

AMLT10 PRINCIPLES OF POST-TANNING OPERATIONS

UNIT-1 NEUTRALISATION

1.1 Its objectives, necessities and controls to achieve desired up-take of dyes and fatliquors.

UNIT-2 BLEACHING

2.1 Definition; theory; mechanism of chemical bleaching;

2.2 Classification and application of different methods of bleaching to leathers.

2.3 Theory of optical bleaching and possibilities of its application to leather bleaching.

UNIT-3 DYEING

3.1 Theory and mechanism of dyeing; concept of colour; manual colour matching.

3.2 Colour and Chemical Constitution of Dyes- Classification of Dyes- Different Dyes

3.3 Azo- Azoic- Sulfur Dyes- Anthraquinone Dyes- Acridine- Azine- Methine

3.4 Nitro- Nitroso- Oxazine- Quinoline Dyes- Phthalocyanine Dyes & Pigments

3.5 Organic Pigments- Basic Dyes- Cationic Dyes- Photochemistry of Dyes.

UNIT-4 RETANNING

4.1 Objectives of retanning- Effect of different retanning agents on properties of leather

4.2 Principles of bondage of retanning materials as special reinforcing agent.

UNIT-5 RETANNING SYNTANS

5.1 Chemistry and classification- tanning power- role of hydroxyl group of and molecular size of syntans- electron affinity and chemical structure- mechanism of synthetic tanning-

5.2 General method of manufacture of aromatic syntans-their general properties

5.3 Different types of syntan- chromium and aluminium containing syntans- syntan for retanning purpose-

5.4 Bleaching action and neutralisation.

UNIT-6 FATLIQUORING

6.1 Physical chemistry Of Colloids- Interfaces & Interfacial tension- Surface / Interfacial tension of solutions

6.2 Particle size Distribution- Viscosity- Concentration- Dielectric Constant-

6.3 Theories of Stability of Emulsion (Surface theories and Electrical theories)

6.4 Inversion & Deemulsification- Chemistry of emulsifying agents- Emulsifier efficiency

6.5 HLB Method- Emulsification Techniques

6.6 Principles and objectives of fat liquoring; difference between natural and synthetic fats & oils;

6.7 Controls to achieve desired properties of leather.

6.8 Concept of currying.

UNIT-7 SYNTHETIC FATLIQUOR

7.1 Fischer- Tropch synthesis- Mechanism of optical Dissociation

- 7.2 Mechanism of Photochemical Chlorination of Methane- Control of extent of Chlorination
- 7.3 Collision Theory- Transitional State Theory- Comparison between Photochemical Chlorination, Fluorination, Bromination & Iodination of Methane
- 7.4 Photochemical Chlorination of Higher Alkanes-
- 7.5 Prediction of yield of Positional Isomers- Mechanism of Sensitization-
- 7.6 Mechanism of Photochemical Sulfochlorination of Mepasin- Raw Material Control- process
- 7.7 Control- Mechanisms of Substitution Reaction-
- 7.8 Manufacture of Anionic, Non-ionic, Cationic & Amphoteric Synthetic Fatliquor from Marsol, Advantages & Disadvantages of Synthetic Fatliquors.

UNIT-8 WATER PROOFING

- 8.1 Definition, theory and need of water barrier characteristics in leather.
- 8.2 Difference among water repellent, water resistant and water proof leather.
- 8.3 Principles involved in different methods of water proofing followed in leather industry.

UNIT-9 THEORY OF LEATHER DRYING

- 9.1 Principles of energy and mass transfers;
- 9.2 Physico- chemical aspects of leather drying;
- 9.3 Different methods of drying followed in leather industry.

Reference Books:

1. Introduction to the Principles of Leather Manufacture- S. S. Dutta, 4th Edn. I.L.T.A., Calcutta.
2. Chemistry & Technology of Leather-Roddy, O` Flaherty & Lollar, Vol.
3. Robert E. Kreiger Publishing Co., N. Y.
4. Chemistry of Tanning Processes- K. H. Gustavson, Academic Press N. Y.