

## THE FOUR STAGES OF CREOSOTE

**Condensate,**

**Liquid,**

**Solid,**

**Friable**

The consequences of burning wood inefficiently can be disastrous to the fabric of a chimney. The heat producing characteristics of wood burning are not the same as fossil fuels, over 50% of the weight of the wood is moisture in the form of tree sap or resin. Therefore wood burns cooler and slower. This may at first appear to be a very efficient fuel, however the following information will prove otherwise.

### Stage 1 - CONDENSATION

When wood is burnt in a stove, it is common practice to reduce the amount of air entering the combustion chamber in an attempt to save fuel. This will cause the appliance to sulk (smoulder), this has serious side effects. Slowing the burning process will cause the products of combustion (smoke) from the wood to cool as it enters the chimney. The smoke will not maintain a high enough temperature, preventing it from being driven up the flue at a sustainable velocity to escape from the stack. The cooling effect causes condensation to form on the inner surface of the chimney, and the sap / resin turns the condensates into creosote (a natural bituminous oil).

### Stage 2 - LIQUIDISATION

The condensates turn to liquid. The liquid creosote seeps into the mortar joints and the masonry, the corrosive effects of the creosote then destroys the masonry and mortar joints, in the same way as oil destroys concrete garage bases.

### Stage 3 - SOLIDIFICATION

Varying temperatures within the chimney cause the liquid creosote to heat up and cool down, as it cools it solidifies on the internal surfaces of the chimney. The creosote quickly builds up, reducing the cross sectional area of the chimney and in some cases blocking the flue completely. The visual appearance of solidified creosote resembles that of tar and many people refer to it as tar build up. Solid-state creosote is highly inflammable and serious chimney fires are a regular occurrence from wood burning. Temperatures exceeding 2000°C have been recorded from such fires.

### Stage 4 - FRIABLE STATE CREOSOTE

When solid state creosote burns, all the volatile oils are burnt off leaving a residue similar to a honeycomb, which is crisp and easy to sweep from the chimney. However we would never recommend setting fire to a chimney to clean it, this would be a sure fire way to become homeless.