

How to Manufacture Detergents

(Detergent Manufacturing Business, Cleaning Products, Formulas, Detergent Production Line, Detergent making Ingredients, Formulations of Detergent, Process, Synthetic Detergent Powder)

Introduction

A detergent is a surfactant or a mixture of surfactants with "cleaning properties in dilute solutions. Detergents, as a constituent of the overall FMCG industry, accounts for a near 12% of the total demand for all FMCG products estimated at over Rs. 530 bn. Detergents, chemically known as alfa olefin sulphonates (AOS) are used as fabric brightening agent, anti-deposition agent, stain remover and as a bleacher. A major input for the production of detergents is a petrochemical, Linear Alkyl Benzene (LAB), while soaps rely more on an inorganic chemical, caustic soda, as a major input.

To cater to this increasing demand of quality washing powders most of the top detergent brands in India are continually introducing better packaged detergents that are offering a host of benefits in a single wash. In India HUL holds a 38 per cent market share in the washing powder segment clearly standing as the winner. The other important players in the detergent industry include Surf Excel, Nirma and Sunlight.

Soaps and detergents are used frequently in our daily life. We use them to wash our hands and clean our clothes without ever really paying attention to how they work. Beneath the plain white surface of a bar of soap lies an intriguing history and a powerful chemistry. It has been said that amount of soap and detergent consumed in a country is a reliable measure of its civilizations. There was a time when these products were luxury; now it is a necessity. A disinfectant or agent that frees from infection is ordinarily a chemical agent which kills disease germs or other harmful microorganisms and is applied to inanimate objects. The specific way in which a disinfectant agent is used is dependent on both the desired objective and the infectious agent present.

The term detergent by itself refers specifically to laundry detergent or dish detergent, as opposed to hand soap or other types of cleaning agents. Detergents are commonly available as powders or concentrated solutions. Detergents work because they are amphiphilic partly hydrophilic (polar) and partly hydrophobic (non polar). Their dual nature facilitates the mixture of hydrophobic compounds (like oil and grease) with water. Because air is not hydrophilic, detergents are also foaming agents to varying degrees. Completely non polar solvents known as degreasers can also remove hydrophobic contaminants but may not dissolve in water because of a lack of polar elements.

Soaps are mainly used as surfactants for washing, bathing, and cleaning, but they are also used in textile spinning and are important components of lubricants. Soap is a mixture of sodium salts of various naturally occurring fatty acids. Soaps and detergents are very similar in their chemical properties. However, there is a significant difference between them; soaps are produced from natural products, and detergents are synthetic, or manmade. The market is expected to grow at rates ranging from under 4% to around 4.5%. These are very modest rates considering that the lifestyles not only of urbanites, but even of well off rural folks are changing at a very high pace. The analysts are expecting the industry to continue to grow in both the industrialized as well as developing nations.

Some of the fundamentals of the book are technology of soap making, washing of saponified soap, plant for total soap making operation, construction materials for soap making plants, earth bleaching of oils, chemical bleaching, fatty acids, manufacture of framed soaps, manufacture of chips and flakes, manufacture of milled bars, the mazzoni process, floating soap bars, mixing of soap, chemicals used in soaps & detergents, alkylolamides, alkylolamides in shampoo formulations, chemistry of the alkylolamides, mono alkylolamides, di alkylolamides, pure dialkylolamides, phosphoxylated alkylolamides, sulphated alkylolamides, disinfectants and antiseptics, dry cleaning agents, etc.

The present book contains formulae, processes of different types of soaps, detergents and disinfectants. These products have good demand in domestic as well as in International market. So there is a very good scope for new entrepreneurs to venture into this field. This book is an invaluable resource for entrepreneurs, technocrats and for those who want to diversify in to this field.

Table of Contents

1. SOAPS

Technology Of Soap Making

Historical

Soap Boiling

Equipment for Soap Boiling

Selection of Fat Charge

The Saponification Reaction

Physical Chemistry of the Soap Kettle

Graining Out and Washing

Strong Change

Finishing or Fitting Operation

Countercurrent Washing

Soap from Fatty Acids

Miscellaneous

Semiboiled And Cold Processes

Semiboiled Soaps

Cold-Made Soaps
Continuous Saponification
Mills Process
Sharples Process
The De Laval Process
The Monsavon Process
Lye Absorption
Saponification Loop
Saponification of Distilled Fatty Acids
Alfa Laval Continuous Saponification
Washing Of Saponified Soap
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
Fatty Acids
Manufacture from Glycerides
Soap-making With Fatty Acids
Tall Oil
Whole Tall Oil
Tall Oil Refining
Tall Oil Soaps
Glycerin
Crude Glycerin
Purification
Synthetic Glycerin
Classification Of Soap Products
Spray Drying
Manufacture Of Framed Soaps
Manufacture Of Chips And Flakes

Manufacture Of Milled Bars
The Mazzoni Process
Floating Soap Bars
Mixing of Soap
Preservatives
Perfumes
Colours
Opacifiers
Optical Brighteners
Superfatting Agent
Structurants
Bactericides and Germicides
Miscellaneous Additives
Soapmaking
Fat Charge Control
Colour of Soap Base
Free Alkali and Chloride
Unsaponified Fat
Glycerol in Soap
Methods Of Analysis

**Sampling
Procedures
Separation
Identification
Determination Of Soap Composition
Determination Of Inorganic Fillers And Soap Builders
Determination Of Other Additives
Determination Of Impurities
Other Quality Control Tests
Analysis Of Soaps Containing Synthetic Detergents
Analysis Of Metallic Soaps
Soap And Other Surface-active Agents
Theory of Surface Action
Quantitative Relationships
Defoaming
Emulsification
Wetting of Solids
Miscellaneous Effects of Adsorption on Solid Surfaces
Detergency
Physical Chemistry Of Soaps And Related Materials**

Phase Behaviour of Aqueous Systems
Phase Behaviour of Solid Soaps
Nature of Dilute Solutions
Structure of Micelles and Solubilization
Surface and Interfacial Tensions
Commercial Soap Products
Raw Materials
Production and Consumption
Characteristics of Soaps Saponified by Different Methods
Effect of Different Factors on Physical Characteristics of Bar Soaps
Types of Commercial Soap
Surface-active Agents Other Than Soap
Classification of Surfactants
List of Surfactants
Production and Consumption
Ampholytic Surfactants
Detergents
Wetting Agents
Emulsifying Agents

2. DETERGENTS

Production Of Detergent Active

Introduction

Choice of Alkylate

Sulphonation

Choice Of Sulphonation Plant

Side Reactions During Sulphonation

Sulphonation Practice

Sulphonation Of Alpha Olefin

Neutralisation/Hydrolysis

Chemithon Technology

Storage and Handling

Derivation Of Fatty Alcohols

General Outline

Process Based On Natural Fats

Process Based On Ethylene Source

Sulphation Of Fatty Alcohols

Continuous Process For Fatty Alcohol Sulphates
Preparation Of Detergent Granules As Finished Product
Procedure
Acid Slurry
Alkali Solution
Additives To Detergent Actives
Inorganic Additives
Phosphates
Zeolites
Silicates
Carbonates
Bleaches
Other inorganic builders and fillers
Organic Additives
Anti-redeposition agents
Optical brighteners (OB)
Foam boosters
Enzymes
Chelating agents

Hydrotopes
Bacteriostats
Manufacture Of Synthetic Detergent Powder
By Spray Drying
Outline of the Spray Drying Process
Slurry Preparation
Kinetics of Hydration of STPP
Dosing of Ingredients
Slurry Handling
Spray Drying
Production Of Detergent Powder By Dry Mixing
Dry-Mixing Process
Machine-Mixing
Formulations
Compact Detergents
Methods Of Analysis
Sampling
Separation
Procedure

Identification Of Components
Determination Of Surfactants
Total Organic Active Ingredient
Anionic Detergents
Cationic Detergents
Nonionic Detergents
Determination Of Components Other Than Surfactants
Abrasives
Ammonia
Carbonates
Carboxymethylcellulose
Chlorides and Available Chlorine
Enzymes
Ethanol and Isopropyl Alcohol
Ethylenediaminetetraacetate
Fatty Acids
Glycerine
Hydrotropes
Metallic Impurities

Neutral Oil (Free Oil) and Free Fatty Alcohol

Perborates

Phosphates

Silicates

Steam-Distillable Maller

Sulfates

Water

DETERMINATION OF PROPERTIES

Performance Tests

3. CHEMICALS USED IN SOAPS & DETERGENTS

Alkylolamides

Introduction

Alkylolamides in Shampoo Formulations

Chemistry Of The Alkylolamides

Mono-alkylolamides

Di-alkylolamides

Pure Di-alkylolamides

Phosphoxylated Alkylolamides

Sulphated Alkylolamides

Foam Stabilization

Manufacture Of Alkylolamides

Coconut Fatty Acid Diethanolamide

Lauric Acid Diethanolamide

Oleic Acid Monoethanolamide

Stearic Acid Monoethanolamide

Formulation Of Shampoos

N-acyl-n-alkyltaurates

Introduction
Applications of Igepon T Products
Future of Igepons
Manufacture Of Igepon T
Raw Materials
Oleic Acid Chloride
Igepon T Gel
Igepon T Powder
Chemical Control
Utilities
Materials of Construction
Alkyl Sulfates
Introduction
Manufacture of Alcohols
Properties And Performance Characteristics Of Alkyl Sulfates
Krafft Point
Critical Micelle Concentration
Surface and Interfacial Tensions
Wetting Time

Foam Height
Detergency
Dishwashing Test
Emulsion Stability
Manufacture Of Alkyl Sulfates
Sulfation with Chlorosulfonic Acid
Sulfation with Sulfuric Acid
Sulfation with Sulfur Trioxide
Manufacture of Alkyl Sulfated on Large Scale
Formulated Products From Alkyl Sulfates
Olefin Sulfate & Sulfonates
Introduction
Olefin Sulfates
Introduction
Raw Materials And Product Composition
Olefin Sulfates from Shale Oil
Olefin Sulfate From Wax-cracked Distillates
Sulfation
Neutralization and Hydrolysis

Evaporation
Finishing
Solvent Recovery
Olefin Sulfonates
Introduction
Products of Sulfonation
Manufacture Of Olefin Sulfonates
Introduction
Batch Sulfonation
Continuous Sulfonation
Sulfonation with Dioxane-SO₃
Characteristics & Surface Active Properties Of Olefin Sulfonates
Formulation Of Heavy-duty Detergents With Olefin Sulfonates
Ethoxylation Processes
Introduction
Ethoxylated Alkyl Phenols
Laboratory Method of Preparation
Batch Ethoxylation Unit
Properties of Ethoxylated Alkyl Phenols

Ethoxylated Fatty Alcohols

Introduction

Laboratory Method of Preparation

Continuous Ethoxylation Unit

Properties of Ethoxylated Fatty Alcohols

Solubility

Cloud point

Surface and interfacial tension

Detergency

Wetting properties

Foaming properties

Emulsifying properties

Ethoxylated Fatty Acids

Introduction

Manufacture

Properties of Fatty Acid Ethoxylates

Ethoxylated Fatty Amines

Formulations

Alkyl Phenol Ether Sulfates

Introduction

Sulfation and Sulfonation

Manufacture Of Alkyl Phenol Ether Sulfates

Sulfamation

Nonylphenol 4-ethoxy Sulfate

Di-(isohexyl/isoheptyl) Phenol Ether Sulfate

Dodecylphenol Ether Sulfate

Sulfation with Sulfur Trioxide

Comparison of Sulfation with Sulfur Trioxide and Sulfamic Acid

Properties-and Performance Characteristics Of Alkyl Phenol Ether Sulfates

Alkyl Ether Sulfates

Introduction

Properties & Performance Characteristics Of Alkyl Ether Sulfates

Individual Alkyl Ether Sulfates

Tallow Alcohol Ether Sulfates

Manufacture Of Alkyl Ether Sulfates

Process Development

Manufacture Of Alcohol Ether Sulfates

Formulated Products From Alkyl Ether Sulfates

Fatty Amine Oxides

Introduction

Manufacture Of Fatty Amine Oxides

Routes to Fatty Amines

Amine Oxidation

Commercial Synthesis

Properties And Analysis Of Fatty Amine Oxides

Amine Oxide Properties

Analytical Methods

Formulations And Use Of Fatty Amine Oxides

Light-duty Liquids

Heavyduty Formulations

Bisquaternary And Other Cationic Softeners

Introduction

Preparation Of Bisquaternaries

Performance Evaluation Of Softeners

Multiwash Softeners Evaluation

Softness Evaluation
Rewettability Measurements
Performance Characteristics Of Bisquaterneries And Other Cationics
As Softeners
Softener Concentration
Fabric Rewettability Measurements
Other Miscellaneous Surfactants
Alkyl Naphthalene Sulfonates
Introduction
General Method of Manufacture
Nekal BXG
Nekal BX Extra Strong
Dibutyl Naphthalene Sulfonate
Diamyl Naphthalene Sulfonate
SULFATED ALKYLOLAMIDES
Introduction
Igepon B Paste
Igepon C Paste
Sodium B-sulfoethyl Esters Of Fatty Acids

Introduction

Manufacture of Igepon A

Polyethylene Glycol Fatty Acid Esters

Intorduction

Manufacturing Process

Fatty Acid Esters of Sucrose

N-acylsarcosinates

Introduction

Manufacture of Sodium N-oleoylsarcosinate

Sulfated Monoglycerides

Introduction

Manufacrure

4. BLEACHING AGENTS

History

Mechanism of Bleaching

Bleaching Strength

Methods of Analysis

Identification

Assay Methods

Chlorine-Containing Bleache

Procedure

Oxygen-Containing Bleaches

Determination Of Impurities

Methods of Evaluation

Bleached Textile Products

Bleached Pulp And Paper

Handsheets for Testing of Pulp

Physical Testing of Pulp Handsheets

Brightness of Pulp

Brightness Reversion

Disperse Viscosity of Pulp

Physical Testing of Paper and Paperboard

5. DRY CLEANING AGENTS

Stoddard Solvent

Specification Tests

Perchloroethylene

Specification Tests

Fluorocarbon Solvent

Drycleaning Detergents

Methods of Analysis

Specification Tests

Procedure

Performance Tests

Chemical Fabric Finishes

6. DISINFECTANTS AND ANTISEPTICS

General Evaluation Methods

Alcohols

Phenols

Methods of Analysis

Separation and identification

Procedure

Determination In Mixtures

Bisphenols

Methods of Analysis

Identification

Specification Tests

Determination In Mixtures

Salicylanilides And Carbanilides

Methods of Analysis

Halogens And Halogen Donors

Methods of Analysis

Quaternary Ammonium Compounds

Method of Analysis

Separation and identification
Assay Methods
Determination In Mixtures
Colorimetric Methods
Gravimetric Methods
Titrimetric Methods
MERCURIALS
Inorganic Mercurials
Organic Mercurials
Methods of Analysis
Determination In Mixtures
Aldehydes
Methods of Analysis
Determination In Mixtures
Epoxides
Methods of Analysis
Determination In Mixtures
Guanidine Derivatives
Method of Analysis

Niir Project Consultancy Services (NPCS)
can provide Process Technology Book on
Soaps, Detergents and
Disinfectants

See more

<http://goo.gl/TwPiMf>

<http://goo.gl/WRjquz>

<http://goo.gl/BxQIZY>

Visit us at

www.entrepreneurindia.co



**Take a look at
NIIR PROJECT CONSULTANCY SERVICES
on #Streetview**

<https://goo.gl/VstWkd>

Locate us on Google Maps

<https://goo.gl/maps/BKkUtg9gevT2>

Contact us

Niir Project Consultancy Services

106-E, Kamla Nagar, New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886

Mobile: +91-9811043595

Fax: +91-11-23841561

Website :

www.niir.org

www.entrepreneurindia.co

Take a look at NIIR PROJECT CONSULTANCY SERVICES on

#StreetView

<https://goo.gl/VstWkd>

Niir PROJECT CONSULTANCY SERVICES

An ISO 9001:2008 Company

Who are we?

- *One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services*
- *We adopt a systematic approach to provide the strong fundamental support needed for the effective delivery of services to our Clients' in India & abroad*



What do we offer?

- *Project Identification*
- *Detailed Project Reports/Pre-feasibility Reports*
- *Business Plan*
- *Industry Trends*
- *Market Research Reports*
- *Technology Books and Directory*
- *Databases on CD-ROM*
- *Laboratory Testing Services*
- *Turnkey Project Consultancy/Solutions*
- *Entrepreneur India (An Industrial Monthly Journal)*

How are we different ?

- *We have two decades long experience in project consultancy and market research field*
- *We empower our customers with the prerequisite know-how to take sound business decisions*
- *We help catalyze business growth by providing distinctive and profound market analysis*
- *We serve a wide array of customers , from individual entrepreneurs to Corporations and Foreign Investors*
- *We use authentic & reliable sources to ensure business precision*

Our Approach

Requirement collection



Thorough analysis of the project



Economic feasibility study of the Project



Market potential survey/research



Report Compilation

Who do we serve?

- *Public-sector Companies*
- *Corporates*
- *Government Undertakings*
- *Individual Entrepreneurs*
- *NRI's*
- *Foreign Investors*
- *Non-profit Organizations, NBFC's*
- *Educational Institutions*
- *Embassies & Consulates*
- *Consultancies*
- *Industry / trade associations*

Sectors We Cover

- *Ayurvedic And Herbal Medicines, Herbal Cosmetics*
- *Alcoholic And Non Alcoholic Beverages, Drinks*
- *Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin*
- *Activated Carbon & Activated Charcoal*
- *Aluminium And Aluminium Extrusion Profiles & Sections,*
- *Bio-fertilizers And Biotechnology*
- *Breakfast Snacks And Cereal Food*
- *Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling*

Sectors We Cover Cont...

- *Bamboo And Cane Based Projects*
- *Building Materials And Construction Projects*
- *Biodegradable & Bioplastic Based Projects*
- *Chemicals (Organic And Inorganic)*
- *Confectionery, Bakery/Baking And Other Food*
- *Cereal Processing*
- *Coconut And Coconut Based Products*
- *Cold Storage For Fruits & Vegetables*
- *Coal & Coal Byproduct*

Sectors We Cover Cont...

- *Copper & Copper Based Projects*
- *Dairy/Milk Processing*
- *Disinfectants, Pesticides, Insecticides, Mosquito Repellents,*
- *Electrical, Electronic And Computer based Projects*
- *Essential Oils, Oils & Fats And Allied*
- *Engineering Goods*
- *Fibre Glass & Float Glass*
- *Fast Moving Consumer Goods*
- *Food, Bakery, Agro Processing*

Sectors We Cover Cont...

- *Fruits & Vegetables Processing*
- *Ferro Alloys Based Projects*
- *Fertilizers & Biofertilizers*
- *Ginger & Ginger Based Projects*
- *Herbs And Medicinal Cultivation And Jatropha (Biofuel)*
- *Hotel & Hospitality Projects*
- *Hospital Based Projects*
- *Herbal Based Projects*
- *Inks, Stationery And Export Industries*

Sectors We Cover Cont...

- *Infrastructure Projects*
- *Jute & Jute Based Products*
- *Leather And Leather Based Projects*
- *Leisure & Entertainment Based Projects*
- *Livestock Farming Of Birds & Animals*
- *Minerals And Minerals*
- *Maize Processing(Wet Milling) & Maize Based Projects*
- *Medical Plastics, Disposables Plastic Syringe, Blood Bags*
- *Organic Farming, Neem Products Etc.*

Sectors We Cover Cont...

- *Paints, Pigments, Varnish & Lacquer*
- *Paper And Paper Board, Paper Recycling Projects*
- *Printing Inks*
- *Packaging Based Projects*
- *Perfumes, Cosmetics And Flavours*
- *Power Generation Based Projects & Renewable Energy Based Projects*
- *Pharmaceuticals And Drugs*
- *Plantations, Farming And Cultivations*
- *Plastic Film, Plastic Waste And Plastic Compounds*
- *Plastic, PVC, PET, HDPE, LDPE Etc.*

Sectors We Cover Cont...

- *Potato And Potato Based Projects*
- *Printing And Packaging*
- *Real Estate, Leisure And Hospitality*
- *Rubber And Rubber Products*
- *Soaps And Detergents*
- *Stationary Products*
- *Spices And Snacks Food*
- *Steel & Steel Products*
- *Textile Auxiliary And Chemicals*

Sectors We Cover Cont...

- *Township & Residential Complex*
- *Textiles And Readymade Garments*
- *Waste Management & Recycling*
- *Wood & Wood Products*
- *Water Industry(Packaged Drinking Water & Mineral Water)*
- *Wire & Cable*

Contact us

Niir Project Consultancy Services

106-E, Kamla Nagar, New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886

Mobile: +91-9811043595

Fax: +91-11-23841561

Website : www.niir.org , www.entrepreneurindia.co

Take a look at NIIR PROJECT CONSULTANCY SERVICES on #StreetView

<https://goo.gl/VstWkd>

Follow Us



➤ <https://www.linkedin.com/company/niir-project-consultancy-services>



➤ <https://www.facebook.com/NIIR.ORG>



➤ <https://www.youtube.com/user/NIIRproject>



➤ <https://plus.google.com/+EntrepreneurIndiaNewDelhi>



➤ https://twitter.com/npcs_in



➤ <https://www.pinterest.com/npcsindia/>



THANK YOU!!!

For more information,
visit us at:

www.entrepreneurindia.co