

# Soaps, Detergents and Disinfectants Technology Handbook (3rd Revised Edition)

**Author:-** Ajay Kumar Gupta

**Format:** paperback

**Code:** NI198

**Pages:** 472

**Price: Rs.1595US\$ 150**

**Publisher:** NIIR PROJECT CONSULTANCY SERVICES

Usually ships within **5** days

Soaps, Detergents and Disinfectants Technology Handbook (3rd Revised Edition)  
(Washing Soap, Laundry Soap, Handmade Soap, Detergent Soap, Liquid Soap , Hand Wash, Liquid Detergent, Detergent Powder , Bar, Phenyl, Floor Cleaner, Toilet Cleaner, Mosquito Coils, Naphthalene Balls, Air Freshener, Hand Sanitizer and Aerosols Insecticide)

Soaps are cleaning agents that are usually made by reacting alkali (e.g., sodium hydroxide) with naturally occurring fat or fatty acids. A soap is a salt of a compound known as a fatty acid. A soap molecule consists of a long hydrocarbon chain (composed of carbons and hydrogens) with a carboxylic acid group on one end which is ionic bonded to a metal ion, usually a sodium or potassium. The hydrocarbon end is nonpolar and is soluble in nonpolar substances (such as fats and oils), and the ionic end (the salt of a carboxylic acid) is soluble in water. Soap is made by combining tallow (or other hard animal fat) or vegetable or fish oil with an alkaline solution. The two most important alkalis in use are caustic soda and caustic potash.

A detergent is an effective cleaning product because it contains one or more surfactants. Because of their chemical makeup, the surfactants used in detergents can be engineered to perform well under a variety of conditions. Such surfactants are less sensitive than soap to the hardness minerals in water and most will not form a film.

Disinfectants are chemical agents applied to non-living objects in order to destroy bacteria, viruses, fungi, mold or mildews living on the objects. Disinfectants are chemical substances used to destroy viruses and microbes (germs), such as bacteria and fungi, as opposed to an antiseptic which can prevent the growth and reproduction of various microorganisms, but does not destroy them. The ideal disinfectant would offer complete sterilization, without harming other forms of life, be inexpensive, and non-corrosive.

The global soap and detergent market is expected to reach USD 207.56 billion by 2025. The industrial soaps & detergents are extensively used by the commercial laundries, hotels, restaurants, and healthcare providers. Increasing demand from healthcare and food industries will continue to drive the market. Aerosol and liquid products are the common disinfectants used in hospitals, although growing number of healthcare facilities are implementing ultraviolet disinfection systems as further measure. Increasing demand for disinfectants from water treatment and healthcare industries is fuelling growth of the global disinfectants market. The major contents of the book are Liquid Soaps and Hand Wash, Liquid Soap and Detergents, Washing Soap: Laundry Soap Formulation, Antiseptic and Germicidal Liquid Soap, Manufacturing Process And Formulations Of Various Soaps, Handmade Soap, Detergent Soap, Liquid Detergent, Detergent Powder, Application and Formulae Of Detergents, Detergent Bar,

Detergents Of Various Types, Formulating Liquid Detergents, Phenyl, Floor Cleaner, Toilet Cleaner, Mosquito Coils, Naphthalene Balls, Air Freshener (Odonil Type), Liquid Hand Wash and Soaps, Hand Sanitizer, Aerosols–Water and Oil Based Insecticide (Flies, Mosquitoes Insect and Cockroach Killer Spray), Ecomark Criteria for Soaps & Detergents, Plant Layout, Process Flow Chart and Diagram, Raw Material Suppliers List and Photographs of Machinery with Supplier's Contact Details.

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.

## 1. INTRODUCTION

## 2. LIQUID SOAPS AND HAND WASH

Method of Manufacture

Raw Material Required

## 3. LIQUID SOAP AND DETERGENTS

Product Introduction

Method of Manufacture

Liquid Detergents

Weight Equivalents of DDBSA

Molecular Weights

Special Procedures for Compounding

## 4. WASHING SOAP : LAUNDRY SOAP

### FORMULATION

Manufacture of Laundry Neat Soap from Oil, Blend

Harding of RBD

Acid Wash for RBHT

Salt Wash for Neem Oil

Blending

Neem Soap Manufacture

Manufacture of Laundry Soap

Step 1: Mixing of Sodium Silicate, China Clay and Salt

Step 2: Cratcher Mixing Operation

Step 3: Spray Drying

Step 4: Cutting

Step 5: Stamping

Step 6: Wrapping

Step 7: Packing

Theory

Process and Raw Material

Product Profile

Washing Soaps

Brand Name

Process

## 5. ANTISEPTIC AND GERMICIDAL LIQUID SOAP

Hexachlorophene Soaps

Control of Clarity

Filtration

Bottling and Packaging

## 6. MANUFACTURING PROCESS AND FORMULATIONS OF VARIOUS SOAPS

### (A) Washing Soaps

1. Washing Soap with Soap Stone (by Cold Process) Process
  2. Washing Soap with Soda Silicate (by Cold Process) Process
  3. Washing Soap Process
  4. Sunlight Type Washing Soap Process
  5. Sunlight Type Washing Soap (Other Formula) Process
  6. Washing Soap Made of Groundnut Oil Residue Process
  7. Washing Soap (from Linseed Oil) Process
  8. Washing Soap (made of Cottonseed Oil) Process
- Nerol Shop  
Process of Manufacturing
9. Other Selected Formulas of Washing Soaps Process

### (B) Nerol Washing Soap

Process of Manufacturing

### (C) Toilet Soaps

Selected Formulas for Toilet Soaps

For Toilet Soap Perfumes

### (D) Carbolic Soaps

Process

2. +-Lifeboy Type Soap

Process

3. Transparent Soap (Pears Types)

Process

Transparent Soap (Another Formula)

Process

### (E) Shaving Soaps

Process

Process

### (F) Special Soaps

1. Borax Soap (For Pimples)

Process

2. Borax Soft Soap

Process

3. Soft Soap (Other Formula)

Process

4. Rug Cleaning Soap

Process

5. Dry-Cleaning Soap (Liquid)

Process

6. Soap used in the Bleaching of Jute

Process

7. Built Soaps for Cottons and Linens

Process

8. Sandle Soap

Process

(G) Vaseline Soap

Process

(H) Liquid Soap

Process

(I) Girt Soaps

Process

2. Hand Soap Paste with Mineral Abrasive

Process

3. Powdered Hand Soap with Vegetable Abrasive and Lanolin

Process

(J) Depilatory Soaps

Process

(K) Metallic Soaps in protective coating industry

Metals

Method of Precipitation

(L) Liquid Dental Soap

(M) Medicated Soap

Neem Soap

Formulation

## 7. HANDMADE SOAP

Properties

Benefits of Handmade Soap

Types of Handmade Soap

Cold Process Soap

Hot Process Soap

Liquid Soap

Transparent Soap

Glycerin Soap

Ready-Made Soap Bases

Basic Ingredients in Handmade Soap

Tools and Equipments

Temperature Chart

Handmade Soap Formulae

Lavender Soap

Sweet Almond Oil Soap

Seagrass Soap

Cocoa and Shea Butter Soap

Column Swirl Soap

Spoon Swirl Handmade Soap

Cocoa Butter Soap

Coffee Soap

Creamy Coconut Milk Soap

Rose Milk Soap

Sweet Citrus Honey

White Camellia Oil Soap

Basic Soap-Making Processes

Cold Process

Hot Processes

Moulds

## Purification and Finishing

### 8. DETERGENT SOAP

Properties

Uses & Applications

Detergent Cake Formulation

Manufacturing Process

Process Flow Diagram

### 9. PACKAGING OF SOAPS

Soap Packaging Benefits

Factors to Consider

Types of Soap Packaging

Soap Packaging Machines

### 10. LIQUID DETERGENT

Uses of Liquid Detergent

Liquid Detergent Formulations

1. Heavy Duty Liquid Detergent

2. Light Duty Liquid Detergent

Manufacturing Process

Process Flow Diagram

### 11. DETERGENT POWDER

Properties of Detergent Powder

Uses & Application

Manufacturing Process

Process Flow Diagram

### 12. APPLICATION AND FORMULAE OF DETERGENTS

Foam

Household Cleaning

Heavy-Duty Laundering

Formula 9

Spray-dried Heavy-duty Household Hand-washing Powder

Foam Control

Formula 10

Heavy-duty Fully Automatic Washing Machine Powder

Formula 11

Low-foaming Machine Powder for Soft-water Areas

Formula 12

Low-foaming Machine Powder for Soft-water Areas Using

Formulae 13-14

Spray- dried Household Low-foaming Laundry Powders

Formulae 15, 16, 17, 18

Heavy-duty Liquid Detergents

Formula 19

Heavy-duty Liquid Detergent with 'Controlled Foam'

Formula 20

Heavy-duty Liquid Detergent and Bleach

Formula 21

Light-duty Household Liquid Detergent

Formula 22  
Lotion-type Light-duty Liquid Detergent  
Formulae 23-27  
Light-duty Liquid Detergents  
Formula 28  
Household Fine-wash Spray-dried Powder  
Formula 29  
40 per cent Detergent Paste  
Formula 30  
Spray-dried General-purpose Powder  
Formula 31  
General-purpose Powder  
Formula 32  
General-purpose Powder  
Choice of Non-Ionic  
Concentrated Powders  
Mix Together  
Cold Water Washing  
Hard-Surface Cleaners  
Formula 33  
Hard-surface Cleaner  
Formula 34  
Hard-surface Cleaner  
Formula 35  
Aerosol Oven Cleaner  
Machine Dishwashing  
Formula 36  
Machine Dish-washing Powder for Soft-water Areas  
Formula 37  
Machine Dish-washing Powder for Moderately Hard-water Areas  
Formula 38  
Machine Dish-washing Powder for Hard-Water Areas  
Abrasive-Type Cleaners  
Formula 39  
Household Scouring Powder  
Formula 40  
Formula 41  
Household Scouring Liquid  
Miscellaneous Household Cleaners  
Formula 42  
Household Window-cleaning Liquid  
Formula 43  
Floor Cleaner  
Commercial Laundering  
Formula 44  
Spray-dried Industrial Laundry Powder  
Formula 45  
Industrial Laundry Powder not Spray-dried  
Solvent Detergents  
Formula 46  
Detergent-solvent Combination  
Formula 47  
Detergent-solvent Combination

Formula 48  
Kerosene Water Solution  
Formula 49  
Solvent detergent Combination  
Formula 50  
Solvent-detergents based on 100 per cent ABS (So<sub>3</sub> produced)  
Formula 51  
Dry-cleaning Detergent  
Carpet and Upholstery Cleaners  
Textile Dressing  
Formula 52  
Textile Scouring Paste  
Formula 53  
Textile Degumming Detergent Paste  
Mercerizing  
Food and Dairy Industries  
Formulae 54-56  
Food and Dairy Alkaline Detergent Cleaner  
Formula 57  
Bottle-washing Compound  
Detergent Sanitizers  
Formula 58 and Formula 59  
Metal Cleaners  
Formula 60  
Acid Cleaner for Water-cooling Systems  
Miscellaneous Cleaners  
Lavatory Cleaner  
Hand Cleaners  
Formula 75  
Hand Cleanser  
Formula 76  
Detergent Hand Cleanser  
Formula 77  
Hand Cleanser in Powder Form  
Waterless Hand Cleansers  
Formula 78  
Waterless Hand Cleanser  
Formula 79  
Waterless Hand Cleanser  
Formula 80  
Waterless Hand Cleanser

### 13. DETERGENT BAR

Formulation  
Sequence of Additions  
Type of Defects  
Manufacturing Process of Detergent Bar

### 14. DETERGENTS OF VARIOUS TYPES

(A) Detergent Powder  
Method  
Other Formulaes  
Process

List of Plant and Machinery

Raw Materials Used per day

Dairy Equipment Cleaners

Bottle Cleaners

Preparation of Caustic Gluconate Solution

Dairy Equipment Cleaners

Dish Washing Detergents

(a) For China Dishes by Soft Water

(b) In Soft as well as Moderately Hard Water

(c) For China Dishes by Hard Water

(d) For Plasticware/Chinaware

Other Dish-Washing Compounds (Vim Type Cleaning-Powder)

1. For Aluminium Ware

2. For Glass, China and Silverware

3. Washing Powder (For Cottons)

4. Washing compounds (For Woollens)

5. Washing Compound (For Wool)

6. Rug Cleaners

7. Floor Cleaners (Building Surface)

8. Wall Cleaner

9. Floor Cleaner (Light Duty Powder)

10. Heavy Duty Cleaner

11. Various Head Cleaning Compounds

12. Cleaner for Artificial Teak

13. Stoneware Glaze

14. Paint Brush Cleaner

15. Auto Polish

Process

Direction for Use

Process

Direction for Use

Process

Direction for Use

Scouring Powders

Floor Cleaners

1. Common Wall Cleaner

2. Light Duty Cleaner (Powder)

3. Heavy Duty Cleaner

4. Cleaner for Building Surface

Sanitary Cleaner

List of Plants and Machinery

Raw Material

Metal cleaners

Aluminium Cleaner

Steel Cleaner

Cleaner for Iron Applied Prior to Galvanishing

Liquid Pine Scrub Soap for General Floor Scrubbing

Wax Removing Cleaner (Liquid)

Sweeping Compound (Oil Base)

Painted Surface Cleaner (Powder)

(B) Liquid Detergents

All Purpose Liquid Cleaners

Dish Washing Liquid Detergents



Formulations for Mechanical Dishwasher  
Hand Washing Liquid Detergent  
Miscellaneous Cleaners  
Textile Scouring Paste  
Degumming Paste for Wool  
Liquid Cleaners for Hard Surface  
Window Panes Cleaning Liquid  
Dry Cleaning Detergent  
Process  
(C) Detergent (Nirma Type)  
Formulations for the Nirma Type Detergent Powder  
List of Plant and Machinery  
Raw Materials Required/Month  
(D) Detergent Cake  
Manufacturing Process for Detergent Cake Basis 1 TPD  
1. Sulfonation of Alkyl Benzene  
2. Separation Step  
3. Neutralization Step  
4. Mixing of Ingredients  
5. Concentration of Slurry  
6. Making of Cake  
7. Packing  
8. Despatching  
List of Plant and Machinery  
Raw Materials Required per day

## 15. FORMULATING LIQUID DETERGENTS

Requisites of Surfactants for Formulating Liquid Detergents

Surfactants Most Commonly Used

Builders

Viscosity Controllers

Other Ingredients

Household Liquid Detergents For Laundering

Heavy Duty

Typical Formulations

Process

Light Duty : (for Silk, Wool etc.)

Shampoos

Rug Cleaning Liquid Detergent Formulations

A Recommended Formulation

## 16. PHENYL

Uses

Properties

Manufacturing Process

## 17. FLOOR CLEANER

Composition of Floor Cleaner

Uses of Floor Cleaner

Raw Material Required for Floor Cleaner

Manufacturing Process of Floor Cleaner

Process Flow Diagram of Floor Cleaner

## 18. TOILET CLEANER

Properties  
Features  
Formulations of Toilet Cleaner  
Manufacturing Process of Toilet Cleaner  
Process Flow Diagram of Toilet Cleaner

## 19. MOSQUITO COILS

Uses and Application  
Properties  
Basic Raw Material  
Manufacturing Process  
Process Flow Diagram

## 20. NAPHTHALENE BALLS

Uses & Application  
Properties  
Manufacturing Process  
Process Flow Diagram

## 21. AIR FRESHENER (ODONIL TYPE)

Properties  
Uses and Applications  
Formulation for Preparing Odonil Type Solid Deodorant Cake  
Manufacturing Process  
Process Flow Diagram

## 22. LIQUID HAND WASH AND SOAPS

Method of Manufacture  
Raw Material Required

## 23. HAND SANITIZER

Physical and Chemical Properties  
Ingredients  
Uses  
Formulation of Herbal Hand Sanitizer  
Manufacturing Process

## 24. AEROSOLS–WATER AND OIL BASED

INSECTICIDE (Flies, Mosquitoes Insect and Cockroach Killer Spray)  
Aerosol Container  
Formulation of Insecticide Aerosols  
Oil-Based Aerosol (OBA)  
Water-Based Aerosols (WBA)  
Alcohol-Based Aerosol  
Filling Process of Oil-based Insecticide Aerosols (U-t-C)  
The Production Process of Oil-Based Insecticide Aerosol  
The Preparation of Concentrate  
The Preparation of Diluent Solution  
Filtration  
Filling Process of Water-Based Insecticide Aerosols (T-t-V method)  
Filling Process of Water-Based Insecticide Aerosols (U-t-C)  
Instruction of Process  
A. Procedures of Water-Based Aerosols

B. Procedures of Oil-Based Aerosols

C. Aerosol Production Line

Water-Based Aerosol Insecticide Formulation

The Biological Efficacy of Typical Formulation

FE Insecticide Aerosols

A. Features

B. Composition and the Physical Feature

C. Comparison of Efficacy to Insects Between FE and Other Knock Down Agent

Insecticide Aerosols for Special Uses

## 25. ECOMARK CRITERIA FOR SOAPS & DETERGENTS

A. Toilet Soaps

1. General Requirements

2. Product Specific Requirements

B. Detergents

1. General Requirements

2. Product Specific Requirements

3. General Requirements

## 26. PLANT LAYOUT

## 27. PROCESS FLOW CHART AND DIAGRAM

## 28. RAW MATERIAL SUPPLIERS LIST

## 29. PHOTOGRAPHS OF MACHINERY WITH SUPPLIER'S CONTACT DETAILS 378

Liquid Soap Making Machine

Three Roll Mill

Blender

Heat Exchanger

Plodder

Centrifuge

Flash Tank

Water Strainer

Cyclone Separator

Vaccum Pump

Hammer Mill

Jacketed Kettle

Condenser

Storage Tank

Steam Heater

Agitator

Soap Packing Machine

Transfer Pump

Hopper

Spray Dryer

Pulverizer Machine

Washing Powder Making Machinery

Bath Soap Making Machine

Soaps Wrapping Machine

Detergent Cake Making Machine

Manual Soap Cutter

Soap Extruders  
Soap Mixer  
Soap Presses  
Soap Crutcher  
Soap Flaker  
Detergent Making Machine  
Hand Wash Liquid Soap Making Machine  
Ribbon Blender  
Cage Mill  
Automatic Production Line for High Laundry Detergent Filling and Capping  
Soap Finishing Line  
Canned Fresh Air Filling Machine Assembly Line 2800E  
Air Filling Machine 1600D1  
Aerosol Filling Machines Automatic Single Platform 2800A  
Aerosol Filling Machines  
Aerosol Contract Filling Machine  
Aerosol Filling Plant  
Aerosol Filling Equipment With 5 in 1 Function 1600C  
Toilet Soap Line  
Laundry Soap Making Process Chart  
Soap Production Line Machine  
Soap Production Line Plant  
Soap Making Line Machinery Soap Production Line

## 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.

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.

---

**NIIR PROJECT CONSULTANCY SERVICES**, 106-E, Kamla Nagar, New Delhi-110007, India.  
Email: [npcs.india@gmail.com](mailto:npcs.india@gmail.com) Website: [NIIR.org](http://NIIR.org)

Fri, 09 May 2025 05:23:07 +0000