The Complete Technology Book on Detergents (2nd Revised Edition)

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The Indian detergent industry is about three decades old. An interesting and unique feature of detergent industry in India is the existence of non power operated units which do not use any electrical power for the production of detergent powder. But the production technology of detergents have been changed involving high technique in process control, more skilled personnel and requiring large input. There are various forms of detergents; liquid detergents, paste detergents, solid detergents etc. Whether in liquid or in powdered forms, present detergent products are complex mixtures of several ingredients including performance additives such as bleaches, bleach activators etc. The scope and spectrum of methods and techniques applied in detergent analysis have changed significantly during the last decade..
The book outlines features and experimental parameters for many essential procedures, and emphasizes the latest techniques and methods. This book emphasizes practical aspects of detergent production with latest development and other special products based on synthetic surfactants. This book basically deals with the builders, additives and components of detergents, recent developments in surfactant, manufacture of active Ingredients for detergents, manufacture of finished detergents, application and formulation of detergents, packaging of detergents, analysis of detergents, machinery photographs with their suppliers, directory of raw material suppliers etc.. This is an attempt to fill the need of those desirous of starting detergent industry in small scale sector and necessarily contains analytical methods for testing and evaluation of raw as well as final products.

Alkylolamides
Cationic Surfactants

2. Builders, Additives and components of detergents
Phosphates
Silicates
Soluble glass
Water glass
Soluble powders
Contribution by the alkaline radical (Na2O or K2O)
Contribution by the SiO2 radical
Zeolites
Carbonates
Sodium Carbonate or Soda Ash-Na2CO3
Sodium Bicarbonate-NaHCO3
Sodium Sesquicarbonate, or Modified Soda
Potassium Carbonate
Oxygen-releasing Compounds
Sundry Inorganic Builders
Borax
Sodium Chloride
Magnesium Sulphate
Insoluble Inorganic Fillers
Caustic Alkalis
Ammonia
Colloidal Silica
Sodium Hypochlorite

3. Recent Developments in Surfactant Synthesis
Sulphation of glycerine
Nonionic surfactants
Amphoteric surfactants
Anionic surfactants
Nonionic surfactants
Cationic surfactants
Amphoteric surfactants
Miscellaneous surfactants
Surfactant synthesis
Toxicological studies
Effluent decolorisation
Synthesis of Surfactants and their Toxicity-IV
Diastereoisomers
Fructose C6H12O6
Saccharose or sucrose or table sugar C12H22O11
D-Mannose
D-Galactose
b-Glucosamine
Anionic surfactants
Cationic surfactants

Nonionic surfactants
Sugar-based surfactants
Toxicity of surfactants

4. Manufacture of Active Ingredients for Detergents
Sulphonation Process
Manufacture of Alkyl benzene sulphonic acid (Acid Slurry)
Alkyl benzene
Process to obtain straight chain normal paraffins of desired chain length
Major technologies using molecular sieves for separation of n-parraffins
Process for alkylation of benzene by narrow cut (C10-C14) n-paraffin
Review of technologies for production of LAB from n-paraffins
UOP technology to manufacture lab from kerosene
Prefractionation unit
Feed preparation (hydrotreater) unit-hydrobon
n-Paraffin Extraction Unit (MOLEX)
Catalytic partial dehydrogenation unit-PACOL
HF alkylation unit
Advance in technology in production of LAB
Improvements in dehydrogenation catalysts and process
Introduction of additional step to achieve reduction of by-product diolefins-Define process
Introduction of a solid catalyst in place of liquid HF catalyst-UPO-Detal Process
Other raw materials for sulphonation
Sulphuric acid and oleum (fuming sulphuric acid)
Liquid SO3
Sulphur
Sulphonation with sulphuric acid and oleum
Batch sulphonation
Manufacturing process
Sulphonation with 98% sulphuric acid
Sulphonation with oleum
Continuous sulphonation with oleum
Chemithon Process
Bellestra sulfan process
Proctor & Gamble Process
Rifenberick process
Sulphonation with SO3
Production of sulphur trioxide
Sulphur burning SO3 plant
Oleum stripping
Stabilised liquid sulphur trioxide

vapourisation
Batch sulphonation
Continuous sulphonation with sulphur trioxide
Cascade sulphonation
SO3 withdrawal
Sulphonation plant
Exhaust gas scrubbing
Ballestra Sulphurex Process
Air drying
SO2/SO3 production
Film sulphonation & sulphation (Sulphurex F)
Double-step Neutralisation
Alpha olefins hydrolysis
Gas scrubbing
SO3 absorption in H2SO4 column
Heat recovery
Mazzoni SOCS Process
Chemithon SO3 Sulphonation
SO3 generation
Sulphonation
Annular falling film reactor
Neutraliser system
Exhaust gas cleaning up system
Allied chemical thin film sulphonation
Stepan chemical process
Manufacture of fatty alcohol sulphonates
Sulphonation with chloro sulphonic acid
Manufacture of alpha olefin sulphonate
Wax cracking
Ethylene polymerisation
The natural route
Comparison of AOS and methyl ester sulphonate
Comparison of AOS and LABs in various products
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Fine cloths washing liquids
Laundry soaps
Toilet soaps
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Alfodet
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Fatty acid
Fatty alcohol
Natural process
Synthetic process

Sodium reduction process
High pressure hydrogenation
OXO Process
ALFOL Process
Alkyl phenols
Manufacture of lauric d-ethanol amide
(Ninol AA 62)
Method of manufacture
Manufacture of super amide (2:1 type)
Manufacture of methyl ester
Manufacture of super-amide
Manufacture of sulphate alkanolamides
IGEPON B
Manufacture of Igepon B conc. paste
Recent Developments in Sulphonation
Technology
Direct Production of Extremely Viscous
Sulphonic Acids Without the Use of Solvents
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for Consumer Products
Minimization of 1, 4-Dioxane
Sodium Alpha Sulpho Methyl Ester
(SASMA) Production
Dry Active Detergent Manufacturing

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Combined Absorption and Neutralization
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Spray-drying of Powders
Colour
Particle Size and Spread
Bulk Density
Residual Moisture
Stickiness
Product Uniformity
Separation of Powder
Wet Scrubbing
Use of Fines
Combination of Spray-dried and Dry-mixed
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Patterson-Kelley Systems
Anhydro System
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Household Scrub Bars

Fabric Softeners
Abrasive Cleaners

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Hard-Surface Cleaners
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Process of Manufacture
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Thick Liquids and Creams
Machine Dishwashing Products

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Combined glycerol in oils
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Directory Section

List of Raw Material Suppliers
Plant and Machinery Suppliers
Photographs of Machinery and Equipment

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