

Nickel Sulphide Inclusions

While nickel sulphide breaks are extremely rare, it's still very helpful to understand how spontaneous breakage due to nickel sulphide can sometimes occur.

When glass goes through the toughening process, it becomes four to five times stronger than standard annealed glass, making it great from a safety perspective. However, nickel sulphide stones that can form during the production of float glass due to nickel contamination, can end up in the centre tension zone of toughened glass. When the toughened glass is later exposed to varying temperatures in its final installed position, this tiny stone – which can measure from 0.1mm to 0.3mm in diameter – may grow in size, and cause the glass to shatter for no apparent reason.

Image 1 (Right) - Example of Nickel sulphide breakage



Heat-soaking solution

As indicated, nickel-sulfide particles are tiny, extremely rare, and only found randomly in float glass. This combination makes visual inspection for such inclusions highly impractical, if not impossible. For that reason, some glass fabricators and glazing contractors offer heat-soaking of tempered glass as a potential solution for minimizing the risk of spontaneous glass breakage.

In this procedure, the glass supplier exposes an entire lot or statistical sampling of tempered glass panels to temperatures of 288 to 316 C (550 to 600 F) for two to four hours. The goal is to accelerate the phase change of any nickel-sulfide inclusions that may be present and to cause the glass to break before it is shipped to the end customer.

All Infinity and Glow walk on floors are heat soaked to reduce the risk of breakage and stamped for assurance.

Image 2 (Right) – Glass stamped showing required information

