

Vince Pitelka, 2019 – www.vincepitelka.com

The following is excerpted from my book, *Clay: A Studio Handbook*

Baso Valve Gas Burner Safety Systems

In most private studios and in many commercial and academic studios, local codes allow the use of a very simple and inexpensive burner safety system involving a standard pilot-burner working in conjunction with a *Baso valve*. This is the system used on most domestic gas space heaters and hot-water heaters. The Baso system has the great advantage of requiring no external power connection, and thus a kiln with natural-draft burners is unaffected by power outages.

The Baso valve is plumbed into the gas supply line just before the burner valve. A small pilot burner is connected to a side-port in the Baso-valve body via copper tubing, and a thermocouple is mounted with its tip in the pilot flame and is connected to the Baso valve via a copper-clad electrical lead. In practice, a button on the Baso-valve body is depressed, allowing gas to pass through the side-port to the pilot flame, which is ignited with a match or torch. The button is held down for a minute or so as the flame heats up the thermocouple. A minute electrical current generated by the hot thermocouple energizes a small electromagnetic catch within the Baso valve body and allows gas to pass through to the burner valve when pressure on the button is released. The pilot burner is mounted adjacent to the main burner and ignites the burner as soon as the burner valve is opened. As long as the thermocouple remains hot, the Baso valve stays open. If the pilot flame is extinguished for any reason, the thermocouple will quickly cool, releasing the electromagnetic catch and causing the Baso valve to close, shutting off gas to the burner. When this happens, the above sequence must be repeated to re-ignite the burner.

Special Considerations with the Baso Safety Shut-Off Valve

The primary disadvantage of the Baso system is a wait of 10 to 30 seconds between extinguishing the flame and shutting off the gas supply. If both main burner and pilot burner are extinguished, considerable gas is released into the kiln before the Baso valve closes. In most kiln designs this is not a problem, and of course if the kiln is above red heat the gas would be consumed as it entered the kiln. Another common problem is that the thermocouple will fail quickly if exposed to excessive heat. The tip of the thermocouple should be in the pilot flame and never in front of the main burner, and the pilot burner should be mounted below the main burner where it will ignite the main flame without being subjected to excessive heat.