

# Window seals virtually unaffected by the elements after 22 years of service



## UOB Plaza Tower — 1996 / 2018 An analysis of 22-year old seals made with Santoprene® TPV

The UOB Plaza Tower — named after the United Overseas Bank — was for many years one of the three tallest skyscrapers in the city of Singapore.

Designed by one of Japan's most famous 20th century architects, Kenzo Tange, Pritzker price winner, the building itself is a box shaped post-modernist construction.

The construction of the tower itself includes a "performance wall" envelope — also known as a "curtain wall" and was finished in a composite of white and grey granite, and large grey glass units.

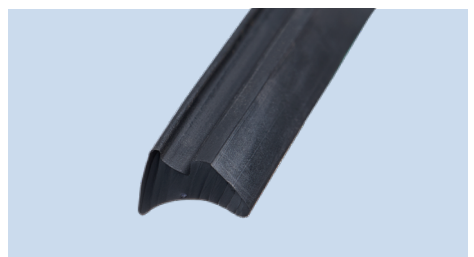
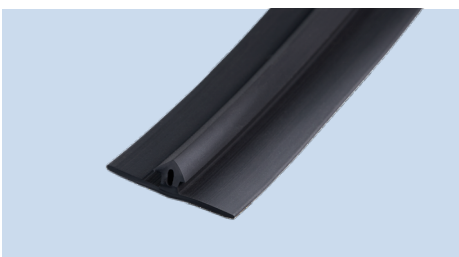
### **The UOB Plaza Tower was fitted with Santoprene 591-65W175 TPV for curtain wall sealing in 1996.**

22 years later, the tower was supplied by Gaintech Industries Pte Ltd with the current Santoprene 121-67W175 TPV grade for window profiles.

Celanese took the opportunity to examine the old profiles and compare them to the new, recently fitted seals.

It was clear, even before any tests were performed, that the old seals were almost identical to the new ones and that they had been virtually unaffected by the passage of time.

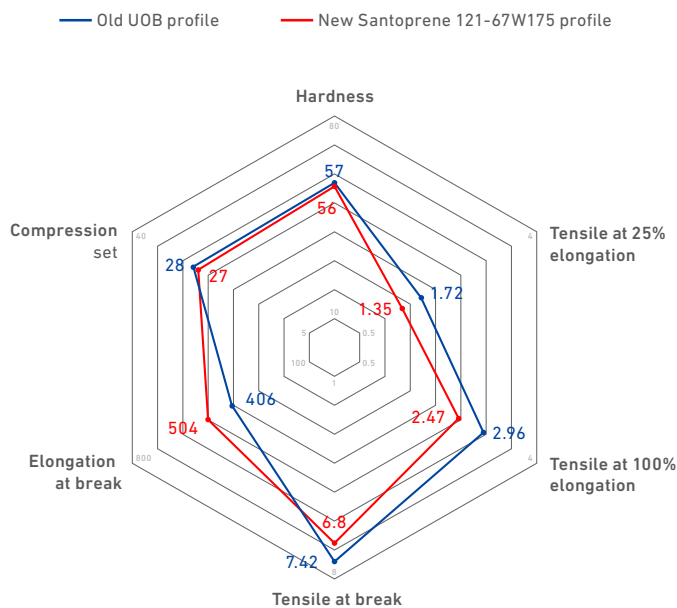
To confirm this, samples of both the original and new seals were sent for physical and chemical testing to Celanese for more detailed analysis.



22-year old UOB profiles from customer

**Hardness, tensile and elongation tests were made on both the old UOB profiles and the newly installed ones**

Test Items	Unit	Old UOB profile	New Santoprene® 121-67W175 profile
Compression set 70°C, 22 hrs, 25%*	%	28	27
Hardness*	Shore A	57	56
Tensile at 25% elongation*	MPa	1.72	1.35
Tensile at 100% elongation*	MPa	2.96	2.47
Tensile at break*	MPa	7.42	6.8
Elongation at break*	%	406	504



\* Source: Company data

The test confirms that the original UOB profiles are remarkably similar to the new Santoprene 121-67W175 TPV profiles — even after 22 years of exposure to the elements.

**Conclusion**

Even after 22 years of wear and tear, the original Santoprene TPV profiles still deliver very good tensile and elongation results. In fact they are almost identical to new materials, and hardly any aging is noticeable.

The team of architects handling the renovation once again specified Santoprene TPV for the window profiles.

And no wonder, as Santoprene has consistently proved water-resistant during decades of exposure to tropical weather conditions. Furthermore, the building owners and management committee has appreciated high quality sealing and performance during the lifetime of the building.

We would like to thank the parties involved in collecting the information of the UOB Plaza case, including Gaintech Industries Pte Ltd.

Gaintech Industries Pte Ltd was formed in 1989 and has progressed from trading to the leading contract manufacturer of flexible extruded profiles in Singapore.

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