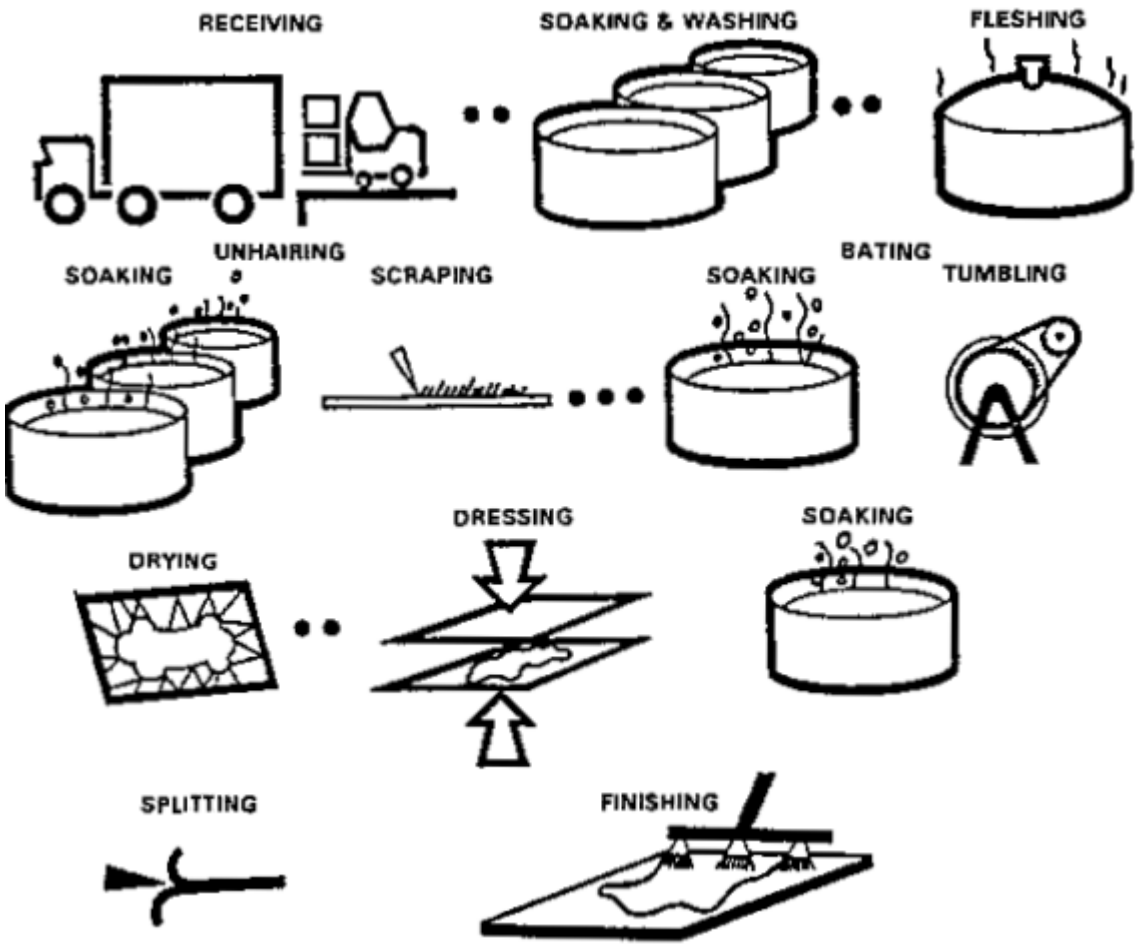
	NORTH CAROLINA DEPARTMENT OF LABOR	**No. 31-1**
	OSH DIVISION	**Date: 10/2009**
	OSHNC INDUSTRIAL DATA REPORT	**Pages: 4**

Industry: **Leather Products**	Sub-Group: **Leather Tanning and Finishing**
SIC: **3111**	NAICS: **316110**

PROCESS DESCRIPTION: Leather is composed of animal skins treated to make them soft, flexible and prevent rotting. The process is termed tanning. The tannery usually receives skins which have been salt covered (rubbed), or dipped in brine, as a temporary means to prevent rot. Tanning is normally done in the following sequence: The process is initiated by soaking and washing in a series of water baths to remove all salt and make the skin pliable; fleshing follows, which is the cleaning and removal of all tissue and residue from the inner side of the skin; unhairing of the outer side is then performed thru the use of a series of lime and sodium sulfide baths with repeated and interspersed scraping of the skin by mechanical or manual means; next, bating (chemical soaking and tumbling) takes place which removes the lime and any remaining minute particles of tissue; drying and flatting (pressing) follows as a preparatory step for pickling (repeated and extended soaking) by either mineral or vegetable solutions; the final step is finishing (splitting/shaving to make firm and application of wax or dye to the grain surface).

PROCESS FLOW:



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Hazards Analysis

Major Hazards			Other Hazards		
Location	**Item**	**Hazard**	**Location**	**Item**	**Hazard**
Soaking/fleshing	Anthrax, allergy	Infection or allergy from raw (green) hides	Dyeing	Picric acid	Severe explosion risk highly toxic vapors
Soaking/fleshing, unhairing, bating, splitting/shaving	Points of operations such as: paddle vats, hoists, all machines	Amputations and crushed	Throughout	Mechanical power transmission apparatus Ventilation Housekeeping, wet floors & hoses Railings and covers	Amputations and crushed limbs Respiratory problems from toxic vapors Slips, trips and falls Falls into pits or chemical vats
Throughout	Mechanical lifting and moving equipment (powered industrial trucks) Sulfuric acid Naphtha (coal-tar) Formaldehyde	Amputations and crushed limbs, CO exposure, accidents skin and respiratory irritant Fire hazard, toxic vapors Fire hazard, skin irritant, overexposure			

Key OSHNC Standards

Reference	29 CFR 1910 — General Industry Standards
ANSI B30.6	Overhead Underhung Hoists
Subpart D	Walking and working surfaces
Subpart E	Means of Egress
Subpart I	Personal protective equipment
Subpart O	Machinery and machine guarding
1910.119	Process safety management
1910.146	Permit required confined space entry
1910.147	Control of hazardous energy (lockout tagout)
1910.151	Eyewash and Emergency Showers
1910.178	Powered industrial trucks
1910.179	Overhead and gantry cranes
1910.1000	Air contaminants
1910.1200	Hazard Communication

Inspection Analysis

The inspection should be initiated in the receiving area: carefully check the walking-working surfaces (salt and water spillage on floors, ropes, chains and other lifting aids and/or water hoses creating tripping hazards), material handling equipment use and guarding (mechanical and manual), and the manner of introducing the green hides into water baths (tank/vat guarding). Following this, check the machines used in fleshing, unhairing, bating, flatting, splitting/shaving and finishing operations. Observations must include (but not be limited to) proper guards for power transmission drives, points of operation and exposed rotating parts. All drums, barrels and containers which rotate (for example, the bating operation) must be guarded and have interlock devices. All floors must be inspected due to the repeated use of liquids in great quantities under both open and closed container type operations. Protective equipment, especially for eyes, face and hands, must be used in all aspects of the operation.

Other Pertinent Comments: Manufacturers use two tanning method: (1) mineral tanning and (2) vegetable tanning. The method employed depends upon the intended use of the leather. Basically, mineral tanning may be associated with thin leather and vegetable with heavy leather. Simply speaking, the vegetable method may be identified by the simple extended duration of the process.

Useful Terms:

Cured Skin (salt rubbed or brine dipped)
Pitts (open tank equipped with exposed paddle agitator)
Beanhouse (area for unhairing operation)
Bating Material (liquid formula with enzyme, a protein)

Grain (side with hair removed)
Chrome Tanning (mineral tanning)
Pickled (main soaking process)
Stuffed (drying skins in hot drums)