Solution of mid sem. Exam. (Leather Tech) - 2018

Subject - TPPP Answers Code - LT 071301 Page-1

Q(1) (a) 12

(b) weak acid. like CH_3COOH, $HCOOH$, $(NH_4)_2SO_4$

(c) H_2SO_4 and NaCl

(d) Calcium Hydroxide

(e) False

Ans. 2 Different techniques of preservation of hide & skin -

1. wet salting method
2. Dry salting method
3. change of PH

1. Wet salting method :-

(a) Salt mixture contain → 100 part salts + 2 part naphthalene + 2 part sodium carbonate.

(b) 100 part salt + 1 part naphthalene + 1 part boric acid.

A quantity of this mixture equal to at least 40% of the mass of the hide and skin should be distributed evenly over the flesh side and rubbed well into the hide and skin. The second hide is now spread out upon the first one and treated with the salt as before.

(2) Dry salting -

In India dry. salting of hide and skin is carried out mostly with khari salt. Khari salt is made from sodium sulphate which is not hygroscopic and does not absorb atmospheric moisture even in the monsoon. Hides and skins cured by dry-salting with khari salt remain dry for several months.

Ans-3 Objective of soaking :-

the objective of soaking are to rehydrate the skin proteins to open up the contracted fibrous structure of the skin, to remove the curing salt in the case of salted skins, and to clean off surface dirt.

Green hides and skins are soft enough and therefore do not require any soaking but to remove the blood and dirt, which are always contaminated with green hides and skins, repeated washings in plain water are always necessary. If this blood is not removed, the iron present in

it will cause dark stain to the finished bathers which cannot be removed in the next operation.

Theory of wetting agent.

A liquid 'A' wets a solid surface 'B' only when the contact angle in the liquid formed by the liquid surface with the solid surface is less than 90°. Water wets glass as the contact angle of water / glass system is zero. The contact angle of mercury / glass system is greater than 90° and therefore glass is non-wettable with mercury.

Ans.4. Objective of Liming and Unhairing.

After soaking the hides and skins are taken for next operation known as liming. objective of liming are given below:-

(a) Remove the hair, nails, hooves and other keratinous matters.

(b) Remove some of the interfibrillary soluble proteins like mucins etc.

(c) swell up and to split up the fibres to the desired extent.

(d) Remove the natural grease and fats.

(e) and to bring the collagen to a proper - condition for satisfactory tannage

Unhairing is one of the most important objects of liming. Wool (in case of sheepskins) is generally more valuable than the pelt and it is therefore loosened by process designed more with a view to preventing damage to it rather than to the pelt.

Chemistry of liming and unhairing.

In liming process we use milk of lime.

Lime — 6-8 %

water — 100 %

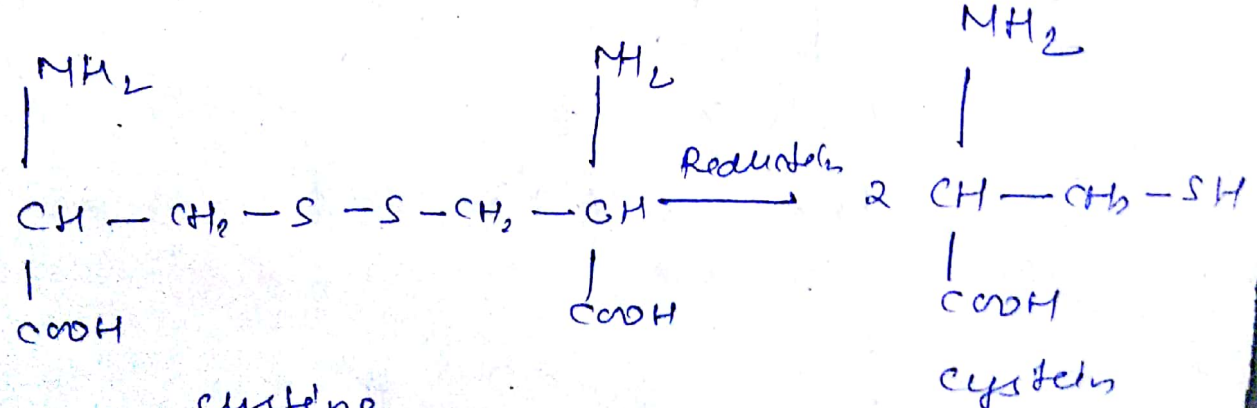
Drum runtime — 24-28 hours

For unhairing process.

Sodium sulhide (Na_2S) — 2%

Other unhairing agent like, cyanides amines, mercaptan etc.

Loosing of the hair is due to the chemical action of the lime liquor on the hair root or base of the hair shaft, whereby it is weakened and finally disintegrates.



Ans-5 **Pickling :**

The main of pickling operation is to bring the delimed or bated pelt to a required degree of acidity so that the subsequent tanning operation can be smoothly and scientifically controlled.

If delimed or bated pelts, as for example, are directly put into chrome liquor without going through the pickling operation, the pelts will first of all absorb the free acid of the liquor till the protein become acid saturated.

Picklingagent-

H_2SO_4 – 1%

NaCl — 8-10%

Ans. 6 (a) **BOD** - (Biological oxygen demand)

BOD of an effluent is the milligram of oxygen required to biologically stabilise one litre of that effluent (by bio-degradation of organic compounds with the help of micro-organisms) in 5 days at 20°C.

(b) **COD.** (Chemical oxygen demand)

COD of an effluent means the quantity of oxygen, in milligram, required to oxidize or stabilise the oxidizable chemicals present in one litre of effluent under specific condition.

(c) **Lime blast** -

(c) Lime blast :

When the hides are hauled from the liquor and kept exposed to air on the floor, calcium carbonate is formed on the pelt surface and inside the hair-pits. This is Lime blast.

(d) masking :

masking reduces tanning power of chrome salt. Organic acids are good masking agents for chrome complexes. this masking reduces the tanning power of chromium salt present in the chrome liquor and therefore to satisfy all the reactive groups of collagen higher percentage of chromium salts reacts with pelt.