ATHERMIC
PAVING STONES

WHAT ARE THEY
AND WHAT ARE THEY USED FOR?

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ATHERMIC PAVING STONES

A porcelain paving stone is considered athermic when the surface does not absorb or retain large quantities of heat, even under direct sun exposure. This means the paving stone maintains a comfortable temperature to the touch, reducing the risk of burns and providing a pleasant feeling in outdoor areas such as terraces, pools and patios.

Characteristics of athermic porcelain paving stones:

1. Low heat absorption: They use special materials and treatments that minimize the accumulation of heat on the surface.

2. Light colors: Athermic paving stones generally tend to come in light tones, as they reflect the sunlight better than dark tones.

3. A specific texture: Some have non-slip finishes, which is ideal for wet areas like pools.

4. Resistance to the elements: They maintain their athermic property even under extreme climate conditions.

Advantages of athermic paving stones:

- Greater comfort in warm climates.
- Ideal for walking barefoot without getting burnt.
- Safer as they reduce the risk of accidents due to heat.

If you're looking for paving stones for a project, make sure they're certified as athermic or specifically designed for hot climates. You can ask the manufacturer to give you the **Solar Reflectance Index (SRI)** for their paving stones.

What is SRI?

The **Solar Reflectance Index (SRI)** is a key factor when assessing athermic paving stones as it measures the capacity of a material to reflect solar radiation and dissipate heat. This index combines two properties: solar reflectance (how much of the material reflects the sunlight) and the thermal emissivity (how efficiently it emits the absorbed heat).

What does SRI have to do with athermic paving stones?

1. The higher the SRI, the lower the heat accumulation:

- Paving stones with a high solar reflectance index reflect a greater quantity of solar radiation, thereby reducing the quantity of heat absorbed by the material.
- This makes them ideal for maintaining the lowest surface temperature, even under direct sun exposure.

2. Athermic paving stone design:

- Manufacturers use materials and colors that enhance the SRI. For example, light colors and specific finishes that reflect the sunlight more effectively.
- Some surface treatments also improve the thermal emissivity, which helps the material quickly dissipate heat.

3. Standards and testing:

- When designing athermic paving stones, the SRI is measured and classified in accordance with standards like ASTM E1980 (used to determine the SRI of construction materials). A high SRI is an indicator that the paving stone is appropriate for warm climates exposed to the sun.

If you're thinking about buying athermic paving stones, make sure to check the SRI specifications as this indicator is a guarantee for heat dissipation performance.

Gres Aragón colors

SERIE URBAN	SRI low wind speed	SRI average wind speed	SRI high wind speed
 URBAN BLANCO	0,60	0,63	0,65
 URBAN BEIGE	0,54	0,57	0,59
 URBAN GRIS	0,52	0,55	0,58
 URBAN GRAFITO	0,23	0,26	0,29

What does this have to do with the thermal experience?

- The higher the SRI, the lower the temperature of the paving stone under the sun.
- Paving stones with an SRI of less than 0.50 usually absorb more heat, meaning they cannot be classified as athermic.

Therefore, when choosing athermic paving stones, look for those that specify an SRI ≥ 0.50 as a reference.

If you live in a very hot region or in areas with intense sun exposure, choose higher SRI values ≥ 0.65 as a reference.

Other expressions of (SRI)

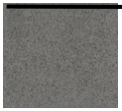
The **Solar Reflectance Index (SRI)** is normally expressed as a value **between 0 and 1.** This value indicates the fraction of incident solar radiation reflected by the surface assessed.

- A **value of 0** indicates the surface does not reflect any solar radiation; in other words, all the solar radiation is absorbed.
- A **value of 1** indicates the surface reflects all the solar radiation on it.

In some contexts or graphic representations, the SRI can also be expressed as a **percentage**; in other words, as a value between 0% and 100%, where:

- **0% means** there is no reflection,
- **100% means** total reflection.

Therefore, **0 to 1 or 0% to 100%** are equivalent with the first used most commonly in science.

SERIE URBAN	SRI low wind speed	SRI average wind speed	SRI high wind speed
 URBAN BLANCO	60%	63%	65%
 URBAN BEIGE	54%	57%	59%
 URBAN GRIS	52%	55%	58%
 URBAN GRAFITO	23%	26%	29%