

**What is a flame?**

Flames are formed when a fuel gas, like acetylene, reacts with a support gas such as oxygen. This reaction creates a lot of heat and light, which we see as a flame. An oxygen acetylene flame can create temperatures over 3200°C. The temperature of oxy-acetylene flames depends on the acetylene and oxygen mixture. The ratio of the gases creates different types of flames.

**Setting the Correct Flame**

|  |
| --- |
| **Carburising flame** |

The carburising flame is formed when there is an excess amount of acetylene gas in the flame that is not completely burnt by the oxygen. The carburizing flame has a cool flame temperature.
The appearance of the carburising flame has a ragged yellow envelope, a blue cone and a feathery white inner cone.
To form a carburising flame, open the acetylene valve on the hand piece until the flame has a yellow end and is slightly sooty. Reduce the acetylene flow until there is a ragged end to the outer envelope and a blue and white inner cone.

**Neutral Flame**

The neutral flame is formed when you have equal amounts of oxygen and acetylene mixed in the flame.
The neutral flame has two distinct parts - a sharp inner white cone and a light blue outer envelope. The neutral flame does not make any hissing noises.
To form a neutral flame, open the acetylene valve on the hand piece until the flame has a yellow end and is slightly sooty. Reduce the acetylene flow until there is a brilliant sharp white inner cone.

**Oxidising flame**

The oxidising flame is formed when there is more oxygen than acetylene in the gas mixture which creates a hot flame.
The flame has a sharp blue inner cone surrounded by a ragged bluish envelope. The oxidising flame also makes a hissing noise.
To form an oxidising flame reduce the acetylene flow or increase the oxygen flow until you hear a hissing noise form the flame and a small triangular blue cone appears in the flame.