

INDUSTRIAL CHEMISTRY

UNIT – I

Basic Ideas about unit operation – Flow charts- Chemical conversion – Batch versus continuous processing – Chemical process selection – Design – Chemical process control – Chemical process economics – Market evaluation – Plant location – Management for productivity and creativity – Research & Development and its role in chemical industries.

UNIT – II

Water conditioning for chemical factories – reuse – Methods of conditioning – Demineralisation – Precipitation – Desalting – Industrial and sewage waste water treatment.

Vegetable oils – Refining of edible oils – Solvent extraction – Processing of animal fat- Hydrogenation – Interesterification – Manufacture of soap from oils.

Detergents – raw materials – manufacture – Biodegradability of surfactants – methods.

UNIT – III

Pulp and paper industries – Sulphite, Sulphate, Soda, Ground wood pulp for paper – Manufacture of paper – Speciality paper – paper stock – Structural Boards.

Plastics – manufacture – Resin – manufacturing processes – Condensation polymerization – Manufacture of laminates and other derivatives – Hexamethylene tetramine plastics – Vinyl esters.

Wood conversions – Naval wood – Hydrolytic wood – Phenolic treatment wood – Chip wood and their manufacture & advantages – Fire retarding wood.

UNIT – IV

Rubber industries – Natural rubber – Synthetic rubber – Monomer production – Synthetic rubber polymerization- Butadiene – Styrene Copolymers – Butadiene acrylonitrile copolymer – Neoprene – Thiokol- Silicon rubber – Butyl rubber – Urethane rubber – Rubber processing chemicals – Rubber compounding – Rubber fabrication – Latex compound – reclaimed rubber – Rubber derivatives. Rubber Sheets and films – manufacture – Food processing – Milk-meat – poultry- Vegetables.

Leather processing – manufacture – Gelatin – adhesives.

UNIT – V

Sugar – manufacture – Starch and related products – miscellaneous starch.

Manufacture of industrial alcohol – Butanol – Acetone – Vinegar- Acetic acid – Citric acid – Lactic acid all by fermentation. Industrial and military explosives – Manufacture – pyrotechniques – Manufacture of safety matches.

Colour photography – Theory – materials and process – special applications of photography.

REFERENCES :

1. Chemical processes Industries – Norris Shreve.R and Joseph A.Brink Jr.Mc Graw Hill International Book company – London
2. Production and Properties of Industrial Chemicals – Brain A.C.S. Reinhold – New York.
3. Fermentation Industries – Burgh, A Interscience, New York.
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5. Rubber Hand book – Rubber manufacturer's association – New York.
6. Petroleum products Handbook Guthrie. V.Mc Graw Hill, Tokyo.