

Energy Independence



PILKINGTON
NSG Group Flat Glass Business

Pilkington Building Products North America

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Charge your imagination



Pilkington TEC Glass™

First in Glass, First in *green*



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Description

Whether your application involves heated glass for commercial refrigeration, heat reflecting, electrochromics, appliance glass, computer screens, touch screens, static control, thin film photovoltaics, EMI/RFI shielding or other electro-optical and insulating applications, there is a durable pyrolytic Pilkington TEC Glass™ product to meet your specific performance requirements.

Pilkington TEC Glass™ offers a wide range of thermal and heated glass performance properties, while it also increases light transmittance and optimizes electrical conductivity.



Product Features and Benefits

- Electrically conductive for heated and thermal control, electrostatic dissipation and reduced transmittance of electromagnetic radiation.

- Color neutral, minimizing reflected color.

- Easily fabricated durable pyrolytic surface can be handled, cut, insulated, laminated, heat-strengthened and tempered.

- Bendable which allows the glass to be heat processed and bent after production.

- Excellent availability for reduced lead times and control of costs.

- Unlimited shelf life.

- Will not change color over time.

- Scratch and abrasion resistance.

- Available in a variety of glass thicknesses and sheet resistances ranging from 8 ohms/sq. up to several thousand ohms/sq.



There are a variety of Pilkington TEC Glass™ products to meet your specific needs, including:

TEC 15

The best choice for applications requiring passive condensation control and thermal performance with low emissivity and clear color-neutral appearance.

TEC 7

Offers the lowest resistivity value in the TEC Glass™ range. Combined with relatively low haze, it can be used for a wide range of applications including dye solar cells, electromagnetic shielding and thin film photovoltaics.

TEC 8

Designed for use specifically with amorphous silicon thin film photovoltaics. This product combines the low resistivity of TEC 7 with a high haze coating required for good conversion efficiencies of amorphous silicon modules.

TEC 35, 50, 70, and 250

For use in heated glass applications, these products combine thermal control with superior electro-optical properties.

TEC SB

A barrier layer to avoid sodium migration into the deposited film, particularly at elevated temperatures. Therefore, the performance of an off-line coating is unaffected with the use of TEC SB as the coating substrate.

Pilkington TEC Glass™ – Photovoltaics

Thin Film Photovoltaic Applications

TEC Glass™ products make a great choice for thin film photovoltaic (PV) applications.

Pilkington produces a range of transparent conductive oxides on glass substrates that have been specifically tuned to meet the requirements of the thin film PV industry.

Pilkington Transparent Electrically Conductive Glass, by acting as the superstrate in a PV module, is designed to maximize the light transmittance and optimize module efficiency for each of the thin film technologies.

All TEC Glass™ products are manufactured using a patented chemical vapor deposition process to produce a durable, color-neutral, pyrolytic coating. The Pilkington process provides a high degree of flexibility. Consequently, properties such as sheet resistance, haze and light transmittance can be optimized to meet individual customer's needs whether the technology is in amorphous silicon (a-Si), hybrid (a-Si/microcrystalline Si) or cadmium telluride thin film.

The PV range of TEC Glass™ products may be heat strengthened and fully tempered without any shift in sheet resistance.

Standard products include TEC 15, TEC 7, TEC 8 and NSG TCO, a high conducting, high haze product for a-Si market. In addition, other variants are available to meet individual customer requirements.

These products are available in thicknesses varying from 2.3mm to 6mm.



Pilkington TEC Glass Performance Data

Pilkington TEC Glass™ Product Properties

Product	Thickness (mm)	Visible Transmittance (%)	Sheet Resistance (Ohms/sq.)	Haze (%)	Hemispherical Emittance
TEC 7	2.2, 3.0, 4.0	80 - 82	6 - 8	5	0.12
TEC 8	2.2, 3.2	80 - 81.5	6 - 9	12	0.12
TEC 15	2.2, 3.0, 3.2, 4.0, 5.0, 6.0	82 - 84.5	12 - 14	≤ 0.74	0.15
TEC 35	3.2, 6.0	82 - 84	32 - 48	≤ 0.65	0.34
TEC 70	3.2, 4.0	82 - 84	58 - 72	0.5	0.45
TEC 250	3.2, 4.0	84 - 85	260 - 325	0.7	0.67
TEC 1000	3.2	88	≤	0.5	0.78
Clear	3.2	90	-	-	0.84

Notes: Nominal values shown. Substrate = Clear soda lime glass. Specifications subject to change.

Pilkington TEC Glass™ Refrigerator Door Applications*

Glazing (Room/Cool side)	Airspaces (Number)	U-Value (W/m²·°C)	Room-Side Glass Temp. (°C)	Condensation RH** (%)	RH Improvement (%)	Heat Flow Through Glass (W/m²)	Heat Flow Reduction (%)	Power Density (W/m²)
Clear/Clear	1	2.8	19	62	Base Case	64	Base Case	0
Clear/Clear/Clear	2	2.2	20	67	8	52	19	0
TEC 15/Clear	1	1.9	22	72	16	43	33	0

*Room-side temperature = 27°C, refrigeration temperature = 4°C.

Pilkington TEC Glass™ Freezer Door Applications*

Glazing (Room/Cool side)	Airspaces (Number)	U-Value (W/m²·°C)	Room-Side Glass Temp. (°C)	Condensation RH** (%)	RH Improvement (%)	Heat Flow Through Glass (W/m²)	Heat Flow Reduction (%)	Power Density (W/m²)
Triple Clear	2	2.1	15	47	Base Case	101	Base Case	0
TEC 70/Clear/Clear	2	2.0	23	77	64	94	7	82
TEC 70/TEC 15	1	1.8	24	81	72	86	14	82
TEC 70/TEC 15/Clear	2	1.7	25	86	83	82	19	82

*Room-side temperature = 27°C, freezer temperature = -20°C. **CCondensation along the room-side glass surface away from the frame when the relative humidity (RH) within the room is greater than the value noted. ***No power.

Notes: All glass 3.2mm. Airspace 12mm for doubles, 6mm for triples. Airspaces filled with air. All simulations utilizing LBL Window 5.2. Demist heater power of 100 Watts (82 W/m2). Input voltage = 120 volts. Unit 800 mm x 1,700 mm, bus bars along 800 mm dimensions.