Herbal Soaps & Detergents Handbook

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The use of herbs for medicinal and cosmetic purpose goes back to the ancient times. The emphasis at the present hour has been laid on the spectacular growth of the herbal and ayurvedic products. The demand in past is found to have increased with increase in number of middle class population. People are now a days very much aware of the ingredients in cosmetic products, the benefits of plant products and the harmful effects of chemical ingredients. The presence of artificial and chemical ingredients in cosmetic products has made people to rethink about suitable alternatives to suit their personnel care regime. The herbal products have finally made their appearance in packaged form in the domestic markets, as cosmetics and personal care preparation such as soaps, shampoos, detergent bars, liquid soaps, liquid detergents, etc. These products play a vital role in our sense of well being and quality of life. The herbal soaps and detergents directly influence our emotions and can trigger moods. These creations not only protect the skin from harmful sun radiations but also leave behind a pleasant fragrance. Due to the increasing awareness and importance of cleanliness and healthiness, the use of herbal products is also increasing. Future demand for herbal products depends upon the per capita rate of consumption and segment of population using these products. This handbook provides detailed information on the manufacturing process of herbal soaps and detergents. This book contains numerous formulae, manufacturing process of different type of soaps and detergents which are used in day to day life. The book is an unique compilation and will be very helpful to all its readers, new entrepreneurs, professionals, beauty care product manufacturers, existing units, technical institutions, etc.

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For a batch of 100 kg. soap colour required is

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The oil soluble colours recommended are

Soap Bases and Liquid Soaps

Popular shades and the colours used to obtain them are

Washing/Laundry Soaps

Medicated Soaps

Perfumes

(Comprehensive Details)

Essential Oils

Isolates

Synthetic Chemicals

Fixatives (Listed in Table 4)

Important Essentials, Isolates, Synthetic Odourous

Chemicals and Fixatives

Isolates

Synthetic Odourous Chemicals

Fixatives

Raw Materials: Herbal Products

Acacia arabica A. indica Benth

Parts Used: Bark, gum, leaves, seeds, pods.

Acalypha Indica

(N.O. - Euphorbiaceae)

ANDROPOGON MURICATUS. Retz. or A. Squarrosus

Angelica (Angelica archangelica)

Anise (Pimpinella anisum)

Associated Oil

AZADIRACHTA INDICA

Basil (Ocimum basilicum)

BALSAMODENDRON MUKUL, HOOK. or B. agollocha

Parts Used - Gum

BALSAMODENDRON MYRRHA

(N.O. Burseraceae)

Parts Used: Gum from the bark of the tree

Bay (Laurus nobilis)

Associated Oils

Benzoin (Styrax benzoin)

Associated Oils

Bergamot (Citrus bergamia)

Birch (Betula lenta)

Associated Oils

Calendula (Calendula Officinalis)

Associated Oil

Caraway (Carum carvi)

Cardamom (Elettaria cardamomum)

CITRUS MEDICA, Linm

(N.O.—Rutaceae)

Carrot Seed (Daucus carota)

Caulophyllum Inophyllum

Cedarwood (Cedrus species)

Cinnamon (Cinnamomum zeylanicum)

Associated Oils

Clary Sage (Salvia sclarea)

Associated Oils

Celery (Apium graveolens)

Chamomile, German

(Matricaria recutita, formerly M. chamomilla)

Associated Oils

Coriander (Coriandrum sativum)

Curculigo orchioides Gaertn

(N.O.—Amaryllidaceae)

Ayurvedic Properties

CURCUMA LONGA, Linn

(N.O.—Scitaminaceae)

Associated Oil

Cypress (Cupressus sempervirens)

Eucalyptus (Eucalyptus globulus)

Associated Oils

Fennel (Foeniculum vulgare)

Associated Oil

Fir (Abies alba and other species)

Associated Oils

Associated Oils

FICUS RELIGIOSA LINN

(N.O. Moraceae)

Parts Used: Bark, Fruit, Root

Ayurvedic Properties

Galbanum (Ferula galbaniflua)

Associated Oils

Geranium (Pelargonium graveolens)

Associated Oil

Ginger (Zingiber officinale)

Associated Oil

Helichrysum (Helichrysum angustifolium)

Hyssop (Hyssopus officinalis)

Associated Oil

Inula, Sweet (Inula graveolens, or I. odorata)

Associated Oil

HEMIDESMUS INDICUS, R. BR.,

Asclepias pseudosarsa, var. latifolia

(N.O. Asclepiadaceae)

Jasmine

(Jasminum officinale and J. grandiflorum)

Associated Oil

Juniper (Juniperus communis)

Associated Oils

Labdanum (Cistus labdaniferus)

Associated Oils

Lavender (Lavandula angustifolia, previously L.

vera and L. Officinale)

Associated Oils

Lemon (Citrus limon)

Associated Oil

Associated Oils

Lemongrass Cochin (C. flexuosus)

Grown in India primarily for isolation of citral

Lovage (Levisticum officinale)

Marjoram

(Origanum marjorana or Marjorana hortensis)

Associated Oils

Melissa (Melissa Officinalis)

Associated Oil

Mimosa (Acacia decurrens var. dealbata)

Associated Oil

Myrrh (Commiphora myrrha)

Associated Oils

Myrtle (Myrtus communis)

Oakmoss (Evernia prunastri)

Associated Oil

Orange (Citrus sinensis)

Associated Oils

Orange Blossom (Neroli)

(Citrus aurantium var. amara)

Associated Oils

Patchouli (Pogostemon cablin)

Pepper, Black (Piper nigrum)

Associated Oils

Cubeb (Piper cubeba)—A litsea substitute

Peppermint (Mentha piperita)

Associated Oils

PSORALEA CORYLIFOLIA LINN.

(N.O. Papilionaceae, Fabaceae)

Parts Used: Roots, leaves, fruits, seeds

Ayurvedic Properties

Ravensare (Ravensara aromatica)

Rose (Rosa damascena, R. gallica, and others)

Associated Oils

Rosemary (Rosmarinus officinalis)

Associated Oils

Rosewood (Aniba rosaeodora)

Sage (Salvia officinalis)

Sandalwood (Santalum album)

Associated Oil

Spikenard (Nardostachys jatamansi)

Associated Oils

SMILAX CHINA

(N.O. - Liiiaceae)

TERMINALIA CHEBULA RETZ.

(N.O. Combretaceae)

Parts Used: Fruit

Ayurvedic Properties

TERMINALIA BELERICA ROXB

(N.O. Combretaceae)

Parts Used: Fruit (unripe and ripe)

Ayurvedic Properties

Healing Power and Curative Properties

Cough

Stomach Disorders

Sore Throat

Chronic Constipation

Intestinal Worms

Eve Disorders

Other Diseases

Tea Tree (Melaleuca alternifolia)

Associated Oils

Thyme (Thymus vulgaris)

Associated Oils

Thymus vulgaris has many chemotypes

Tuberose (Polianthes tuberosa)

Vanilla (Vanilla planifolia)

Vetiver (Vetiveria zizanoides)

Violet (Viola odorata)

Associated Oil

Yarrow (Achillea millefolium)

Ylang-Ylang (Canaga odorata)

Associated Oils

Preparation and Properties of Surface Active Agents from Castor Oil

Manufacture of Turkey Red Oil

Preparation of Esters by Alcoholysis

Sulphation of Esters

Hexane Extraction of the Sulphated Product

Typical Experimental Details

Major raw materials

Method

Products

Cottonseed Oil for Soapstock

Genesis of Investigation

Novel Features and Method of Utilisation of the Process

Refining of three oils of different types

Refining of a highly colour-fixed sample of

solvent extracted cottonseed oil

Likely scope of its application

The stage to which the laboratory

investigations have been conducted

The scale and duration of pilot-plant working

Availability of Raw Materials

Estimates of the cost of utilisation of the method

Capital outlay required

Flow Sheet

Points requiring specific emphasis

Development and Application of New Herbal Functional Surfactants

Introduction

New Trend of Surfactants

Narrow distribution ethoxylate ('Peaked' ethoxylates)

and its derivatives

Biodegradable surfactants

Surfactants arising from natural materials

Reactive Surfactants

Effect of TREM LF-40 concentration (2.03 mM initiator)

on the particle size of poly (vinyl acetate) latex particles

Herbal based Soaps & Shampoos

Formulations for Herbal Washing Soaps

Hard Fats are

Soft Fats are

Some Suggested Formulations for Washing Soaps

Good Quality

Cheaper Quality

A Typical Batch for Herbal Based Toilet Soap

Oriental type

Perfume mixture as formulated below

Perfumes as formulated below

Perfume Mixtur

Formulation of fancy Soap Type

Perfume Mixture

Himalayan Boquet Type

Perfume Mixture

Rose Soap Type

Perfume Mixture

Transparent Soap – No. 1.

(glycerine soap of market)

A suggested formulation

Transparent Soap-No.2

(by special milling method)

Mottled Soap

Carboli Acid Soap

Suggested Formulation

Procedure

Medicated Soaps

Castile Soap

CASTILE SOAP BY BOILING PROCESS

Process Description

Some Suggested Formulations for Castile Soap

Translucent Coconut Oil Soap

Some Suggested Formulations for Disinfectant

Liquid Antiseptic Soap

Deodorant Soaps

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Combination in Soap No. 2

VARIOUS INDUSTRIAL SOAPS

Textile Soaps

Some of the uses are

Textile Bleaching-Washing Soap Powder

Laundry Soap Formulations

More Formulations

Laundry Washing Aids

More Laundry Wash Mixtures

(Soap and Sodium Metasilicate Solution)

A Fabric Cleaning Compound

Cotton Scouring Soap

Dry Cleaner's Soap

A sugested Formulation of Dry Cleaner's Soap

WATER SOFTNER

(Chemicals which may be used for prevention of soap curds)

JELLY SOAP/ SOFT SOAP

AUTOMOBILE SOAP

WIRE DRAWING SOAP

SCOURING SOAP

PREPARATION OF WASHING SOAP POWDER

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SHAVING SOAPS

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A Typical Charge

Shaving Cream

A Typical Charge

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LIQUID SHAVING CREAM

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Thicker Cream

Aerosol Package

Liquid Soaps/Shampoos

Process of Manufacture

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Some suggested Formulations

For Office use

For Workshop use

Soap Bubble Liquid

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

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Liquid Cream Shampoos and Paste Cream

A General Formulation

Foamless oil Shampoos

A Formulation

Baby Shampoos

Medicated Dandruff Sampoos

Other miscellaneous shampoos

Aerosol Shampoos (Pressure Dispersed)

HERBAL TOILET SOAPS

To Prevent Pimples

To Fight Dandruff

To Kill Germs

To Present Prickly Heat

HERBAL SHAMPOOS

Lime Shampoo

Lavender Shampoo

Methi-Shikakai Shampoo

Sandalwood Shampoo

Neem Shampoo

Hair Rinses

Apple Hair Rinse

Barley Hair Rinse

Chamomile Hair Rinse

Rosemary-Chamomile Hair Rinse

Rosemary Hair Rinse

Hair Setting Preparations for all Hair Types

Bay-Rum Hair Setting Preparation

Clove Hair Setting Preparation

Gum Tragacanth Hair Setting Preparation

Lime Hair Setting Preparation

HAIR CONDITIONERS FOR ALL HAIR TYPES

Avocado Hair Conditioner

Sunflower Hair Conditioner

Wheat Hair Conditioner

Shampooing

ANTI-DANDRUFF PREPARATIONS FOR ALL HAIR TYPES

Anti Dandruff Lemon Preparation

Anti-Dandruff Egg Preparation

Anti-Dandruff Vinegar Preparation

Anti-Dandruff Sesame Preparation

Anti-Dandruff Sesame Preparation

Anti-Dandruff Rosemary Preparation

Technology of Manufacturing Herbal Synthetic Detergents

Performance Criteria

Washing habits

Quality of water

Soiling

White vs. coloured clothes

Manufacturing facilities

Safety and pleasant 'in-use' qualities

Colour, odour and flow characteristics

Shelf life

Pricing

Formulation Requirements

Alkalinity

Good building and active matter

Approach to Product Formulation

Non Soapy Detergent Powder Formulations

Production Procedure

FORMULATIONS OF SYNTHETIC DETERGENT POWDERS

A TYPICAL BATCH OF FINISHED PRODUCT

(A good quality household detergent granules)

For 1000 kg. yield

Surfactants

Builders

Additives

A TYPICAL BATCH USING ACID SLURRY OF

UNSEPARATED SPENT ACID

For 1000 kg. of finished detergent

Surfactant

Builders

Additives

Detergent Powder Prepared Without

Using Spray Dryer (High Bulk Density)

A TYPICAL FORMULATION OF HOUSEHOLD

DETERGENT POWDER

For 1000 kg. finished product

Procedure

Foam Regulation

Typical Suds Regulated Surfactant Compounds

General Formulations for Industrial Detergent Powder

Woollen Piece Goods Scouring Preparation

Formulation with anionic and soap as active surfactants

Light Duty

Machine Dish Washing Powder

Scouring Powders Including Kitchen Cleaners

Abrasives

Surfactants

Other Chemicals

Soap Powder

Manufacturing Process

Floor Washing Compound

Heavy-duty Household Washing Powder

White Household Heavy-duty washing Powder

Spray-dried Heavy-duty Household Hand-washing Powder

Household Spray-dried Powder

General-purpose Spray-dried Powder

General Purpose Powder

High-foam Food/Dairy Detergent Cleaner

Heavy-duty Detergent Powder

Light-duty Detergent Powder

General Formula for Detergent Powders

Spray-dried Enzyme Detergent

Medium-foam Detergent Powder

Glass Rinsing Sanitizer

Industrial Sanitary Cleaner

General Cleaning Compound

Dishwashing Compound

Heavy-duty Detergent

Household Laundry Bleach

Low Sudsing Detergent Powder

Hand Laundering Powder

Plastic-ware Destaining Compounds

Magic Dip Bleach

Purex Bleach

All-purpose Metal Cleaning Compound

Standards

Scheme for the Manufacture of Detergent

powder on small scale

Land and Building

Projecting Cost

Plant and Machinery

Labour & Staff

Monthly Requirements of Raw Materials,

Utilities and Factory Overheads

Working Capital (3 months basis)

Total Capital Investment

Own Capital Requirements

Factory cost of Production (Monthly Basis)

Profitability

Detergent Bars

Introduction

Requirements of a Detergent Bar

NSD Bar Vs. Soap

Components of Detergent Bars

Active detergent

Sodium tripolyphosphate

Talc

Starch

China clay

Calcite

Soda ash

Sodium sulphate

Sodium silicate

Coconut mono ethanolamide

Soapstock

Dicalcium phosphate

Rosin

Titanium dioxide

Colour

Fluorescer

Perfume

Water

Processing of NSD Bars

Handling of Raw Materials

Processing

Process Control

Some Typical Formulations of Detergent Bar

Formulations for detergent bar manufacture

Plant & Machinery for Small Scale Detergent

Cake Manufacture

Kneader

Milling Machine

Plodder

Bar Cutter or Billet Cutter

Embossing or Stamping Machine

Pulverizer

Formulations of Detergent Cakes

Soap-Surfactant Combination

Detergent Bar

Low-soap Syndet Bar

Soap-Synthetic All-purpose Bar

All Syndet Bar

Alkyl-Sulfate Syndet Bar

Proctor & Gamble's Soap Syndet Formulation

Proctor and Gabmle's Syndet Laundry Bar

SCHEME FOR THE MANUFACTURE OF

DETERGENT CAKES ON SMALL SCALE

Capacity: 1 tonne per day per shift basis

Land and Building

Projecting Cost

Plant and Machinery

Monthly requirements of Raw Materials, Utilities and Factory

Overheads

Labour and Staff

Working Capital requirements (3 months basis)

Total Capital Investment

Own Capital Requirements

Cost of Production (Monthly Basis)

Profitability

Herbal Liquid and Paste Detergents

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Surfactants most commonly used

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Builders

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TYPICAL FORMULATIONS

Opaque viscous solution

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TYPICAL FORMULATIONS

Procedure

Shampoos

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Heavy-duty Liquid Detergents

Heavy-duty Liquid Detergent with 'Controlled

Opaque Lotion-type Light-duty Liquid Detergent

Light-duty Household Liquid Detergent

40% Detergent Paste

20 % Detergent Paste

Metal Degreasing Liquid Detergent

General-purpose Solvent-based Detergent

Textile Scouring Paste

Textile Degumming Detergent Paste

Low Foaming Liquid Detergents

Other Formulations of Synthetic Liquid Detergents

Light-duty Liquid Detergent

Light-duty Liquid Detergent for Dishwashing

Household Liquid Detergent Cleaner

Light-duty Clear Detergent Liquids

Light-duty Liquid Detergent Lotion

Heavy-duty Liquid Detergent

Scheme for the Manufacture of Liquid

Detergents on Small Scale

Land and Building

Projecting Cost

Plant and Machinery

Labour and Staff

Monthly Requirements of Raw Materials,

Utilities & Factory Overheads

Working Capital Requirements (3 months basis)

Total Capital Investment

Own Capital Requirements

Cost of Production (Monthly basis)

Profitability

Determination of Physical, Surface Active and Performance Characteristics of Surfactants

Physical Characteristics

Density of Powdered Detergents

Apparent Bulk Density

Apparent density, g/ml = 40/V

Cup Density

Particle Size of Powdered Detergents

Hand Sieving

Machine Sieving

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Free Alkalinity

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Pour Foam Test

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Cationics

Non-ionics

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ANIONIC SURFACTANTS

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Determination of Alkylaryl Sulfonates in the

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Procedure

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DETERMINATION OF SURFACTANTS

Total Organic Active Ingredients

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Anionic Detergents

Procedure

Procedure

Cationic Detergents

Procedure

Nonionic Detergents

Procedure

DETERMINATION OF COMPONENTS

OTHER THAN SURFACTANTS

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Procedure

Ammonia

Procedure

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Procedure

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Fatty Acids

Procedure

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Neutral Oil (Free Oil) and Free Fatty Alcohol

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Procedure

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Steam-Distillable Matter

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Sulfates

Procedure

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Procedure

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IDENTIFICATION

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DETERMINATION OF SOAP COMPOSITION

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DETERMINATION OF INORGANIC FILLERS AND

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Procedures

DETERMINATION OF OTHER ADDITIVES

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Munson and Walker Sugar Equivalents

Procedure

DETERMINATION OF IMPURITIES

Procedure

OTHER QUALITY CONTROL TESTS

ANALYSIS OF SOAPS CONTAINING SYNTHETIC DETERGENTS

ANALYSIS OF METALLIC SOAPS

Procedure

Beauty with Fruits and Vegetables Apple Apricot (Khubani) Banana

Barley

Carrot

Castor Oil

Clove

Cucumber

Dhania

Egg

Honey

Lavender

Lemon

Orange

Palak

Peach

Potato

Pudina

Rose

Sage

Salt

Saunf

Tea

Thyme

Tomato

Yoghurt

Sulfonated Oils

Historical Background

Chemistry of Sulfation and Sulfonation

Applications of Sulfonated Oils

MANUFACTURE OF SULFONATED OILS

Sulfation

Sulfonation

SULFATION OF INDIVIDUAL OILS

Characteristics and Analysis of Sulfonated/Sulfated Oils

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

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