

TECHNICAL SALES BULLETIN 029

14th October 2021

Heat Soak Testing of Toughened Safety Glass

What is Heat Soak Testing?

Heat soak testing is a destructive test. Toughened Glass is put into a heat Soak Oven and brought to and held at a temperature of 250°C – 270°C Max 290°C at a maximum rate of 3°C per minute for the heating stage and held for two hours.

Most glass containing Nickel Sulphide will shatter during this process and thus be eliminated from the glass project. This test reduces the risk of NiS fractures but can never completely eliminate the risk.

It has been concluded that the incident of critical NiS inclusions is, on average:

- 1 inclusion in 5000 kg of glass for ordinary tempered glass.
This translates to 1 inclusion per 333m² of 6mm.
- 1 inclusion in 400 000 kg of glass for heat soak tested toughened safety glass.
This translates to 1 inclusion per 26000m² of 6mm.

PG Building Glass has recognised the demand by the architectural community to heat soak test glass to ensure a quality glass product.

For this reason PG Building Glass have purchased a Heat Soak Oven and will be installed by end of Jan 2021.

Max pane size of 2400 x 3600 and up to 30 pieces (+/-250m² Load) per cycle dependant on project panel sizes this may vary. Output will be lower if panes are smaller due to load size capacity.

Process

The glass will follow the normal process through the factory until the glass has been toughened. From there glass marked for Heat Soak Testing will be loaded into the HST Oven and tested. Glass will then after being heat soak tested. 3 additional working days must be allowed for due to the additional processes involved.

- Optimization
- Cutting
- Edge work
- Toughening
- ***Heat Soak Testing***
- Optional - X2 Assembly or Lamination
- Dispatch

The system will record and control the parameters automatically throughout the process. The temperature and time history are recorded and logged. These are stored for future use if required.

The heating process is calibrated at a 10% and 100% load capacity to ensure all glass surfaces reach the minimum temperature of 250°C before the holding cycle is started. This can take 2 – 4 hours typically before the hold cycle is started for 2 hours. After the 2 hour holding cycle the cooling cycle will start until the glass surface is below 70°C. This can take an additional 2 – 4 hours resulting in a 6 – 10 hour run cycle per load.

PG Building Glass can then issue a certificate for the glass that has been Heat Soak Tested on completion of the project on request after the glass has been delivered.

The glass panes designated for Heat Soak Testing will be marked with an additional HST (SANS 1263-1 – HST) for identification on site.

Below is a picture of a NiS inclusion within the glass body.

