

This Is How To Make And Recycle Rubber

You need a fully functional tire (as opposed to a donut) in the trunk of your vehicle, and you may have gone through the extra expense to get it. Many other people haven't even thought that far ahead, even this problem alone would lead to endless traffic jams and other problems in times of distress.

And there's more bad news: even if you take good care of your tires and have a viable spare, there will come a time when all of your existing tires will have to be discarded.

Modern tires actually need to make contact with roads on a regular basis or they will begin to crack and rot. That's why having the skill of making or refurbishing tires would worth a lot during crisis or after a major collapse.

Rubber is Older than You Think

While Europeans are credited with spreading the use of rubber throughout the world, it was first used by the Maya. They used latex from Hevea trees to coat balls that were used in a game similar to basketball. The latex was mixed with sap from the *Ipomoea alba* vine to make it less sticky and more durable.

In the 1700's, French and English explorers discovered that rubber could be used for many other things. "Vulcanization", which also makes rubber less sticky and more durable was not invented until the 1800's by Charles Goodyear.

Since latex bearing trees only grew in South America, a great deal of effort went into protecting this monopoly, and it didn't change until thousands of seeds were smuggled out of Brazil in 1876 by Henry Wickam. The plants that grew from these seeds were eventually used to build enormous rubber

plantations in India, Indonesia, Asia, and Africa.

As automobiles became more popular, it became harder to keep up with the demand for rubber. Eventually, scientists found a way to synthesize rubber from petroleum. During WWII, this became a vital source of rubber that was used to keep the war effort moving forward.

Today, most, if not all rubber used in automobile tires is made from petroleum sources. As different nations become more unstable, there is an increased interest in finding plant based sources of rubber.



Russian Dandelions (T. kok-sanghyz) produce a latex that makes rubber almost as good as what you would get from a rubber tree. Milk thistle, or Prickly Lettuce, also produces enough latex to be used in making rubber.

There are also several other plants in the United States and around the world that may be suitable for this purpose, however much work needs to be done to find out which ones work best and how to get the most out of them.

Where to Get the Rubber From

Many preppers feel that it is very important to store away essential building materials such as wood, metal, glass, plastic, and cardboard. How many of them did ever think about storing away rubber, which is also a very important material to have on hand?

If you are building a stockpile of materials, you may find it a bit difficult to find rubber at a place other than Grainger. Rubber that hasn't been made into some kind of product isn't available to consumers. Make your own research in the following places, and you may come across limited supplies as they become available:

- Repurposed materials
- Public Surplus – if you are interested in used tires, this site may be a good place to start. Check if your local community has abandoned properties or other places where tire dumping is a problem. If you can get ahold of these tires, then you could do something with the rubber from them.
- Salvex
- Skycraft Parts and Surplus
- Surplus Record – If you are part of a large enough prepper community and have plenty of land to work with, then think about building a small rubber factory. This site will give you information about equipment used to make synthetic rubber from petroleum. If you also have land that can be drilled for petroleum, it may be worth your while to think about turning some of it into rubber.

Even if you do not need to make rubber immediately after a major crisis, it could be an important commodity as society rebuilds and regains its capacity to bring people together to achieve goals. If you can produce petroleum and rubber, you and your group will prosper as different groups of people seek

to regain the technologies and conveniences that may have been lost due to social collapse.

Never forget that future generations of your family will have to compete, and that will entail having marketable skills and products. As expensive as this equipment may be, it may be a wise investment that will set you and your family further ahead than you realize.

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Basic Guide for Making Plant Based Rubber

If the Maya could make perfectly good rubber centuries ago, then it may also be possible for preppers to do the same. Making rubber from petroleum will more than likely be a lost skill after a major social collapse occurs.

As long as you have a source of plant based latex, then you should be able to make small as well as large batches of rubber to meet a range of needs. Here are the basic steps:

Step 1

Start off by harvesting latex. While Hevea Trees have to be “tapped” with V shaped slits in the trunk, the process is a bit different for plants.

For example, if you are going to use Milk Thistle, you will need to break open the plant stems to get at the latex, which is a milky white colored substance. If you decide to use dandelions (ideally Russian dandelions), you can get latex from the roots as well as the stems.

Step 2

Once you have collected enough latex, add some water and an acid to the sap. You can use vinegar or other weak acids. The ratios of sap, water, and acid will depend on the amount of latex in the sap as well as the strength of the acid.

For example, if you are using regular or Russian dandelions, you would use 1 part sap to 8 parts water and then enough vinegar to make the latex and water stick to whatever you are using to stir the mixture.

Step 3

Even though rubber made from dandelion will finish to “cure” or dry out on its own, you may still need to add sulfur and heat it to produce a more durable form of rubber. You may also want to try using *Ipomoea alba* sap to vulcanize the rubber.

Remember, different applications will require different levels of flexibility and durability. You will need to study the different characteristics of each type of rubber you plan to work with, and see what will work best to make them.

Video first seen on [DSCDocumentries](#).

When making plant based rubber, remember to start off with small batches and see how the resulting compound holds up over time and across different temperature conditions. Among other things, you will need to assess if the rubber will crack, and how well it will bounce back to its original shape after heavy weights are applied.

Give yourself plenty of time to explore this fascinating topic. Since there is still a great deal of trial and error involved in making rubber from dandelions and other more common plants, it is best to see what others are doing in this field even as you develop your own recipes and methods.

How to Recycle Rubber

Overall, there is a point where you can recycle rubber easily enough, and a level where it is well beyond the technical skills and assets available to most preppers. The complexity associated with fully recycling rubber lies in the process of vulcanization.

Let's say you want to bake a cake that requires using eggs, flour, and some sugar. Let's say you sift together the flour and sugar. Even though the sugar and flour are well mixed together, you can still separate them using various means. Once you crack open the eggs, in theory you can still put them back into the shell. To some extent, you can also still retrieve the eggs, sugar, and flour after they are all mixed together. Up until the cake is baked (the heat from baking drives off water and also causes different molecules in the batter to break apart and form bonds with other molecules), it is actually possible to separate out all the ingredients used in it.

In a similar fashion, once latex is treated with sulfur and heat, the molecular structure changes to a point where it cannot be reversed – or at least not reversed with ease.

Over the years, a great deal of effort has been made to see if there is a way to take rubber and turn it back to the latex stage. There is one patent, held by The Goodyear Rubber and Tire Company, on a process that uses high pressure and 2-butanol to reverse vulcanization.

This process is not something that can be done easily enough at the consumer level. Therefore, if you are interested in recycling tires or other rubber materials, you will need to take the existing rubber and use it for some purpose other than simply remaking tires.

3 Tips to Know Which Tires can be Salvaged

Consider a situation where a major catastrophe has made tires unavailable. While you are searching for replacements, you find a landfill and hundreds of tires stacked up. It may take a lot of work to find [salvageable tires](#) with a little bit of patience and effort, but you can do it if you keep in mind the following:

- Tires with cracks in the sidewall and tread area more than likely have dry rot. The tread and sidewalls cannot be restored or reused for making new tires. If the tire is of a size that you need, you could take it apart and use the belts in combination with new rubber that you make from a plant based source. As long as the tire doesn't show signs of having more than two patches, there is a chance that the inner anatomy of the tire is still intact. Even if you have to recoat the inner structures with more rubber, at least you will have some belts to work with.
- Avoid tires that were punctured or slashed in the sidewall. If the tire is punctured deep enough, than it might have been discarded because it would not hold air. There are some methods you can use to repair a sidewall, but the tire may fail at a critical moment and cause a very bad accident.
- Be wary of tires that are patched, even if the patches are less than $\frac{1}{4}$ inch in diameter and located far enough away from the sidewall.

Video first seen on [Tank0923](#).

There are several different ways to repair punctures in tires. Depending on the size and age of the tire, you may find one that is worth patching even though the former owner chose to

discard it. Remember, many people throw away good tires or repairable tires because their vehicle must be inspected and they don't want to risk it failing. On the other hand, if you really need tires, then you could get some mileage out of them so long as you repair them correctly and drive carefully.

6 Ways to Use Tires for Your Homestead

- The rubber part of tires can be ground up into a smaller bits that can be added to paving materials.
- Rubber from tires can be cut into pieces and shaped into everything from shoe soles to waterproofing for containers.
- When treated with acid, rubber softens and can be shaped into different objects.
- Rubber products such as tires can also be burned to generate heat. From campfires to operating a steam turbine, you can easily use rubber tires and other products for this purpose, but keep in mind that it might have some health impact.
- The rubber from tires can also be separated from the steel belt; which can be used to make new tires or for other purposes.
- [Rubber tires](#) can also be used as raised bed planters. This may be especially useful if you plan to grow a garden in an area where water supplies and good soil are limited. In fact, if you want a cheap, easy way to make a multi-level potato planter, just stack up tires as the plants grow, and then harvest in the fall when it is time. Needless to say, if you are looking to hide your plants in open sight, a stack of tires may just look so unappealing no one will bother to look there for edible plants.

Video first seen on [Just Az.com productions](#).

Anatomy of an Automobile Tire

Today, there are many different kinds of tires that can be used for the same vehicle. For example, “all weather tires” are different from snow tires, mudders, and ones used for racing. Regardless of the tire type, they all have the same basic parts, however these parts may be designed a bit differently to accommodate different driving conditions.

Even though each layer of a tire also has many parts, here are the most basic ones you need to know about:

- Treads – this is the outermost layer of the tire. It is the part that grips the road and wears out from friction with the road. The treads may also have sipes, or smaller grooves that increase traction when the tires are moving over ice, water, sand, and snow.
- Grooves – these are also found in the outermost layer of the tire. Grooves are the long, deep channels cut into the tire. They help the tire to shed water and moisture so that it doesn’t clog up the treads.
- Sidewall – this is the side of the tire that covers the other inner parts. It serves to protect and keep them clean and dry.
- Belts – even though rubber bounces back to its original shape, it is not very strong. Without belts of nylon, steel, and even fiberglass, the tire would not maintain its shape very well. Depending on the tire, it may have several belts organized into layers just under the treads. When reclaiming rubber for other purposes, you will also be separating out these belts so that they can be used to make more tires, or for some other purpose.
- Inner liner – separates the belt layer from the plies. It is also meant to act as a barrier to air so that it cannot escape into the belts, sidewall, and treads.
- Plies – this part is what gives the tire most of its strength, and also the layer that holds air in.

Typically, this layer is made up of materials that are organized so that the fiber runs across the tire instead of around it (the plies are perpendicular to the treads).

- **Bead** – this is a metal cable coated in rubber that runs all the way around the inner rim of the tire. It is meant to keep the tire from slipping once it is mounted on a rim.

Why to Make Your Own Tires from Scratch

If you look at a modern tire factory, you may feel like it is impossible to make tires on your own. The task is going to be a bit difficult, but do not give up on researching and looking into automobile history to see how tires were made before robots and large factory machines were used.

Even if the tires you make aren't as good, or don't last as long as ones made in a modern factory, they may still be of use for short trips or keeping a tractor up and running.

Once you know how to make rubber and feel confident in your skills, the next step will be to see if you can recognize which tires can be retreaded, and then figure out how to design your own tires and build them from scratch.

Retreading Tires

Not so long ago, retreading tires was seen as something dangerous and to be avoided at all cost. In many countries, including the United States, retreads are seen as a way to keep tires out of the landfill, and also as a means of cutting costs associated with vehicle maintenance.

As a prepper, you won't have a modern retread factory or some of the more complex tools to work with. Nevertheless, if you

look at retread factories in other places in the world, you can get some ideas about substitute tools, and then also figure out how to make the safest and most durable retreads possible.

Regardless of the factory type or situation, retreading requires the following basic steps:

- Start off by inspecting the tire to check for signs of dry rot, punctures, slashes, and anything else that might have damaged the internal structures of the tire or its sidewalls.
- If the tire is basically sound, strip off the treads. You will still need to leave some rubber behind for new material to adhere to.
- Make sure the new surface is perfectly clean and ready to accept new rubber. If you see signs of belts showing through, or other damage, repair these issues first.
- Apply rubber to the ground down surface of the tire. You may need to do this in several layers.
- Next, apply the treads. These should be pre-made from rubber. If you know how to make rubber, then you can also use basic casting methods to produce strips of rubber treads that can be used for retreading.
- Use heat and pressure to finish binding all the tire parts together.
- Check the tire again for signs of holes, damage, or other problems.
- Finally, apply a coat of paint or some other sealant to complete the tire.
- Once the tire is dry, it should be ready to use. Make sure that you test the tire out in a safe area after mounting it to the rim. Do not forget to balance the tires and make sure that they are inflated properly.

As you can see, there is more to making rubber and using it for tires than you may have realized.

At the same time, tires and many other rubber products are integrated into almost every area of life. Since it is not always possible to replace rubber items with plastic ones, knowing how to make rubber and use it for a variety of purposes will help you a lot.

From fixing your own tires to bartering these services, you will always have something of value no matter what is going on in the human world around you.

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*This article has been written by **Carmela Tyrell** for Survivopedia.*

Resources:

http://opensourceecology.org/wiki/Rubber_from_Dandelions#Temperature_Climate_Plants_that_Produce_Latex_and_an_Evaluation_of_their_Practical_and_Ecological_Use_in_Rubber_Making.

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