

Chemically toughenable CONTURAN®

The first anti-reflective coating for chemical toughening

Product Information

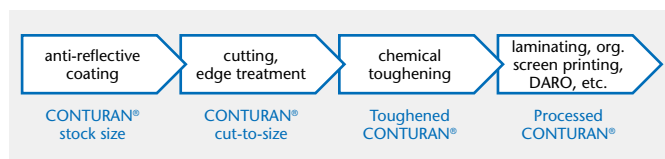
With the growing number of displays in the many different environments that surround us, demand for display glazing is increasing as well. This applies not only to volumes, but also to improved properties such as transparency, mechanical strength, ease of cleaning, low weight, etc.

However some of these demands contradict each other. For instance, the preferred option for display glazing nowadays is to use a very thin glass < 3 mm that is chemically toughened (thermal toughening is technically not feasible) to meet the obvious requirements of high mechanical strength and low weight. Unfortunately, this stands in contradiction to maximized transparency and reduced reflections, which are usually achieved by applying an anti-reflective coating.

SCHOTT has developed a unique coating that can be chemically toughened. A special dip coating process is used for CONTURAN®, an anti-reflective glass with an optical interference coating on either one or both sides, with multiple layers of metal oxides which are only nanometers in thickness. As a result, this coating design prevents optical reflections from sunlight or artificial light from being caused by the glass surface.

It is especially worth noting that CONTURAN® can be toughened **through** the layers, which means that completely coated and processed glasses can be toughened in one final step. This allows for CONTURAN® to be used in standard process chains that include chemical toughening.

Process chain for chemically toughenable CONTURAN® – Flexibility for all variants



Advantages of chemically toughened CONTURAN®

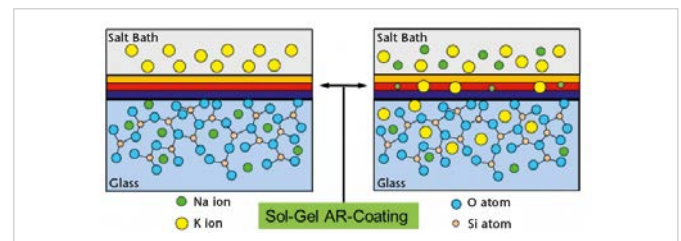
Chemically toughened CONTURAN® has higher impact and bending strength. The chemical toughening is used mainly to strengthen thin glasses (less than 3.2 mm). CONTURAN® complies with the recommendations of EN12337.

Advantages are:

- Reflection < 1 %
- Enhanced mechanical strength and higher damage resistance
- Improved light transmission
- Weight reduction
- Compatible with anti-fingerprint coating DARO
- Easy and flexible processing

What happens during chemical toughening?

The strength of glass can be improved by subjecting it to a defined treatment in a specially prepared salt bath. An ion exchange takes place between the glass and the salt bath, which causes strong compressive stresses within the surface of the glass that significantly improve its strength properties. This process is referred to as “chemical toughening” or “chemical strengthening.”



Specifications of chemically toughened CONTURAN®

The specific values of compressive stress and depth of layer are similar to uncoated, chemically hardened soda-lime glass.

- Compressive stress: feasible > 350 MPa
- Depth of layer (DOL): feasible > 9 µm
- Bending strength (double ring): feasible > 350 MPa

The specific compressive stress and depth of layer are dependent on process parameters.

Applications

- Touchscreen displays
- Ruggedized displays
- Command and control displays
- Medical displays
- GPS displays (e. g. automotive)
- Kiosks / Public displays
- Gaming display

Specifications of chemically toughenable CONTURAN® (Dimensions & product range)

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|---|
| Glass thickness from 1.6 mm up to 4 mm |
| Available in sizes up to 1220 mm x 1770 mm (>72" diagonal) |
| Visible light transmittance: >98 % |
| Visible light reflection: <1 % |
| Float glass as base material |
| Processing methods after toughening: laminating, DARO, organic screen printing |

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