

# Handbook on Rubber and Allied Products (with Project Profiles)

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**Format:** hardcover

**Code:** NI252

**Pages:** 163

**Price: Rs.2295US\$ 200**

**Publisher:** NIIR PROJECT CONSULTANCY SERVICES

Usually ships within 5 days

\*\*\*\*\* Limited Edition (AVAILABLE IN PHOTOSTAT VERSION ONLY) \*\*\*\*\*

Rubber products industry is an important resource based industry sector in India. Over the last decade the rubber industry has witnessed a steady and strong growth. Rubber exhibits unique physical and chemical properties. Rubber's stress-strain behavior exhibits the Mullins effect and the Payne effect, and is often modeled as hyperelastic. Rubber strain crystallizes. Owing to the presence of a double bond in each repeat unit, rubber is susceptible to vulcanisation and sensitive to ozone cracking.

The two main solvents for rubber are turpentine and naphtha (petroleum). The former has been in use since 1764 when François Fresneau made the discovery. Giovanni Fabbroni is credited with the discovery of naphtha as a rubber solvent in 1779. Because rubber does not dissolve easily, the material is finely divided by shredding prior to its immersion.

Rubber particles are formed in the cytoplasm of specialized latex-producing cells called laticifers within rubber plants. Rubber particles are surrounded by a single phospholipid membrane with hydrophobic tails pointed inward. The membrane allows biosynthetic proteins to be sequestered at the Surface of the growing rubber particle, which allows new monomeric units to be added from outside the biomembrane, but within the laticifer. The rubber particle is an enzymatically active entity that contains three layers of material, the rubber particle, a biomembrane, and free monomeric units.

The monomer adds to the pyrophosphate end of the growing polymer. The process displaces the terminal high-energy pyrophosphate. The reaction produces a cis polymer. The initiation step is catalyzed by prenyltransferase, which converts three monomers of isopentenyl pyrophosphate into farnesyl pyrophosphate. The farnesyl pyrophosphate can bind to rubber transferase to elongate a new rubber polymer.

The major contents of this book are project profiles of projects like Processing of Crude Rubber, Latex Rubber Foam Products, Rubber Floor Mats, Latex Rubber Threads, Rubber Compounding for Automotive Industry, Rubber Gaskets, Reclaim Rubber, Rubber Powder from Waste Tyre, Carbon Black from Waste Tyre Pyrolysis, Equipments used in Rubber Industry.

Project profile contains information like; Introduction, Uses and Applications, Properties, Manufacturing Process, Plant Economics, Rated Plant Capacity, Plant & Machinery, Fixed Capital, Raw Material, Total Working Capital, Cost of Project, Total Capital Investment, Turn Over/ Annum, Profit Sales Ratio, Rate of Return, Break Even Point (B.E.P).

This book is very useful for new entrepreneurs, technical institutions, existing units and technocrats etc.

1. Introduction
2. Processing of Crude Rubber
3. Latex Rubber Foam Products
4. Rubber Floor Mats
5. Latex Rubber Threads
6. Rubber Compounding for Automotive Industry
7. Rubber Gaskets
8. Tyre for Truck, Lorry, Bus and Cars
9. Reclaim Rubber
10. Rubber Powder from Waste Tyre
11. Carbon Black from Waste Tyre Pyrolysis
12. Equipments used in Rubber Industry

## 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.

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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.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

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