Soaps, Detergents and Disinfectants Technology Handbook- 2nd Revised Edition

Author: NPCS Board of Consultants & Engineers
Format: Paperback
ISBN: 9789381039939
Code: NI198
Pages: 464
Price: Rs. 1,495.00 US$ 150.00
Publisher: NIIR PROJECT CONSULTANCY SERVICES

Soaps, Detergents and Disinfectants Technology Handbook
(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 metalion, 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 milestone for its readers who are new to this sector, will also find useful for professionals, entrepreneurs, those studying and researching in this important area.

Contents

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)
3. Washing Soap
4. Sunlight Type Washing Soap
5. Sunlight Type Washing Soap (Other Formula)
6. Washing Soap Made of Groundnut Oil Residue
7. Washing Soap (from Linseed Oil)
8. Washing Soap (made of Cottonseed Oil)

Nerol Shop
Process of Manufacturing
9. Other Selected Formulas of Washing Soaps

(B) Nerol Washing Soap
Process of Manufacturing

(C) Toilet Soaps
Selected Formulas for Toilet Soaps

For Toilet Soap Perfumes
(D) Carbolic Soaps

2. Lifeboy Type Soap

3. Transport Soap (Pears Tips)

Transparent Soap (Another Formula)

(E) Shaving Soaps

(F) Special Soaps
1. Borax Soap (For Pimples)

2. Borax Soft Soap

3. Soft Soap (Other Formula)

4. Rug Cleaning Soap

5. Dry-Cleaning Soap (Liquid)

6. Soap used in the Bleaching of Jute

7. Built Soaps for Cottons and Linens

8. Sandle Soap

(G) Vaseline Soap

(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 71
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 90
Properties
Uses & Applications
Detergent Cake Formulation
Manufacturing Process
Process Flow Diagram
9. LIQUID DETERGENT
   Uses of Liquid Detergent
   Liquid Detergent Formulations
   1. Heavy Duty Liquid Detergent
   2. Light Duty Liquid Detergent
   Manufacturing Process
   Process Flow Diagram

10. DETERGENT POWDER
   Properties of Detergent Powder
   Uses & Application
   Manufacturing Process
   Process Flow Diagram

11. APPLICATION AND FORMULAE OF DETERGENTS 104
   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 (So3 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
12. DETERGENT BAR 192
Formulation
Sequence of Additions
Type of Defects
Manufacturing Process of Detergent Bar
13. 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

Scouring Powders
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 Stop
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
14. 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
15. PHENYL
Uses
Properties
Manufacturing Process
16. FLOOR CLEANER 255
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
17. TOILET CLEANER
Properties
Features
Formulations of Toilet Cleaner
Manufacturing Process of Toilet Cleaner
Process Flow Diagram of Toilet Cleaner
18. MOSQUITO COILS
Uses and Application
Properties
Basic Raw Material
Manufacturing Process
Process Flow Diagram
19. NAPHTHALENE BALLS
Uses & Application
Properties
Manufacturing Process
Process Flow Diagram
20. AIR FRESHENER (ODONIL TYPE)
Properties
Uses and Applications
Formulation for Preparing Odonil Type Solid Deodorant Cake
Manufacturing Process
Process Flow Diagram
21. LIQUID HAND WASH AND SOAPS
   Method of Manufacture
   Raw Material Required

22. HAND SANITIZER
   Physical and Chemical Properties
   Ingredients
   Uses
   Formulation of Herbal Hand Sanitizer
   Manufacturing Process

23. 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

24. 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

25. PLANT LAYOUT
26. PROCESS FLOW CHART AND DIAGRAM
27. RAW MATERIAL SUPPLIERS LIST
28. PHOTOGRAPHS OF MACHINERY WITH SUPPLIER’S CONTACT DETAILS
   Liquid Soap Making Machine
   Three Roll Mill
   Blender
   Heat Exchanger
   Plodder
Centrifuge
Flash Tank
Water Strainer
Cyclone Separator
Vacuum 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.


NPCS also publishes varies 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.

NIIR PROJECT CONSULTANCY SERVICES, 106-E, Kamla Nagar, New Delhi-110007, India. Email: npcs.india@gmail.com  Website:  NIIR.org