

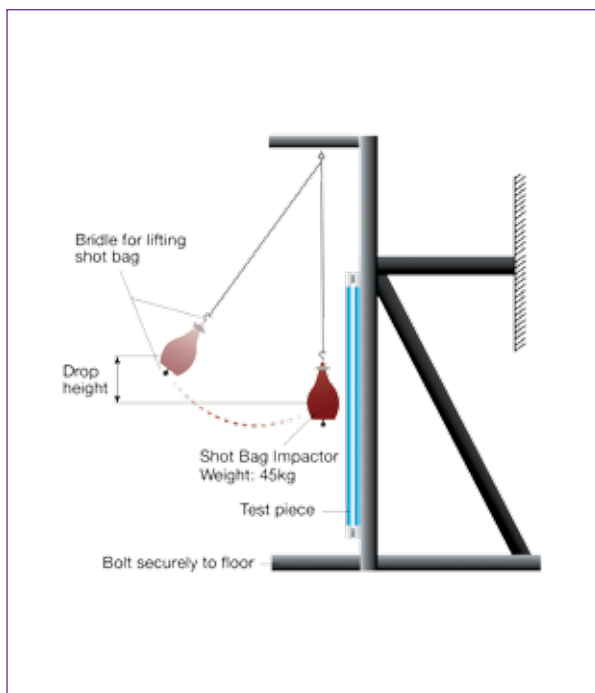
CSG Tempered Glass has been certified as Grade A safety glass since 2007 under the SIRIM product certification scheme which follows the AS/NZS 2208 Safety Glazing Materials in Building requirement and guidelines.

As Grade A safety glass, CSG Tempered Glass strictly meet the following requirement:

- ◇ Thickness requirement (4 -19mm)
- ◇ Size tolerance requirement
- ◇ Flatness
- ◇ Squareness or rectangular requirement
- ◇ Fragmentation test
- ◇ Impact Test

Impact Test

Impact testing is used to test how well a tempered glass can with stand impact.



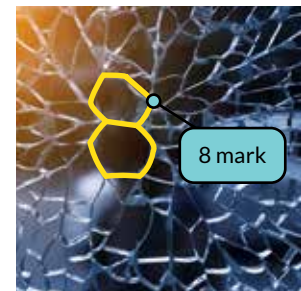
Spontaneous Breakage

There are certain instances that glass break for no apparent reason. When this occurs, it could be due to various reasons or a specific type of inclusion inside the glass. There are more than 50 types of inclusion in float glass, and while the most widely discussed is nickel sulphide stone, this type of inclusion actually occurs very rarely.

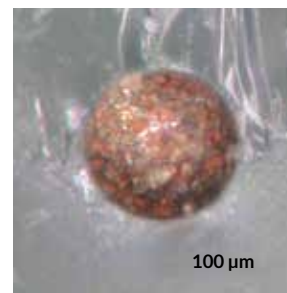
Nickel sulphide (NiS) stones that can form during the production of float glass due to nickel contamination, can end up in the centre tension zone of tempered glass. When that piece of tempered glass is later exposed to varying temperatures in its final installed position, this tiny stone – which can measure from 0.003 to 0.015 of an inch in diameter – may grow in size, and cause the glass to shatter for no apparent reason.



Tempered glass break pattern



Spontaneous breakage '8 mark' caused by NiS inclusion



100 µm



Nickel sulphide inclusions found on fracture surfaces of glass that failed by "spontaneous breakage".