

None of these materials will melt or degrade from direct sunlight or UV radiation once they are implanted.

There are two main reasons for this: their physical location and their chemical properties.

1. Protection by the Scalp

These materials are "fillers" for the bone, meaning they are placed **underneath** your skin (the scalp). Your skin is an incredibly effective filter for UV radiation. Even if you are standing in direct, intense sunlight, the UV rays do not penetrate deep enough to reach the skull or the implant.

2. High Melting Points

The temperatures required to melt or even soften these materials are significantly higher than anything the human body or a natural environment could ever reach.

| Material | Melting/Softening Point | Behavior in Heat |
|--------------------|-------------------------|---|
| Titanium | ~3,000°F (1,650°C) | Completely unaffected by weather or climate. |
| PEEK | ~650°F (343°C) | High-performance plastic; used in aerospace because it resists extreme heat. |
| PMMA (Bone Cement) | ~320°F (160°C) | Becomes a liquid only during the initial mixing process; once hard, it is stable. |
| Hydroxyapatite | >2,000°F (1,100°C) | This is a ceramic; it is essentially "fired" and stone-like. |
| Medpor | ~260°F (130°C) | High-density plastic that remains solid at any temperature a human can survive. |

did seem to melt in the sun sadly.

Can they "Heat Up" in the sun?

While they won't melt, different materials conduct heat differently:

- **Metals (Titanium):** Metal is a conductor. Theoretically, if you had no skin covering the metal, it would get hot in the sun. However, because it is buried under the scalp and cooled by your body's blood flow, it stays at your internal body temperature (**98.6°F / 37°C**).
- **Polymers (PEEK, PMMA, Medpor):** These are insulators. They do not conduct heat well, meaning they are very good at maintaining a stable temperature regardless of the weather outside.

What about UV degradation?

Some plastics (like those in lawn furniture) can become brittle after years of sitting in the sun. This is called **photodegradation**. Because your skull implants are never exposed to light, this process cannot happen. They are designed to last for the rest of your life without breaking down.