APPENDIX 1

A.1 PREPARATION OF DELIMED GOAT PELT

10 Wet salted goat skins of the weight range 1 kg/skin without any major surface defects were chosen.

Soaking: The skins were soaked with three changes of water (400%) for 3 hrs. Then, the skins were given a wash and the soaked weight was noted.

Liming: A paint formulation containing Na₂S(2%) and lime (10%) was prepared by mixing lime and Na₂S and water 15%. The paste prepared was then painted on the flesh side and stock piled flesh to flesh. The pieces were left overnight and next day they were taken for dehairing. Hair was removed manually by the use of dehairing knife.

Reliming: The pelts were then relimed to ensure adequate opening of fibre bundles. Water (300%) and lime (8%) were employed. Reliming was done for 2-3 days, handling twice a day. Flesh and scud were removed using mechanical means and the pelt weight was noted. The pelts were then washed and delimed.

Deliming and Bating: Deliming was done using water (150%) and ammonium chloride (1%). The drum was run for 45 min and the cross section was checked for deliming using phenolphthalein. Microbate (2%) (Textan
chemicals) was added and the drum was run for one hour and the skins were checked for bating by folding trapped air through the skins. After ensuring complete bating, scud removal from skins were done. The pels were washed and used for tanning purpose.

**A.2 PREPARATION OF PICKLED GOAT PELT**

Wet salted goat skins of the weight range 1 kg/skin of 12 skins without any major surface defects were chosen.

The skins were soaked, limed, relimed and delimed and bated as per the procedures described in section A.1.

Pickling: Pickling was carried out in a drum using water (50%) and sodium chloride (5%). After running the drum for 10 min, formic acid (0.5%), diluted with water (5%) was added and the drum was run for 15 min. To the same bath sulphuric acid (1.25% diluted in 15% water) was added in four feeds at 10 min interval and finally the drum was run for 30 min and the pH of the pels was checked to be 2.8-3.0.

**A.3 TANNING OF PICKLED GOAT SKIN**

Pickled float (50%) was drained after pickling of goat-skins and to the remainder of the float in the drum was added basic chromium sulphate salt (8% on pelt weight basis, 25% Cr₂O₃). The drum was run for a period of one hour and the penetration of chrome checked. Water (100% based on pelt weight) was added and the drumming continued for a further period of one
hour. The penetration of chrome was checked and when penetration was complete, the basification was carried out. Then, on a cut portion of the wet blue leather, boil test was carried out. After piling for 24 hrs, shrinkage temperature was recorded.

Collection of spent liquor: The spent chrome tanning and dyeing samples as well as the washings of the wet blue leathers were collected quantitatively and combined. The solution was filtered and the chromium concentration was analysed.

**A-4 POST TANNING OF CHROME TANNED LEATHER**

Chrome tanned leather was neutralised using the neutralising agent to a pH of 5.0 and washed thoroughly with water to remove the acids. The neutralised chrome tanned leather was subjected to retaining with phenolic syntan (Basyntan DI – 4%) acrylic syntan (Relugan RE – 4%) and Reactive proteins at various levels (1, 2 and 3%) and Dyed (1.1) and fatliquored (Lipoderm liquor SA, 3%, Lipoderm liquor SAF – 3% and Lipoderm liquor 2FB – 2%) and finally fixed with formic acid to get the required upper leather. The control sample leathers were also post tanned using the same chemicals except RP. Then the leathers were dried and compared with control processed leather.