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- 1. Introduction of oils and fats, their sources, structure and composition of oils and fats, glycerides and fatty acids, their nomenclature, classification.
- 2. Natural sources of oils and fats, Position in India in relation to the world production of oils and fats.

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- 3. Introduction of soaps, synthetic detergents, raw materials for soaps and their selection, selection of other auxiliary raw materials.
- 4. General principles of soap making, chemistry of soap boiling and saponification reaction, manufacture of soap (cold, hot and semi boiled process), bleaching of soap, manufacture of toilet soap.

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- 5. Various types of detergents, classification of detergents (anionic, cationic, nonionic, amphoterics), biodegradability.
- 6. Inorganic compounds of detergents (builder & other additives, phosphates, silicates, zeolites, etc)

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- i. Organic raw materials for manufacturing of fatty acids, olefins, alkylbenzene, methyl esters, fatty amines, ethylene oxide, propylene oxide sources and manufacture.
- ii. Inorganic raw material for sulphonation viz; sulphuric acid, sulphonic acid, oleum, sulphur trioxide, chlorosulphonic acid.
- iii. Sulphonation of organic raw materials like fatty acids, fatty acids ethoxylates plants and processes.
- iv. Sulphonation of alkylbenzene, olefins & vegetable oils, plants and processes.

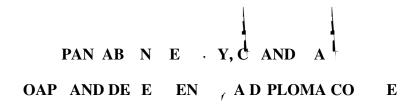
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,No,	A dor	ı e	Ed: on	P - er
1.	K.S. Parasuram	Soaps & detergents		
2.	NIIR Board	Handbook on Soaps, Detergents & Acid Slurry		Asia Pacific Business Press

3. J.G. Kane Soaps: Their Chemistry & First Technology

# ADD ON CE . CA E CO E N OAP AND DE E EN L . O EXPE MEN

- 1) Determination of physico-chemical characteristics of oil and fats
  - a. Moisture content
  - b. Acid value
  - c. Iodine value
  - d. Saponification reaction and Saponification value
- 2) Manufacture of liquid soap (shampoo) and laundry soap.
- 3) Project Work: Industrial training for one month duration.



Outline of Tests, syllabi and courses of reading for an add-on Diploma course in Soaps and Detergents during B.A./B.Sc./B.Com.

# O ne of e

P. per Code	Paper	Prper Nr e	Lec re and Practe ee	n er i y Eg. ar
	Theory	Soaps & Detergents-2	4	150
	Practical	-do-	4	50

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Introduction of soaps and detergents, classification and chemistry of soaps, classification and chemistry of non soapy detergents, manufacture of soaps (cold, semi boiled, hot process).

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F tty r w teri ls for so ps

Oils for soap making, pretreatment and upgradation of oils & fats, technology of fat splitting and distillation, handling and storage of oils and fats.

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Technology of so p nuf cturing

Soap manufacture, glycerine recovery, manufacture of laundry and toilet soaps.

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Technology of nuf cturing of synthetic detergents

Manufacture of detergents powders (dry mixing, spray drying, agglomeration, combination of

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2.	NIIR Board	Handbook on Soaps, Detergents & Acid Slurry		Asia Pacific Business Press
3.	J.G. Kane	Soaps: Their Chemistry & Technology	First	Dr. R. Sarkarar
4.	Anthony M. Schwartz James W. Perry &Julian Berch	Surface Active Agents & Detergents	Vol II	Interscience Publishers
5.	Benjamin Levitt	Oils, Detergents & Maintenance		Chemical publishing company
6.	NIIR Board	The Complete Technology Book on Soaps		Asia Pacific Business Press
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### ADD ON D PLOMA CO E N OAP AND DE E EN

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- 1) Determination of total fatty matter, free caustic alkali, chloride & moisture and volatile matter in the soaps.
- 2) Manufacture of detergents.
- 3) Identification test and detection of adulteration of oils and fats.
- 4) An industrial tour will be arranged in autumn break. Short tours may be arranged at other times.

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1. General principles of soap making, chemistry of soap boiling, saponification reaction, raw materials and their selection, soap making by continuous process.

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- 2 Glycerine recovery: Introduction, glycerine recovery process, refining of crude glycerine.
- 3. Manufacture of shaving soaps, liquid soaps, medicated soaps, laundry soaps.

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4. Detergents classification, raw materials for synthetic detergents, manufacture of detergent powders, liquid detergents, detergent bars, fabric softeners, additives to detergents,

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7.	NIIR Board	The Complete Technology Book on Detergents		Asia Pacific Business Press
8.	George T. Austin	Shreve's Chemical Process Industries	Fifth	McGraw-Hill

# ADD ON AD ANCED D PLOMA CO E N OAP AND DE E EN

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1. Determination of active matter, moisture of detergent powders and cakes, pH of the solution.

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