Creosote

Have you noticed smoke flooding into your home when burning a fire in your fireplace or wood stove? Or maybe you've noticed that bits of debris have fallen from the flue into your fireplace or stove? These are signs you have a creosote buildup on the inside of your chimney flue.

Creosote is a black or brown residue that sticks to the inner walls of your chimney or stove pipes. In texture, it can appear crusty or flaky, drippy and sticky like tar, or shiny and hardened to the surface. But whatever its appearance, creosote is highly combustible. And it creates a serious fire risk.

Certain conditions that can cause creosote buildup include:

1. **Cool flue temperatures**. When the temperature inside your flue is cooler than normal, smoke will condense, causing creosote form on the inner walls at an accelerated rate. Metal chimneys are very susceptible to creosote buildup. Their light sheet metal construction helps to keep the interior flue temperature abnormally cool. Also the location of the chimney can affect the interior temperature. A chimney on an exterior wall can be affected by outside cooler temperatures while a chimney located on an interior wall is usually warmer.
2. **An oversized flue**. If your home has an older fireplace insert or a hearth-mounted stove that's vented into a masonry chimney, chances are, your flue is too large to support the fireplace insert or stove. So the smoke from a fire can hang around in the chimney for a longer time (called residence time), leading to creosote buildup.
3. **Restricted air flow**. Not only does an oversized flue confine air supply in a chimney, but closing the glass doors on a fireplace or stove too tightly, or failing to open the chimney's dampers wide enough can hamper the amount of air flow in your chimney. In these conditions, the restricted air flow prevents the smoke from leaving and increases its residence time. Again, enabling creosote buildup.
4. **Use of unseasoned firewood**. Firewood that's unseasoned or dried insufficiently contains water. When unseasoned firewood is burned, it creates less heat because most of the fire's energy is used to burn away the moisture. Since the fire is cooler, the smoke condenses quickly, forming creosote on the flue's surface.

While you could try to remove any creosote yourself, it can be a messy, dirty job. And if the creosote is hardened to your flue's surface, it's best to have a professional clean it. So, hire a professional chimney sweep, like T.J.'s Chimney Service, to inspect and clean your flue in the first place. You'll save yourself time and guarantee that your flue is thoroughly cleaned. Call T.J.'s Chimney Service at 317-455-5310 to schedule your chimney inspection and cleaning today.

Stages

What is Creosote?

Creosote is actually just one of the components in the stuff (aside from the ash) that's left over when wood is burned. The whole mix of tar and creosote and soot is commonly called creosote. The term is almost exclusively used when talking about burning wood. If discussing soot resulting from burning oil, or even gas, this is just soot and it's just called soot. Though the black residue in the chimney from burning wood is called creosote, it is in fact mostly tar.

There are, generally speaking, three types of creosote are found in chimneys and they are usually called ‘stages’ or ‘degrees.’ All three forms are all combustible and should be removed.

First Degree Creosote Buildup

First degree creosote has a high percentage of soot and can be removed from a chimney effectively with a chimney brush. First degree creosote develops when there is a relatively good combustion of the wood and/or relatively high flue gas temperatures.

This describes an open fireplace. The burning wood had lots of air for the combustion process and the heat flies up the chimney. These are best conditions for a chimney.

Second Degree Creosote Buildup

Second degree creosote is a bit trickier. This creosote buildup is generally in shiny black flakes. Imagine dry, hard tar corn flakes, and in greater volume than first degree creosote. It’s not as easy to brush away, but still fairly removable. It would be difficult to describe all the situations where 2nd degree creosote develops, but suffice to say it will occur where the incoming air is restricted. This describes wood stoves and fireplaces with glass doors.

Third Degree Creosote Buildup

Third degree creosote buildup is the worst of them all. This occurs when the flue temperatures are low and/or combustion is incomplete. This is common when any of, or a combination of, these conditions exist:

- On wood stoves with the air controls turned way down
- Un-insulated chimneys (or any other reason the chimney is cold)
- When using unseasoned wood
- If the flue is oversized for the appliance
- When the house is tight and can't draw sufficient combustion air

Third degree creosote looks like tar coating or running down the inside of the chimney. It is extremely concentrated fuel. It can get very thick as it hardens and is recoated over and over. An inch thick would be unusual, but it's not unheard of.

And worse yet is third degree creosote that fills up "chimney fire fluff." If creosote buildup catches fire in a chimney, maybe it burns away completely but more often it does not. More frequently the creosote partly boils, partly burns and leaves a dried out light-weight "sponge," often more than 2" thick which is actually very easy to remove. But if it is not removed, new third degree creosote fills that sponge you can have well in excess of 100 pounds of creosote in a chimney.

The first chimney fire may not have damaged the house, but that next chimney fire will be fiercer than the first and exceptionally dangerous. The really tough part is that third degree creosote, in any form, is very hard to remove.