



# What is a football? From Natural Resources to Synthetic

OUTSIDE OF FOOTBALLS ARE MADE OF LEATHER

## What is leather?

by Dr. Expert

Football has an outer shell. The outer shell can be made of leather or a kind of plastic. We will focus on leather in this article.

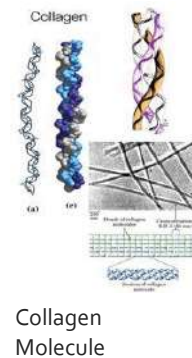
Leather is a material that is used for many things. It is used for clothing, like boots and coats, as well as belts. It is a good material for these things because leather is very strong.

The natural resource that leather comes from is animal hides. Animals that are often used for leather are cows. There are also other animal hides for softer leathers like goats. There are also exotic animal hides for leathers like snakeskin or crocodile. Leather for footballs is usually made from cows.

The cows that are used to produce leather are not used just for their skin. The cows are also used for meat. People process the animal skin to create the material that we call leather. The making of leather has many steps and uses chemicals to make a useable material.

The cows that are used to make the leather and meat are grown in large ranches or farms. The farms can be found all over the world. The largest producer of leather is China, a country in Asia.

Leather is not a pure substance, but it has a molecule in it called a protein. The protein in leather is called collagen. Collagen can be considered a pure substance because it has properties that help you identify it.



*A pure substance is the same all the way through, it has the same properties. It is made of the same atoms or molecules all the way through.*



Cowhide leather

Resources:

Wikipedia.com/leather

Molecules by: Theodore Gray

Buffalo Jackson. com



Butyl rubber advertisement

SYNTHETIC MEANS MADE BY MAN,  
BUT NATURAL MEANS COMING FROM  
NATURE

Leather is a synthetic substance from the natural resource of cow hide.

Butyl rubber is a synthetic substance from the natural resource of oil

Polyvinyl chloride is a synthetic substance from the natural resource of oil

The oil must go through chemical processing to make it into rubber, and it can also become other things that are useful to people, like plastic or as fuel for cars.

Butyl rubber is recyclable, which means it can be melted down and reused to create something new.

Butyl rubber is a pure substance, which is made of all the same molecule or atom. The molecule is called a polymer, because it is very stretchy and has a lot of parts.

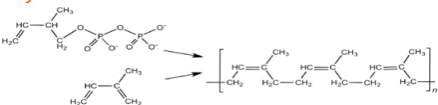
Resources: Madehow.com

Wikipedia.com

Molecules by Theodore Gray

## What is the inside made of?

by Professor Smartie



Butyl rubber molecule

Under the leather of a football is called the bladder. In the earliest days of football, the bladder was made from the bladder of a pig, which is how it got the name "Pigskin."

Now the bladder is usually made of butyl rubber. Butyl rubber is good at holding in air. It is stretchy. It is strong. Perfect for playing a rough game like football!

Butyl Rubber is synthetic. This means it is only made by people. Synthetic materials begin with natural resources. The natural resource that Butyl rubber is made of is oil. The oil is drilled from underneath the ground in many places around the world.



The inside of a football is made of Butyl Rubber.

# What are the laces made of?

by Clev R. Student

## IMPACTS



Football laces help to grip the ball.

## How do we get oil?

Short answer: We drill for it. Giant machines go deep into the earth's crust to find pools of oil to make gas, plastics, and other materials. Oil is a natural resource, but it is non-renewable

## What happens to plastic after we no longer want it?

Plastic does not biodegrade easily. If we throw it away or toss it on the ground, it will stay around for hundreds or even thousands of years.

The laces of a football are used to help grip the football for throwing.

The laces of a football are made of synthetic materials.

Some of the most expensive footballs use leather for the laces, but most use polyvinyl chloride. Polyvinyl chloride is also known as PVC, and it is a kind of plastic.

PVC is strong. It doesn't react to acids or salts. It doesn't react to the oils in a person's hands. It is hard to dissolve.

Because PVC is a synthetic plastic, its natural resources are salt and oil.

Resources:  
[Madehow.com](http://Madehow.com)

[Chemistryislife.com](http://Chemistryislife.com)

[Wikipedia.com](http://Wikipedia.com)

Molecules by Theodore Gray



The same material that is used to make pipes make up most laces.



IMPACTS  
DRILLING FOR OIL HAS AN IMPACT ON  
THE ENVIRONMENT:  
OIL LEAKS CAN BE A DISASTER TO  
PEOPLE AND ANIMALS WHO LIVE  
NEARBY