricating Oils
Lubricant Recycling
Reprocessing
Reclamation
6. Additives for Lubricants
Antioxidants, Rust & Corrosion Inhibitors
Extreme Pressure Additives Antiwear Agents
Foam Inhibitors
Viscosity Index Improvers
Detergents and Dispersants
Pour Point Depressants
Antiknock Agents
Antiscrackers Agents
7. Characteristics of Lubri
Viscosity Index of Lubricating Oils
Vapour Pressure
Gravity of Lab Oil
Thermal Properties
Electrical Properties
Properties under High Pressure
Surface Properties
Carbon Residue
Colour of Tube Oils
Neutralisation No
Saporifications No of Petroleum Products
Aniline Point of Petroleum Products
Ash content of Petroleum Oils
Precipitation No of Lube Oils
8. Cutting Oils
Metal Forming and Deforming Lubricant
Cutting Oils
Heat Treatment Oils
Industrial Applications
Types of Cutting Oils
E.P. Additives or Antiweld
Future Trend of Cutting Oil
Formulations of cutting oils
Hydrogenation Process in Lube Oil Production
Choice of Catalyst
9. Greases
Solid Lubricants
Semi Solid Lubricants
Solid Lubricants

Gareavs Lubricants
Type of Greeses
Calcium Soap
Sodium Soap Greases
Lithium Soap Greases
Aluminium Soap Greases
Mixed Soap Greases
Complex Soap Greases
Non-Soap Greases
Properties of Greases
Grease Applications
Market Position
Fillers
Carbon Black
Asbestos
Mica
Vermiculite
Talc
Various clay or silicate
Metal Powder
Metal Oxide
Manufacturing Process for Grease
Industrial Grease
Manufacturing Process of Greases in General
Fire Hazards in the Manufacture
Processing of aluminium base lubricants and greases
Production of another Barium Base Lubricating Grease
Preparation of Lead Soaps
Preparation of Lead Base Lub Greases
10. Formulation of Greases
Mixed Base Lubricating Greases
Colouring Lubricating Oils
Refining of Lube Oil
Purification of Lube Oil
Reclaiming Used Lub Oil
Non-Bleeding Grease
11. Lubricants and their Manufacture
Composition of Mineral Oil
Refining
Blending
Synthetic Hydrocarbons
Synthetic Non hydrocarbons
Polyalkylene Glycols
12. Various Formulations of Lubricants and Greases
Textile Lubricant for Spinning Jute, etc.
Application of Lead Base Lubricating Greases
Preparation of Lub Grease from Normal Strontium Soap
Mixture Base Strontium Soap Lubricating Greases
Complex Soap Lubricating Greases
Importance of Soap Salt complexes and their characteristics
13. Analysis of Quality Assessment of Lubricating
Greases and Petroleum Products
Lubricating Greases

Analysis
Tests for Melting or Liquefaction
14. Cracking
Thermal Cracking
Coke Removal
Viscosity Breaking
Delayed Coking
Vapour-Phase Cracking
Gas Cracking
Catalytic Cracking
Fixed Bed Catalytic Cracking
Moving Bed Catalytic Cracking Process
Fluid Flow Catalytic Cracking Process
Types of Fluid flow catalysts
Suspensoid Catalytic Cracking
Cycloversion Catalytic Cracking
Reforming
Gas Reversion and Polyforming
Catalytic Reforming
Hydroforming
Fluid Hydroforming
Platforming
Processing of Cracked Gases
Cold Sulphuric Acid Polymerization
Hot Sulphuric Acid Polymerisation
Solid Phosphoric Acid Polymerisation
Low pressure regenerative Process
High Pressure Non-regenerative Chamber Process
High Pressure Non-Regenerative Reactor Process
Hydrogenation
Dehydrogenation
Alkylation
Isomerization
15. Refining of Petroleum Products
Chemical Refining
Physical Refining
Solvent Extraction Processes
Dewaxing
Propane Dewaxing
Benzol-Acetone Dewaxing
Benzol Sulphur Dioxide Dewaxing
16 Manufacture of Asphaltic Bitumen
Steam-Refined Asphaltic Bitumen
Blown Asphaltic Bitumen
Pitch-Type Asphaltic Bitumen
17. Chemicals from Petroleum
Feedstocks
Chemicals from saturated hydrocarbons
Chemicals from Olefins
Oxidation of Olefins
Chlorination of Ethylene
Chlorination of Olefins
Chlorination of Propylene

Chlorination of Butenes
Chlorhydrination of Olefins
Hydrochlorination of Olefins
Sulphonation of Olefins
Oxo Process
Ketones and their derivatives
Aldehydes and their derivatives
Acids and their derivatives
Acetic Acid and Acetic Anhydride
Olefin oxides and their derivatives
Aromatics
Naphthenes and Naphthenic Acids
Carbon Monoxide-hydrogen system
Inorganic Compounds
18. Natural and Cracked Gases
General Properties
Natural Gas
Refinery gas
Liquefied petroleum gas
19. Petroleum Waxes
Nature of the petroleum waxes
Composition of the petroleum waxes
Production of waxes
The properties of petroleum waxes
Paraffin Waxes
Microcrystalline waxes
Solid state transitions in paraffin waxes
The effect of crystallinity modifying agents of the
properties of paraffin wax
Utilization of petroleum waxes
20. Bitumen
Emulsions and cutbacks
Rheological Properties
Wetting and adhesive properties
Application
Industrial applications
21. Petroleum Products
L.P.G. (Liquefied Petroleum Gas)
Synthesis Gas
Motor Gasoline
Aviation Gasoline
Kerosene
Jet Fuels
Diesel Fuels
Industrial Naphthas
Heating Oils and Residual Fuel Oils
Light, Medium and Heavy Fuel Oils
Petroleum Waxes
Micro Crystalline Wax from slack wax
Petroleum Jelly
Bitumen
Petroleum Coke
Carbon Black

22. ABS Resin
- Uses and Applications
- Manufacturing Process
23. Acetaldehyde
24. Acetic Acid
25. Acetone
26. Acrylamide Monomer
27. Acrylonitrile
28. Benzaldehyde
29. Adipic Acid
30. Benzene Hexachloride (B.H.C.)
31. Benzoic Acid
32. Benzyl Chloride
33. Bisphenol -A
34. Butadiene
35. Diethyl Toluamide
36. Dimethyl Formamide
37. Ethyl Acetate
38. Ethylene Oxide
39. Formaldehyde
40. Formic Acid
41. Fumaric Acid
42. Iso Propyl Alcohol
43. Methyl Amines
44. Nitrobenzene
45. Phthalic Anhydride
46. Poly Carbonates
47. Polyols
48. Polyurethane Foam
49. Vinyl Chloride

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

