abstract The absorption cross section for scalar particle impact on a Schwarzschild black hole is found. The process is dominated by two physical phenomena. One of them is the well-known greybody factor that arises from the energy-dependent potential barrier outside the horizon that filters the incoming and outgoing waves. The other is related to the reflection of particles on the horizon (Kuchiev 2003). This latter effect strongly diminishes the cross section for low energies, forcing it to vanish in the infrared limit. It is argued that this is a general property, the absorption cross section vanishes in the infrared limit for scattering of particles of arbitrary spin.