
Downgauging

When is it used and what are the benefits?

PE100 HSCR offers an alternative design solution in situations where wall thickness has been added to reduce the risk of brittle failure.

The resulting benefits are reduced material usage, lower handling and transport costs, shorter butt welding time, and improved flow characteristics, the latter resulting in reduced pumping costs and higher flow fluid delivery.

What are the concerns?

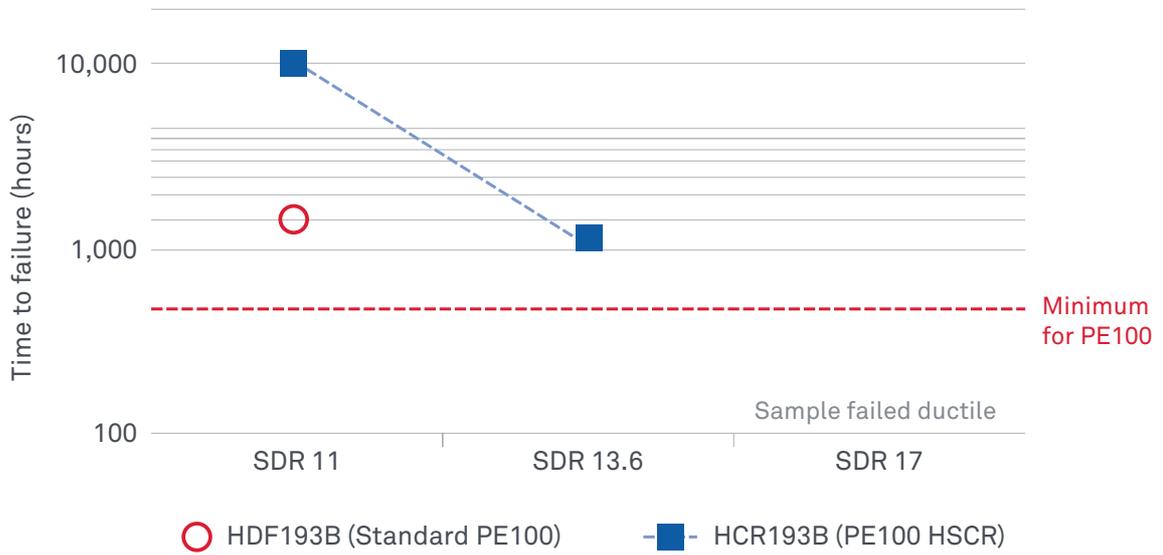
The reduced pipe wall thickness due to adopting a lower design factor increases the potential for slow crack growth to occur with PE100 materials.

How can the use of Alkadyne® HCR193B address these

Alkadyne® HCR193B is a PE100 HSCR resin that has been specifically developed to achieve stress crack resistance that is greatly superior to standard PE100 resins. Alkadyne® HCR193B complies with AS/NZS 4131 and meets the requirements of POP016 for High Stress Crack Resistant PE100. Alkadyne® HCR193B reduces the risk of brittle failure due to surface damage or point loads and offers an alternative design solution to increased wall thickness.

Testing has shown the slow crack growth resistance of Alkadyne® HCR193B remains above the level required by the standard for PE100 when wall thickness is reduced from the standard specimen thickness shown in the chart below.

Notched Pipe Test (ISO 13479)



NOTE: Test covered 110mm pipes with notch depth of 2.1mm tested in hydrostatic pressure test at 920kPa/80°C

Figure15: Notched Pipe Test ISO 13479 with varying wall thickness
