



FEATURES AND IMPORTANCE'S OF LEATHER

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ABSTRACT:

Leather is one of the important polymers in the world which has its applications in many industries and also for the humans. The outer cover of each and every living organism is skin which is nothing but leather, the human body is covered by skin and without skin the body cannot sustain high temperatures, cannot expose to the air or in a single word it is impossible to live without skin, and no living organism can live without skin which drags the interest towards this material as it is the most essential thing in the world and also it is used in making leather goods and also it has a good mechanical properties which helps in making leather goods and also in sports for making cricket ball's etc. so this drags the interest to focus on leather as a natural polymer and its importance. So this paper focuses on some features and importances of leather

Keywords: Leather Exports, Environmental Regulations, Compliance, BOD, CETP, ETP.
Either in the society.

I. INTRODUCTION:

Leather is one of the most important and probably the oldest material in the world with its importance in many industries like textile, automotive etc. leather was used and its tanning process was undergone many years ago, which states that the importance of leather was known a lot prior to the present generation, and also we know that dinosaurs were present in this world before we exist and the anthropological studies state the shape and composition consists of skin bone etc. so that can be taken into consideration, leather was there before the existence of human race. So these things make us gain more attention towards the leather.

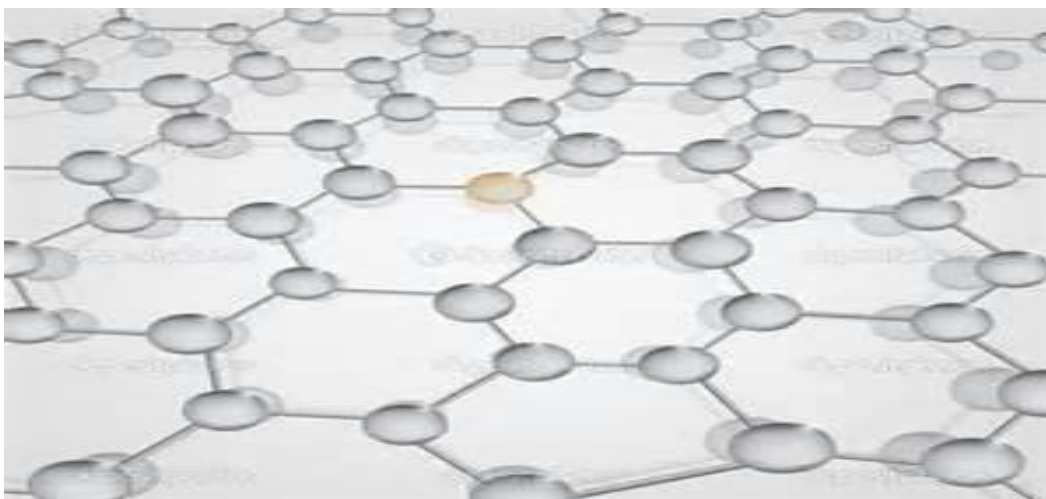
II. HISTORY OF LEATHER:

According to archeologist's findings, our ancestors used to hunt animals for food and as well as for clothing. They used the hides of animals for foot wear and shelter. The leather became stiff at low temperatures and they rotted with heat. As time passed by man discovered methods for preserving and softening leather by treating it with things like animals fat and their brains, smoke, grease and bark extracts. As industrialization advanced the demand for new kinds of leather such as belting leathers to drive machinery, light weight footwear with fashionable appearance. Leather is not only used for commercial and residential use but also used for automotive and marine applications

III.METHODOLOGY OF LEATHER:

STRUCTURE AND SYNTHESIS:

The preparation process of leather consists of three steps namely preparatory stages, tanning, and crusting. There is a special process called surface coating which is present in only few leather forms. The preparatory stage includes the starting stage of the leather preparation where the raw leather is brought into the machine where the skin is removed and cleaned, soaked in some additives and then it is prepared for the next step where the tanning process is undergone where the raw skin is treated with chromium and the tanning process occurs which helps in making the protein in the skin to itself and helps in thickening of the skin for using in many fields. And finally crusting is nothing but making the skin thin and re tanning occurs and final stage is shown in the figure below



CHARACTERIZATION OF LEATHER:

Some characteristics of leather are

- High tensile strength.
- Permeability for water vapor.
- High resistance to tear, puncture and flexing.
- Good heat insulation

Leather is a natural product. It is a substance which keeps its properties unchanged for many years. It brings prestige to interior with its special feel and aroma. Its extremely strong texture makes it difficult to scratch or scuff. Leather won't stretch out of its shape. It easily adjusts with the environment. As it is preserved in tanning process it is easy to keep it clean and comfortable. It also has a high tensile strength which means that they can sustain high loads at an instance and also they have a long lasting life so they are used in aerospace field where weight is a matter of concern, and also it acts as a permissible membrane with the water vapor which allows the leather to be used in the areas where high temperatures are used.



Drying of leather in East Timor Leather tanning



Tanned leather

IV.ADVANTAGES, DISADVANTAGES AND USES OF LEATHER

ADVANTAGES

- Leather is a fabric used by humans for clothing and accessories.
- It is tough, durable and long lasting
- Leather is easily maintainable material. They don't need any expensive cleaners and hard work to clean it.
- Leather is extremely durable material. It has its beauty and shape for longer time,so there is no need of changing the furniture made of leather more often.
- Besides from durability it keeps its quality in time as well.
- Leather is also resistant to dust mites. It does not attract and collect dusts.

DISADVANTAGES

- One of the main disadvantage is animals are being killed.
- It is not affordable for every one as it is very expensive.
- Soft leather must be taken extra care and maintenance.
- Leather can be ripped and stained easily.
- Leather is spoiled when exposed to water.
- Exposure to humidity, hot weather, corrosive acids, ultra violet rays effects leather.

USES



As leather is a versatile material we many different uses of it. It is durable and fashionable, and its applications are endless.

- Leather is often used to make clothing like pants, skirts,raincoat and jackets.
- Leather has a number of uses in sports such as football and baseball gloves.
- It is also used in furniture like couches, chairs, car seats and other automotive interiors.
- Boiled leather is used to create body armor and flasks.
- Leather wrist watches are very common now days.
- Besides it also used in wallets,backpacks,mobile cases,fashionable foot ware like shoes,boots,slippers and also bangles, other jewelry etc.

V.CONCLUSION AND ENVIRONMENTAL IMPACT:

- Animals are to be raised for leather requires a large amount of feed,land,water and fossil fuels. The excrement of animals at factory farms is 130 times that of entire human population which does not have any benefit like waste treatment ofplants. The environmental protection agency (EPA) has acknowledged that live stock pollution is greatest threat to our waterways.
- In the process of tanning leather requires a large amount of energy and we use a lot of chemicals like coal-tar derivatives, formaldehyde, mineral salts, oils and many of them are cyanide based. All waste containing chromium is hazardous.
- Many of the workers involved in tanning process die from cancer caused by exposure to toxic materials used to process and dye leather. Studies of leather tannery workers in Italy and Sweden found cancer risks between 20%-50% above than expected.
- The manufacturing of leather hurts animals, and people who are involved in the process.
- So we can conclude that though there are many drawbacks with leather forming and also there are many reasons and uses of leather but hurting animals or killing them for leather may be a crucial thing to be considered and artificially strong leather has to be produced which helps in making the animals live for some long time and the cost of living for the maintenance of animals decreases.



REFERENCES:

1. <http://leatherfacts.co/types-of-leather/the-real-deal>
2. "Pollution Prevention and Abatement Handbook - Environmental Guidelines for Tanning and Leather Finishing"
3. "The scope for decreasing pollution load in leather processing (US/RAS/92/120/11-51)" (PDF)
4. "Introduction of Low Pollution Processes in Leather Production" (PDF)
5. Bienkiewicz, K. (1983). Physical Chemistry of Leather Making. Robert E. Krieger.
6. Artificial Leather- An Eco-friendly Alternative Textile Material For LeatherJahan, Saurabh and Jahan, Shahnaz. China Textile Science 3rd 2011
7. Documentary by Upside Télévision
8. <http://roguejournals.com/>
9. <https://www.google.com/search?q=LEATHER+NATURAL+POLYMER&source>
10. pslc.ws/macrog/leather.htm
11. pslc.ws/macrog/kidsmac/natural.htm