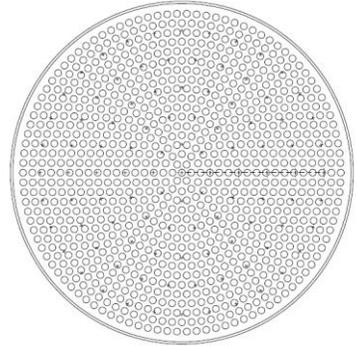


# Pool Blaster® SunDot™ Test Data: 2012

## SunDot Physical Description

Diameter:	19.625 inch (49.8475 cm)
Material:	Phthalate free PVC (soft)
Color:	Matte Black
Volume:	13.52 cubic inches (221.609 cc)
Top Surface Area:	2.1 square feet (0.195 square meters)
Dots:	915
Suction Cups:	101



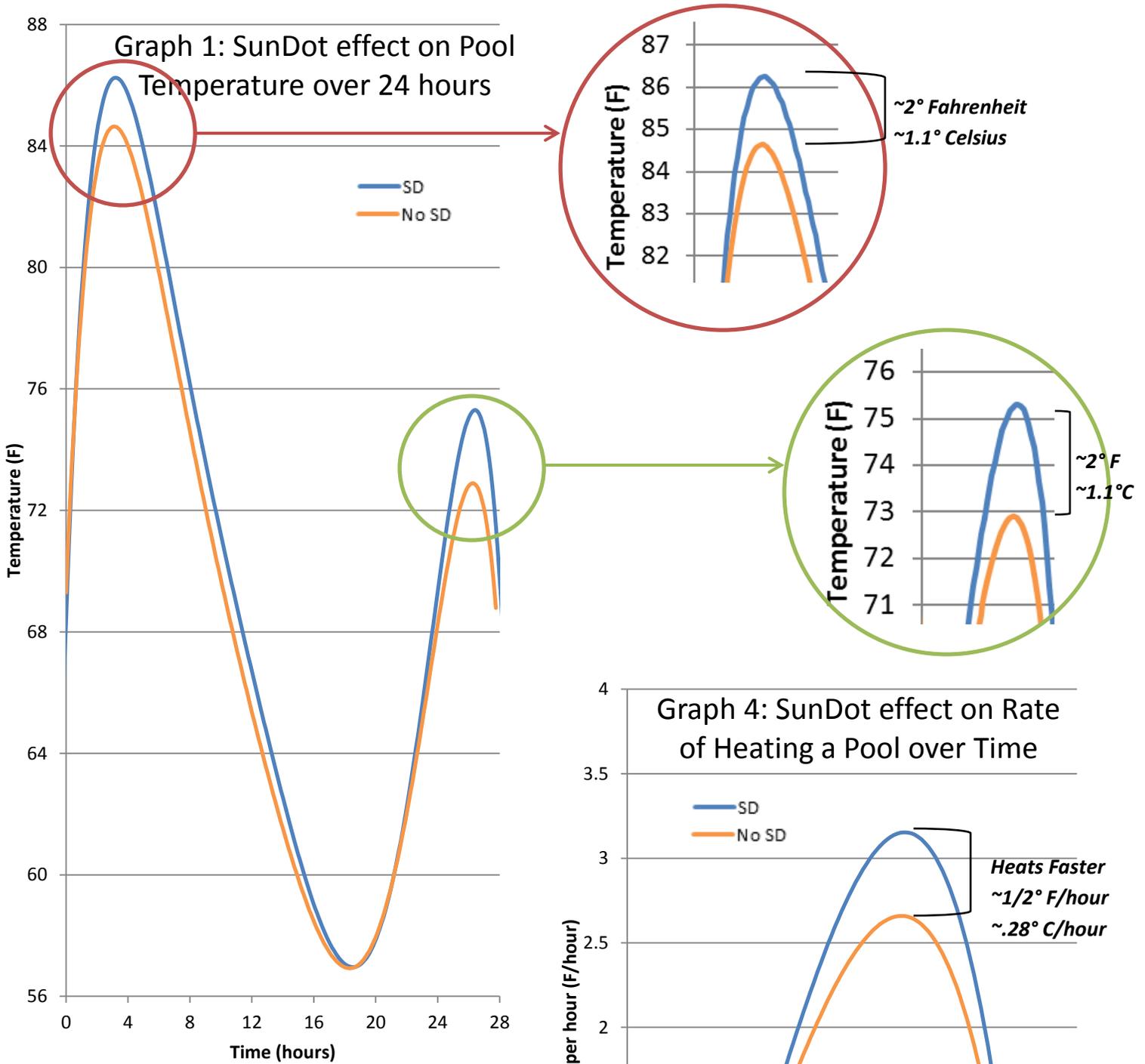
## SunDot Theory Summary

Place the **SunDot** in the pool where the **sunlight** will land on it. The **SunDot** is a **black body** which **absorbs** the **solar energy** from the **sun**. The **SunDot** emits the **solar energy** to the pool through convection, conduction, and radiation. The **SunDot** will only be advantageous when exposed to direct sunlight. A deeper pool would be less advantageous for the **SunDot** because of **reflection** and **refraction** as well as less exposure time to direct sunlight and an increase to volume in water. The **SunDot** was designed with the intention of being an inexpensive heating alternative for small above ground pools.



## SunDot Theory Terms

<b>Sun</b>	Star at the center of the Solar System, emits electromagnetic radiation. The solar radiation to earth is very strong, but not all gets through the atmosphere.
<b>Solar Energy</b>	Electromagnetic radiation carries energy - sometimes called solar energy. It is a form of energy that exhibits wave-like behavior as it travels through space.
<b>Thermal Radiation</b>	All matter with a temperature greater than absolute zero emits thermal radiation. The absorption and dissipation rates are relative to matter temperature.
<b>Black Body</b>	An idealized physical body that absorbs all incident electromagnetic radiation. The object appears black, since it does not reflect or emit any visible light. Black body has theoretical perfect absorptivity at all wavelengths; a black body is also the best possible emitter of radiation.
<b>Light</b>	Visible light has wavelength in a range from about 380 nanometres to about 740 nm, with a frequency range of about 405 THz to 790 THz. It contains electromagnetic radiation and will be treated as a beam.
<b>Reflection</b>	Changes in direction of a wavefront at an interface between two different media so that the wavefront returns into the medium from which it originated.
<b>Refraction</b>	A phenomenon that often occurs when waves travel from a medium with a given refractive index to a medium with another at an oblique angle. At the boundary between the media, the wave's phase velocity is altered, usually causing a change in direction. Its wavelength increases or decreases but its frequency remains constant.
<b>Surface Finish</b>	Lighter colors and also whites and metallic substances absorb less illuminating light, and thus heat up less.



Graph 1: 28 Hour Test of the **SunDot (Blue)** compared to **NO SunDot (Orange)**.

Graph 2 & 3: Demonstrate the two peaks at each point during the two days. It shows that the **SunDot** reaches *higher temperatures both days*.

Graph 4: Demonstrates the Rate of temperature change. It clearly shows that the pool with a **SunDot** has *higher temperature transfer rates* than the pool without a **SunDot**. "Heats up faster"

