High Performance Glass Products for Digital Signage, Digital Displays and Touch Screens
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Pilkington Optiwhite™ is an extra-clear, low iron float glass; it is practically colorless, and the green cast inherent to other clear glasses is not present. It is perfect for applications where transparency and purity of color are desired.

Available in thicknesses between 3 mm and 19 mm (the widest range on the market), Pilkington Optiwhite™ provides increased design flexibility and, when combined with other Pilkington products, it can offer additional benefits such as anti-reflective or conductivity.

**Features**
- 92% light transmittance
- True color and outstanding visual clarity
- Ensures a more natural, brighter view
- Improves aesthetics of laminated glass
- Brilliant clarity when compared to ordinary standard clear float glass
- Can be toughened or laminated for safety and security
- Can be painted or silk-screened for spandrel or decorative applications
- Can be combined with other products from the Pilkington range to provide additional benefits such as anti-reflective or conductivity

**Performance Data**

<table>
<thead>
<tr>
<th>Product</th>
<th>Nominal Glass Thickness</th>
<th>Visible Light (%)</th>
<th>Reflectance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Transmittance</td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
<td>1/8</td>
<td>3</td>
<td>91</td>
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<td>5/32</td>
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<tr>
<td>3/4</td>
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<td>90</td>
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Anti-Reflective Display Cover Glass

The Pilkington OptiView™ range and Pilkington OptAR™ range of coated anti-reflective glasses provide a complete set of solutions to minimize reflections in digital signage. These products reduce distracting reflections on computer screens, televisions, flat panels, aircraft transparencies and other electronic displays. As a result, displays are easier to read and eye strain is minimized while visual acuity is increased.

Monolithic Anti-Reflective Products

- Pilkington OptiView™ is a color neutral, anti-reflective pyrolytic coating with excellent durability. It is easy to clean and reduces the appearance of fingerprints relative to other AR coatings.
- Pilkington OptiView™ Fusion is pyrolytic coated on one side with a sputter coat on the other for a double sided anti-reflective glass.
- Pilkington OptAR™ is a single sided, anti-reflective pyrolytic coating available in a thickness as thin as 1.6 mm.
- Pilkington OptAR™ Plus offer all the benefits of Pilkington OptAR™ but provides higher light transmission and is compatible with all touch technologies including projected capacitive.

Features and Benefits

- Low reflection, less than 1% from front surface
- Range in thicknesses from 1.6 mm to 10 mm
- Improved visual performance with high light transmission
- Easily fabricated
- Bendable
- Available on low iron substrate
- Durable and robust coating
- Large stock sizes: 130” × 204”

Applications

- Digital signage and displays
- Touch panel displays
- Aircraft transparencies
- Flat-panel LCD monitors
- Televisions and HDTV
- Specialty vehicle windshields and instrument panels
- Specialty electronic applications

Performance Data

<table>
<thead>
<tr>
<th>Product</th>
<th>Nominal Glass Thickness</th>
<th>Coated Surface Reflection</th>
<th>Visible Transmittance</th>
<th>Total Visible Reflectance</th>
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<td>&lt;5</td>
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<td>96</td>
<td>&lt;1</td>
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</tbody>
</table>

Front (coated) surface reflectance of Pilkington OptiView™ and Pilkington OptAR™ glass compared to 3.2 mm clear glass

Sheet resistance (Ω/□) is <200 for all products listed above.
Laminated Anti-Reflective

Pilkington OptiView™ for Outdoor Digital Signage

Many signage installations are used outdoors. Outdoor applications require additional safety and security. Laminated Pilkington OptiView™ offers many of benefits for outdoor signage.

Features and Benefits

- High light transmission: >90%
- Low reflection: <2%
- Neutral color
- UV Control. UV and IR rays can damage displays. Laminated Pilkington OptiView™ blocks almost 100% of UV and reduces infrared radiation.
- Available on low iron glass
- Increased safety & security in comparison to monolithic glass
- No visual distortion
- High durability
- Reduces the appearance of fingerprints
- Range of thicknesses from 3.6 mm to 20 mm

Reflectance of laminated Pilkington OptiView™ compared to 6 mm clear glass
Smart Mirrors

Pilkington MirroView™ digital display mirror, for low light applications

Pilkington MirroView™ is a highly reflective mirror-like coating on a clear substrate that is compatible with all touch technologies including projected capacitive. Pilkington MirroView™ gives digital displays and video screens a modern, high-tech look.

Pilkington MirroView™ is ideal for concealing digital displays and video screens for commercial and residential applications in low ambient light.

When the screen is turned ‘off’, Pilkington MirroView™ maintains a mirrored appearance while concealing the screen. When the screen is turned ‘on’, the image on the screen shows through.

Pilkington MirroView™ is available in large stock sizes providing the ability to provide a versatile range of design opportunities. The pyrolytic coating is very durable and can be easily handled, transported and processed, including tempering and laminating. Due to the durability of the pyrolytic coating, it does not degrade over time, which gives the product a virtually unlimited shelf-life.

Applications
- Bars
- Restaurants
- Bathrooms
- Digital signage
- Touch screens
- Smart mirrors

Features & Benefits
- Conceals digital screens in unique, modern display
- Durable pyrolitic coating
- Large sizes available: 130” × 204”
- Bright, natural reflected
- Works with all touch screen technologies

Available Thickness
- 3.2 mm
- 6 mm
Pilkington **MirroView™** 50/50 digital display mirror, for high light applications

Pilkington **MirroView™** 50/50 offers the same qualities as the original product, yet it is designed for use in applications with high ambient light.

**Applications**
- Hotel rooms
- Lobbies
- Salons
- Retail
- Digital signage
- Touch screens
- Smart mirrors

**Features & Benefits**
- Conceals digital screens in unique, modern display
- Durable pyrolytic coating
- Large sizes available: 130” x 204”
- Bright, natural reflected
- Works with all touch screen technologies

**Available Thickness**
- 3.2 mm
- 6 mm

**Performance Data**

<table>
<thead>
<tr>
<th>Product</th>
<th>Nominal Glass Thickness</th>
<th>Visible Transmittance</th>
<th>Visible Reflectance Coated Side</th>
<th>Visible Reflectance Glass Side</th>
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<tr>
<td></td>
<td>in.</td>
<td>mm</td>
<td>(%)</td>
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<td>Generation 2</td>
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<td>6.0</td>
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<td>6.0</td>
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</tbody>
</table>

Nominal values shown.
Ultra Thin Applications

Pilkington Microwhite™ and NSG UFF™

NSG UFF™ (Ultra Fine Float) and Pilkington Microwhite™ are extremely thin, high-grade float glass products. They are made according to the highest specifications with very tight thickness tolerances to ensure flat and uniform products, suitable for a variety of applications. NSG UFF™ is produced with a clear glass composition and so has an iron oxide level of 1000 ppm. Pilkington Microwhite™ uses a low-iron composition of around 100 ppm iron oxide, which produces a very pure, clear glass to improve color rendering and increase light transmission.

Applications
- Digital signage and displays
- Microscope slides
- Cosmetic mirrors
- Chromatographic plates
- LCD photo masks
- Automotive and technical glass
- Computer and tablet screens

Features
- High-grade thin float glass with very tight thickness tolerances
- Flat and uniform products
- Pilkington Microwhite™ thickness range: 1.0 mm - 1.3 mm
- NSG UFF™ thickness range: 0.3 mm - 1.3 mm
- High optical transmission
- Cut to customer specifications

Additional features of Pilkington Microwhite™:
- Neutral edge color
- High color rendering
- Superior light and energy transmission
**NSG glanova™ for chemical strengthening**

NSG glanova™ is a unique, thin glass composition designed for chemical strengthening. With thicknesses ranging from 0.33 mm - 2.8 mm, it has a high optical transmittance of 91%, great color rendering, and superb durability.

Once chemically strengthened, NSG glanova™ has a much higher compressive stress and depth of layer than conventional soda-lime glass. NSG glanova™ is engineered to have a softening point similar to that of soda lime glass, allowing the use of conventional heat forming processes such as heat molding or sag bending. It’s also compatible with all standard glass processes including lamination, printing, anti-glare, and anti-reflection treatments.

**Features**
- Excellent chemical strengthening performance and strength
- High optical transmittance of 91%
- Great color rendering for displays
- Easy to process
- Can be combined with anti-glare and anti-reflective treatments
- Available in thicknesses of 0.33mm to 2.8mm
- Automotive and technical glass
- Tablet and phone screens

**Applications**
- Digital signage and displays
- Microscope slides
- Automotive interiors
Transparent Wire

NSG TEC™: Glass as wire

NSG TEC™ products have a conductive pyrolytic coating making them ideal for a wide range of products. Whether it is appliance glass, computer screens, touch screens, static controls, LED displays or many others, there are NSG TEC™ products to meet your specific needs.

Applications
- Digital signage and displays
- Smart watches
- Touch screens
- Automotive interiors
- LED displays
- Electromagnetic (EM) shielding

Features
- Static control
- Electrically conductive for touch sensing
- Range of thicknesses
- Variety of sheet resistance ranging from 7 ohms/sq. to several thousand ohms/sq
- Color neutral
- Easily fabricated and bendable
**Touch Screen Compatibility**

Pilkington has a range of products that can be used with all type of capacitive touch products to create touch screen and allow for unlimited design opportunities.

**Products**

- Pilkington OptAR™ Plus a single sided, anti-reflective pyrolytic coating available in a thickness as thin as 1.6 mm which also has the ability to work with all types of capacitive touch products (page 3 for more information).
- Pilkington MirroView™ is a one sided highly reflective pyrolytic coated glass that when placed in front of a screen will look like a mirror when the display is off but will let the display image show through when turned on. This product is ideal for low-ambient light (pages 6-7 for more information).
- Pilkington MirroView™ 50/50 is the same as Pilkington MirroView™ but is ideal for locations with high-ambient light (pages 6-7 for more information).
- NSG TEC™ product range is made up of various glass thicknesses with pyrolytic coatings with different levels of conductivity that can be used for touch screen applications (page 10 for more information).

**Features and Benefits**

- Ability to work with all types of capacitive touch products
- Easily fabricated
- Bendable
- Durable pyrolytic coating
- Large stock sizes: 130” × 204”

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**Compatibility with touch screen technology**

<table>
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<tr>
<th>Product</th>
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</tbody>
</table>

NSG TEC™ is different from the above products as it can be used as the transparent conductor for touch screen design.
This publication provides only a general description of the product. Further, more detailed, information may be obtained from your local supplier of Pilkington products. It is the responsibility of the user to ensure that the use of this product is appropriate for any particular application and that such use complies with all relevant legislation, standards, codes of practice and other requirements. To the fullest extent permitted by applicable laws, Nippon Sheet Glass Co. Ltd. and its subsidiary companies disclaim all liability for any error in or omission from this publication and for all consequences of relying on it. Pilkington, NSG, "TEC", "OptiView", "OptAR", "MirroView", "Optiwhite", "Optifloat", "glanova", and "Microwhite" are trademarks owned by Nippon Sheet Glass Co. Ltd, or a subsidiary thereof.