

106-E, Kamla Nagar, New Delhi-110007, India.  
 Tel: 91-11-23843955, 23845654, 23845886, +918800733955  
 Mobile: +91-9811043595  
 Email: [npes.ei@gmail.com](mailto:npes.ei@gmail.com), [info@entrepreneurindia.co](mailto:info@entrepreneurindia.co)  
 Website: [www.entrepreneurIndia.co](http://www.entrepreneurIndia.co)

## **The Complete Technology Book on Soaps (2nd Revised Edition)**

<b>Code:</b> NI110	<b>Format:</b> hardcover
<b>Indian Price:</b> ₹1425	<b>US Price:</b> \$150
<b>Pages:</b> 496	<b>ISBN:</b> 9788178331676
<b>Publisher:</b> None	

## **Description**

Soap is the traditional washing compound made from oil fats and caustic alkali. It is an item of daily necessity as cleaning agent. There are few specialty soaps like the washing soaps, castile soaps, sandal soap, specially flavored soaps, medicated soaps, toilet soaps and baby soaps. Population growth, especially households with children has a proportional impact on the growth of the manufacturing sector of the industry. The soap industry is vivacious, varied, creative and tricky, and has the prospective to provide a gratifying career. With increasing popularity there has been increase in potential competitors but it still has the opportunity of further exploitation.

Today with increase in disposable incomes all around the world, demand for these products expected to increase because consumers are moving up towards premium products. With increasing awareness of hygienic standards, the market for the Soap is growing at a rate higher than 8% annually. People have become more creative in trying to find new ways in which they can make soap either for domestic use or commercial purposes. This book will provide all the basic facts and information you need to get started. You will be able to slowly build your way up to completely master the art of soap making.

The book contains processes formulae, Photographs of Plant & Machinery with Supplier's Contact Details, Addresses of Raw Material Suppliers and providing information regarding manufacturing method of different washing and toilet soaps. Some of the fundamentals of the book are raw material oil and fats, fatty acids, manufacture of soap products, technology of soap manufacturing, various formulations of soaps, soap perfumery, management of soap factories, analytical methods.

This book will be a mile stone for its readers who are new to this sector, will also find useful for professionals, entrepreneurs, those studying and researching in this important area.

## **Content**

### **1. Introduction**

Definition

Uses

Cleansing Mechanism

Characteristics of Soap

Saponification of Fats - The Basic Chemical

Reaction Making Soap

### **2. Raw Materials Oil and Fats**

(The Main Raw Materials for Soaps)

Classification of Fats/Oils

Some of the Most Useful Fats and Oils

Tallow

Coconut Oil

Palm Oil

Palm Kernel Oil

Cottonseed Oil

Castor Oil

Chinese Vegetable Tallow

Corn Oil

Rice Bran Oil

Linseed Oil

Olive Oil

Groundnut Oil

Tall Oil

Mahua Oil

Babassu Oil

Neat's-Foot Oil

Lard

Greases

Fish Oil

Hydrogenated Oils

Purification of Soap Fats

Acid Washing  
Alkali Refining  
Bleaching  
Absorbent Bleaching  
Bleaching By Using Oxidizing Agents  
Testing Of Soap Fats  
Properties  
Non Fatty Raw Materials For Soap  
The Alkalies  
Soap Builders  
Filler  
Stabilizers, Anti-oxidants  
Other Additives (Foam Producers)  
Foaming Agents Used in Soap  
Solvents  
Medicaments/Deodorants/Bacteriostatic Agents  
Clarifiers  
Colouring Matters  
Preparation of Colours  
Water Soluble  
Oil Soluble  
Alcohol Soluble  
Milled Soaps  
Full-boiled/Semi-boiled/cold-made Soaps  
Soap Bases and Liquid Soaps  
Washing/Laundry Soaps  
Medicated Soaps  
Perfumes  
Comprehensive Details  
Essential Oils  
Isolates  
Synthetic Chemicals

### 3. Fatty Acids

Types of fatty acids and their physical properties  
Physical properties of fatty acids  
Melting point  
  
Boiling point

Viscosity  
Density  
Solubilities  
Refractive Index  
Heat of crystallisation  
Polymorphism  
Fatty acids of oils and fats  
Raw materials of fatty acids  
Animal fats  
Tall oil  
Vegetable oils and soap stocks  
Manufacture of fatty acids  
Pretreatment of feed stock  
Fat splitting  
High pressure catalytic splitting  
High pressure steam splitting  
Continuous fat splitting  
Refining of crude fatty acids  
Distillation of fatty acids  
Mazzoni fat splitting and distillation process  
Distillation of crude fatty acid  
Splitting  
Distillation  
Splitting plant using thermic fluid instead  
of steams  
Fractional distillation of fatty acids  
Development trends in fatty acid distillation  
Panning & pressing process  
Solvent crystallisation process  
Lurgi Wetting Method  
Recovery of glycerine  
Pre-treatment and evaporation of spent-lye  
Pre-treatment and evaporation of sweet water  
Distillation of crude glycerine  
Synthesis of fatty acids

4. Manufacture of Soap Products  
Health and safety Factors  
Classification of Soap Products  
Methods of Manufacture

Various Finishing Methods  
Production  
Full Boiling Process (Description)  
The Process  
First Stage  
Second Stage  
Third Stage  
Fourth Stage  
Fifth Stage  
Washing Bar/Cake Soap From Neat Soap  
Jet Saponification Process  
Glycerine Recovery  
Semi-Boiling Process and Cold-Made Process  
General Description  
Production of Washing Bar/Cake Soap  
by Semi-Boiling/Cold-Made Process  
Equipments  
Process Operations  
Examination of Cold-Made Products  
Formulations for Washing Soaps  
Washing Soap Using Soap Stock as Main  
Fatty Raw Material  
A Typical Batch  
Toilet Soap  
Milling Process  
Floating Toilet Soap Cake  
Manufacture of Toilet Soap by Semi-Boiled/  
Cold-Made Process  
Procedure  
Alkali  
Milled Finished Soap  
A Typical Batch For Toilet Soap  
Mottled Soap  
Carbolic Acid Soap  
Suggested Formulation  
Procedure  
Medicated Soaps  
Castile Soap  
Castile Soap by Boiling Process  
Some Suggested Formulations for Castile Soap

Deodorant Soaps  
Various Industrial Soaps  
Textile Soaps  
Laundry Washing Aids  
A Fabric Cleaning Compound  
Cotton Scouring Soap  
Dry Cleaner's Soap  
Water Softener  
Jelly Soap/Soft Soap  
Automobile Soap  
Wire Drawing Soap  
Scouring Soap  
Preparation of Washing Soap Powder  
Simplified Method  
Powdered By Pulverising Method  
Washing Powder by Spray-Crystallization  
Soap Beads or Granules by Spray-Drying  
Soap Flakes  
Shaving Soaps  
Procedure  
Shaving Cream  
Other Formulation  
Brushless/Latherless Shaving Cream  
Liquid Shaving Cream  
Basic Combination  
Thicker Cream  
Aerosol Package  
Liquid Soaps/Shampoos  
Process of Manufacture  
Equipments  
Liquid Toilet Soap Concentrates  
Liquid Washing Soap Concentrate  
Shampoos  
Classification  
Physical States  
Characteristics  
Various Additives of Shampoos Imparting  
Special Properties  
Solubilizer  
Opacifiers

Thickeners for Body or Viscosity  
Foam Stabilizers  
Conditioning Agents  
Agents for Resistance of Hard-Water  
Germicidal Agents  
Preservatives  
Soap Shampoos  
Older Methods  
Modern Methods  
Some Typical Formulations  
Shampoos Based on Synthetic Surfactants  
General Formulations  
Liquid Cream Shampoos and Paste Cream  
Foamless Oil Shampoos  
Baby Shampoos  
Medicated Dandruff Shampoos  
Other Miscellaneous Shampoos  
Aerosol Shampoos (Pressure Dispersed)  
Method of Continuous Saponification of Fats  
by Alkali Solution  
Method of Continuous Splitting of fats into  
fatty Acids and Glycerol with Simultaneous  
Neutralization of free fatty Acids with Alkali  
Yielding Soap  
Continuous Neutralization Process  
Description of A Process  
Advantages  
Disadvantages  
Continuous Neutralization Process using Fatty  
Acids Instead of fats  
Batch Methods of Splitting fats into fatty  
Acids and Glycerol  
Purification of Fatty Acids

5 Technology of Soap Manufacturing  
Manufacturing Soap  
Techniques  
Saponification Equipments used by the  
Small-scale sector  
Equipment for batch soapmaking

Improved methods of saponification

Lye Absorption

Saponification Loop

Saponification of Distilled Fatty Acids

Alfa Laval Continuous Saponification

Washing of saponified soap

Straight washes

Counter current washes using a set of pans

Counter current washes in a single  
divided pan

Rotating disc contactor (RDC)

Fitting of Soap

Method of Expressing Free Alkali, Chloride  
and TFM

Plant for Total Soapmaking Operation

Construction Materials for Soapmaking Plants

Earth bleaching of oils

Chemical bleaching

Fatty acids

Lye treatment

Storage of raw lye

Output of Soap and Glycerine

Analysis of oils

Ester value of oils

Glycerine Recovery

Introduction

Glycerine Recovery Procedure

Purpose of Lye Treatment

Method of Lye Treatment

Treatment of Sweet Water

First treatment

Second treatment

Evaporation

Continuous Finisher

Refining of Crude Glycerine

Production of Laundry and Toilet Soaps

Introduction

Frame Cooling of Soap

Production of Filled Soaps on the Mazzoni

Billeting

## Technology of Toilet Soaps

Introduction

Oil blend

Production of toilet soap

Mixing of soap

Preservatives

Perfumes

Colours

Opacifiers

Optical brightners

Super-fattening agent

Structurants

Bactericides and germicides

Miscellaneous additives

Design of mixers

Refiners vs. Mills

Plodding

Stamping

Wrapping

Packing

Carbolic Soap

Transparent Soaps

Introduction

Manufacturing methods

Manufacturing method

Translucent Soaps

Oil blend

Floating Soap

Marbled Soap

Process Control

Introduction

Pre-treatment of Raw Materials

Soapmaking

Fat charge control

Colour of soap base

Free alkali and chloride

Unsaponified fat

Glycerol in soap

Process Controls Beyond Pan Room:

Domestic Soap

Toilet Soap  
Other Soaps  
Soap Chips  
Soap Noodles  
Soap Flakes  
Soap Powder for Laundries  
Shaving Cream  
Soft Soap  
Medicated Soap  
Shaving Soap

## 6 Various Formulations of Soaps

Toilet Soap of Inferior Quality

Process

Toilet Soap of Lux Type

Process

Khas Soap

Amla Soap

Rose Soap

Sandal Soap

Musk Soap

Almond Soap

Transparent Soaps

Process

Medicated Soaps

Stock Soap

Formulae and Process Description for

Various Medicated Soaps

Process

Carbolic Soap

Process

Procedure

Neem Soap

Process

Camphor Soap

Procedure

Chaulmogra Soap

Procedure

Shaving Soaps and Creams

Shaving Soaps

Solid Shaving Preparation  
Lather Shaving Cream  
Liquid Soaps and Shampoos  
Process of Manufacture  
Liquid Shampoos  
Egg Shampoos  
Herbal Shampoos  
Washing Soap (Various Types)  
Precautions regarding Manufacture of Soap  
Nerol Washing Soap  
Process  
Soap Removal Procedure  
Formulae for Nerol Soap

## 7 Soap perfumery

Soap compounds  
Brown Windsor  
Carnation  
Chypre  
Cologne  
Cyclamen  
Fougere  
Heliotrope  
Hyacinth  
Jasmin  
Lavender  
Lilac  
Lily

## 8 Management of Soap factories

Technical Efficiency  
Introduction  
Yield  
Fatty acid yield  
Glycerol yield  
Active detergent yield  
Over/under usage of materials  
Packing loss/gain  
Oil usage pattern  
Scrap and downgrading losses

Productivity

Steam, water, electricity

Financial Summary

Pollution Control

Introduction

Source of Pollution

Oil spills

Chemical spills

Bleaching

Chemical treatment

Soap-making

Glycerine Recovery

Laundry Soaps

Toilet Soap

Synthetic Detergents

Sulphonation

Detergent powder manufacture

Boiler House

Coal spillages

Water treatment Section

Boiler Blow Down

Chimney exhaust

Boiler ash

Effluent Treatment

Space and location

Effluent characteristics

The requirements of treated effluent

Effluent treatment methodology

Treatment of Gaseous Effluents

Chemical bleaching

Saponification of oils

Toilet soap mixer

Refrigeration system

Oleum handling in the sulphonation plant

Oleum still furnace

Exhaust from spray drying tower and air lift

NSD bar mixer exhaust

Boiler exhaust

Analytical Support

Introduction

Oils  
Chemicals  
Packaging Materials  
In-process Materials  
Finished Products  
Microbiological Controls  
Analytical Equipments  
General Comments  
Quality Control  
Introduction  
Organisation  
Facilities  
Specifications  
Chemicals  
Packaging materials  
Finished Product  
Manufacturing Method  
Fat Charge  
Chemicals for soap-making  
Sampling  
Sampling of Raw Materials  
Packing materials  
Finished Products  
Vendor education and rating  
Process audit  
Reporting  
Micro-biological Controls  
Bureau of Indian Standards Specifications  
Quality Assurance  
Introduction  
Conventional Approach to Quality  
Recommended Approach to Quality  
Implementation of Quality Assurance  
Quality Control  
Quality Audit  
Summary  
Total Quality Management (TQM)  
ISO 9000 Series Standards  
Common Quality Problems of Soaps  
Introduction

Laundry Soaps

Lather

Cracking

Detergency

Toilet Soaps

Base odour

Rancidity

Discoloration of soap

Cracking

Blisters

Sandiness

Mushiness

Wear

Hardness

Lather

Efflorescence

Storage and Product Assessment Tests

Storage

Product Assessment

Assessment in laundry soaps

Detergency

Lather

Perfume Impact

Wear

Cracking

Assessment of toilet soaps

Feel of soap in use

Mush

Common Quality Problems of Detergents

Detergent Powder

Solubility

Skin irritation

Poor lather/detergency

Detergent Cake

Sogginess

Roughness

Whitish deposit

Poor colour

Poor lather and detergency

Stain Removal

Introduction  
Type of stains  
Removal of Stains  
Lime soap  
Protein stains  
Iron compounds  
Stains due to dyes  
Mildew stains  
Physical methods of stain removal  
Assessment of stain removal

## 9 Analytical Methods

Determination of Soap Composition  
For Nature of Fatty acids in soap  
For Anhydrous soap and total alkali content  
Procedure  
Isolation of Fatty Acids and Rosin Acid  
From Soap  
Acid Value  
Saponification Value  
The Saponification  
Iodine Value  
Wijs Solution (Iodine monochloride solution)  
Determination  
Titer Test  
Procedure  
Rosin Value  
Procedure  
Determination of Total Anhydrous Soap and  
Combined Alkali Content  
Procedure  
Unsaponified and Unsaponifiable Matter  
Determination  
Testing of Fatty Oils used for Soap  
Moisture and Volatile Matter  
Insoluble Impurities  
Soluble Mineral Matter  
Determination of Total Fatty Acids of soap  
stock and acidulated soap stock  
Acid value

Ester value  
Determination of rancidity  
Rosin Test  
Colour Test  
Bleach Test  
Smoke Point  
Flash Point  
Turbidity Point  
Cloud Point

10 Plant and Machinery  
Four Blades Chipping Machine  
Other Chipping Machines  
Packing Machine  
Spray Drier for making Detergent Powder  
Portal Stirrer (Mechanical Agitator)  
High Speed Dissolver  
Planetary Mixer  
Centrifuge  
Emulsifier  
Edge Runners  
Ball and Pebble Mills  
Automatic Liquid Filling and Weighing Machine  
Automatic Paste Filling and Crimping Machine  
Automatic Power Filling Machine  
Marking and Printing Machine  
Marking and Printing Machine  
Bottle Washing Machine  
Ribbon Blender  
Batch Mixer  
Plodders  
Cutters  
Soap Press

11 Addresses of Raw Material Suppliers  
12 Photographs of Plant & Machinery with Supplier's Contact Details

**About NIIR Project Consultancy Services (NPCS)**

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.

NIIR PROJECT CONSULTANCY SERVICES  
106-E, Kamla Nagar, New Delhi-110007, India.  
Tel: 91-11-23843955, 23845654, 23845886, +918800733955  
Mobile: +91-9811043595  
Email: [npcs.ei@gmail.com](mailto:npcs.ei@gmail.com), [info@entrepreneurindia.co](mailto:info@entrepreneurindia.co)  
Website: [www.entrepreneurIndia.co](http://www.entrepreneurIndia.co)