



DOW

INNOVATIVE TRANSPARENT SILICONE SOLUTIONS FOR ARCHITECTURAL GLASS APPLICATIONS

VALÉRIE HAYEZ

ZAK World of Façades, 2nd October 2019

TRANSPARENT **SPACERS** FOR INSULATING GLASS UNITS



Scena - PMMA spacer



- Rigid materials (PMMA, Glass)
- Bonding with double-sided tape

Isopure - Glass spacer



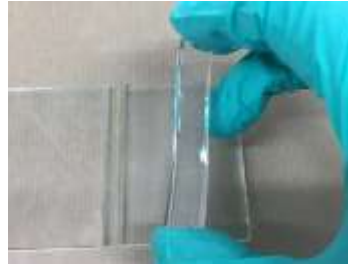
CRYSTAL CLEAR SILICONE TECHNOLOGY

- A **FULLY cured** product, having the unique capability to be reactive towards a primed surface



Prime substrate

<5min

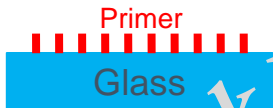


Apply spacer

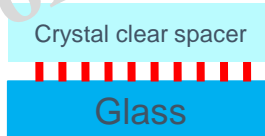
<5min



Assembly finished



Primer has to react with substrate first



Spacer has to react with primed surface

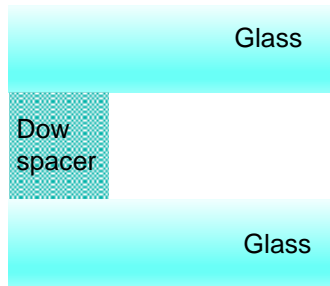


- Durable chemical adhesion,
- Cannot be peeled off (cohesive failure)
- Adhesion on glass, stainless steel, mill finish/anodized aluminum, etc

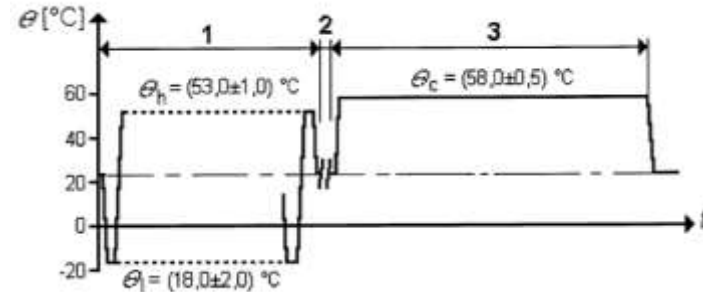
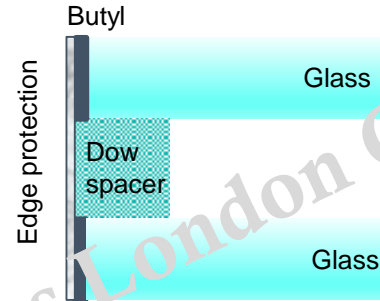


CRYSTAL CLEAR SILICONE SPACER FOR INSULATING GLASS UNITS

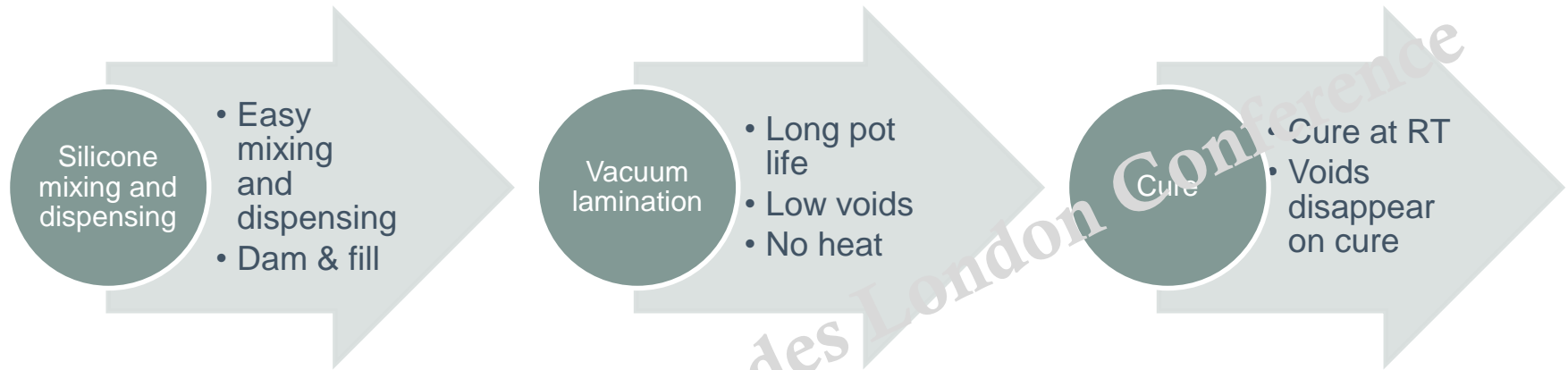
Commercial refrigerators



Architectural Glass



ROOM TEMPERATURE SILICONE **LAMINATION** FOR DECORATIVE GLAZING



- 2-Component, self leveling, room temperature curing transparent silicone
- Develops **room temperature adhesion** on glass and metals without primer
- No bubble generation even in confined area
- Stable properties over wide Temperature range
- Durable properties upon heat and UV exposure
- Compatible with DOWSIL™ silicones



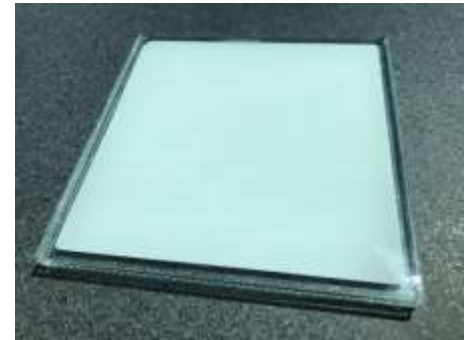
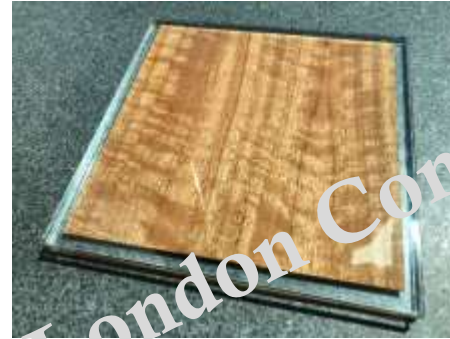
ROOM TEMPERATURE SILICONE LAMINATION FOR DECORATIVE GLAZING

Stable Properties from -40°C to 150°C

- High Clarity
 - LT = 90% @ 350nm and LT >93% @ 400-800 nm
 - Haze = 6% @ 350nm & haze <4% above 450 nm
- Impact resistance: up to 3B3 (EN 12600)
- Promising acoustic damping properties

Applications

- Decorative and functional laminates with glass/other substrates



3D PRINTED SILICONE APPLICATIONS

TYPICAL

3DP silicone products are used for applications requiring high precision such as seals or connectors



Consumer Goods



Transportation



Consumer & Communication

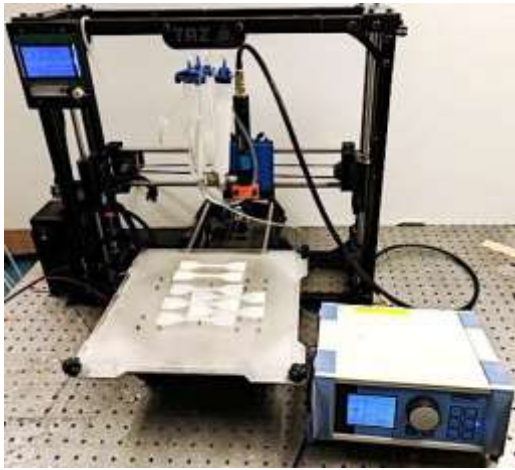


CONSTRUCTION

3DP silicones can be used in construction, at the Intersection of Design and Performance where Every Node is Geometrically Unique



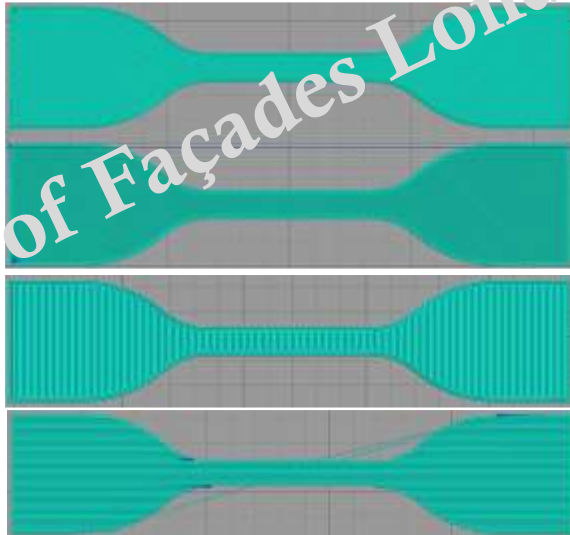
3D PRINTABLE RTV SILICONE



ASTM D412: Thickness: 2.4 mm

- 1-part RTV silicone, Hardness 33 (A scale), TFT = 14minutes, 1.2MPa tensile, 1.04g/ml gravity
- Extrusion based Additive manufacturing

Influence of infill direction (0° , $\pm 45^\circ$, 90° relative to the tensile direction) and adjacent line spacing (compression) on the void formation and maximum tensile strength versus cast silicone.



- Define process parameters which minimize the elongated voids, infill tangency voids, and surface edges.
- When these conditions are achieved, the infill direction does not play a significant role in the tensile strength of a part.



THANK YOU



The information contained in this communication does not constitute an offer, does not give rise to binding obligations, and is subject to change without notice to you. The creation of binding obligations will occur only if an agreement is signed by authorized representatives of Dow and your company. Any reference to competitor materials contained in this communication is not an endorsement of those materials by Dow or an endorsement by the competitor of Dow materials.

To the fullest extent permitted by applicable law, Dow disclaims any and all liability with respect to your use or reliance upon the information. **DOW DOES NOT MAKE ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, WITH RESPECT TO THE UTILITY OR COMPLETENESS OF THE INFORMATION AND DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. DOW DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

© 2019 The Dow Chemical Company. All rights reserved.



Seek

Together™

© Zak World of Façades London Conference