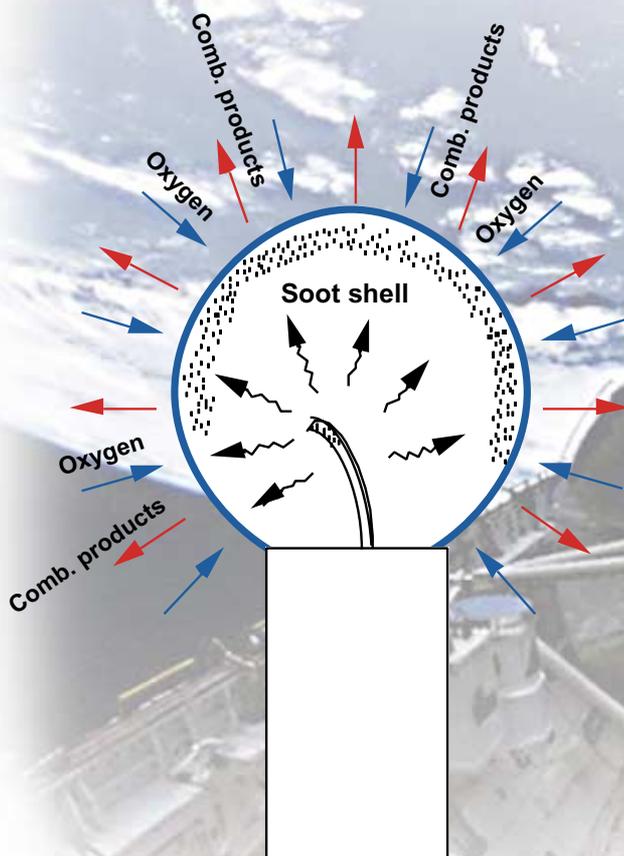




Glenn Research Center



How are Candle Flames in Zero-Gravity Different from those on Earth?



- ◆ Zero-g flames tend to be spherical.
- ◆ Oxygen, needed to sustain the chemical reaction, must diffuse toward the flame. Diffusion is a slow process (about 1 cm/sec).
- ◆ The combustion products must diffuse away from the flame.
- ◆ The flames we have observed appear to be cooler and form much less soot.
- ◆ The soot that does form collects inside the flame, and reduces the ability for heat to melt and react the wax.
- ◆ Whether the process will become truly steady and self-sustaining over long periods of time in low-gravity is not known – this is one of the objectives of the "Candle Flames in Microgravity" experiment on the Mir Space Station.