

## AGC Dragontrail™ Chemically Strengthened Glass

### Cover Glass • Displays • Sensors • Scanners

Asahi Glass Corporation (AGC) Dragontrail™ is innovative High Ion-Exchange (HIE™) aluminosilicate glass with superior strength, scratch resistance and a beautiful surface finish that is made by applying a proprietary chemical strengthening and tempering process to the highly even and flat float material.

Dragontrail™ supports low profile and reduced weight portable field and industrial devices with a toughness 6x that of soda lime float. It is environmentally friendly and is produced without the use of lead, arsenic and antimony.

Dragontrail™ is an excellent choice of a transparent and damage resistant window or display enhancement glass that helps to enhance the usable lifetime of high contact touch displays, field and industrial image sensors, document scanners and on board vehicular and avionics displays.



#### Benefits:

- 6x stronger than soda lime float glass
- Damage and scratch resistant
  - Vicker's hardness 673
  - > 600 MPa strength
  - 35 < Depth of Layer (DOL) < 45
- **Sheet Size**
  - 48" x 29" (1219.2mm x 736.6mm) standard
  - 60" x 48" (1524mm x 736.6mm) available
- **Thicknesses**
  - Ranging from 0.5mm to over 5mm
  - Stock thicknesses include 0.8mm and 1.1mm

#### Applications:

- Display cover glass
- Sensor windows
- Mobile touch device displays
- Scanner beds
- Industrial machine vision
- Obstacle avoidance



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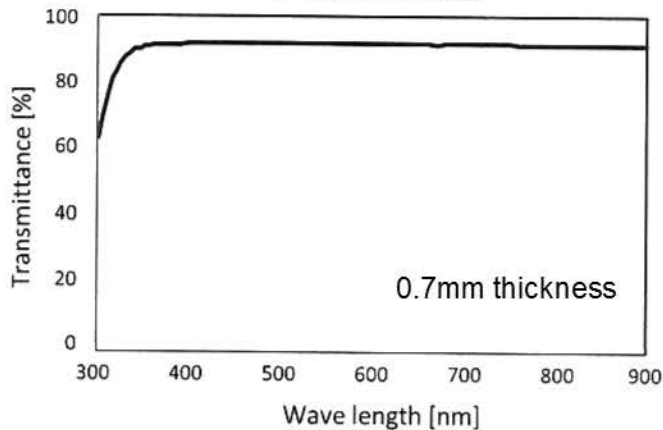
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Mechanical Properties	Measurement	Dragontrail™
Density	g/cm <sup>3</sup>	2.48
Young's Modulus	GPa	74
Poisson's Ratio	μ	0.23
Shear Modulus	GPa	30
Vickers Hardness (before CS)		596
Vickers Hardness (after CS)		673
Thermal Properties		
CTE (Thermal Expansion)	(50-350°C) x 10 <sup>-7</sup> / °C	98
Strain Point	°C	556
Annealing Point	°C	606
Softening Point	°C	821
Optical Properties		
Refractive Index	Nd	1.51
Photoelastic Constant	nm/cm/MPa	28.3
Electrical Properties		
Dielectric Constant/Loss Tangent	MHz	
• 1 MHz		7.4/0.019
• 2400 MHz		7.4/0.011
Chemical Properties		
Weight Loss	Mg/cm <sup>2</sup>	
• HCl 0.1 mol/l - 90° for 20 hrs		0.03
• NaOH 0.1 mol/l - 90° for 20 hrs		0.56
• HF 5% - 25° for 20 hrs		11.8

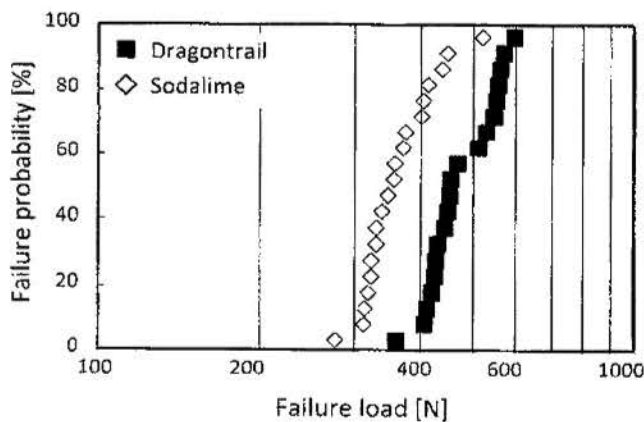
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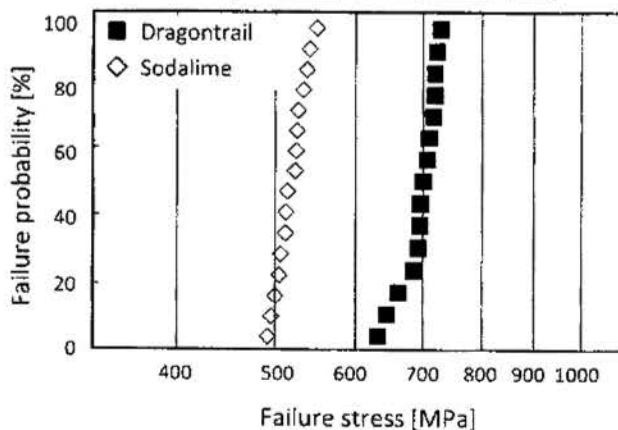
## Transmittance



## Ball on ring strength



## Four point bending strength



## Options

### Coatings:

- Custom V-Coat, Multi-band, Broadband AR
- AR Coatings to MIL-C-14806 A
- ITO/IMITO for EMI Shielding, Heater, LC Devices
- Custom SWP, LWP, Bandpass, UV & NIR Blocker
- Broad/Narrowband Scanning Mirror Coatings
- Deposition onto Filters, Silicon & Other Materials
- Autoclavable, Bio or Chemically Compatible

### Substrates:

- **Fabrication to Shape & Size**
  - Cut & Seam or Circle Ground to Size & Shape
  - Precision CNC - Holes, Bevels, Steps, Notches
- **Damage Resistant Substrates**
  - HIE™ Aluminosilicates
  - AGC Dragontrail™
  - Corning® Gorilla®
  - SCHOTT AS 87
  - Chemically Strengthened Soda Lime Float
- **Low Expansion Chemically Resistant Substrates**
  - SCHOTT Borofloat® 33
- **Ultra Thin and Wafer Substrates**
  - AGC EN-A1
  - Corning® 0211 & Eagle XG®
  - SCHOTT AF32, D263® & AS 87
- **Other**
  - Applied Films & Tints
  - Gasket Application
  - Edge Treatment/Blackening

### Easy-to-Clean & Anti-Fog Solutions:

- Oleo/Hydrophobic Options
- ITO Heater, HTAF Anti-Fog Solutions

### Graphics & Bus Bars:

- Color Matched Epoxy Ink
- Non-Conductive Ink
- High Temperature Frit Ink
- Deadfront Ink - Partially Transmissive
- Infrared IR Transmitting Ink
- Silver Epoxy, Silver Frit, CrNiAu Bus Bars

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## Glass Fabrication



## Coating Deposition



## CNC Machining



## Strengthening - Chemical & Heat



## Screen Printing of Graphics



Abrisa Technologies is a recognized global supplier of high quality, fabricated glass components, optical thin film coatings, and custom glass solutions for a wide variety of industries.

Our US based Abrisa Industrial Glass fabrication facility in Santa Paula, CA and our ZC&R Coatings for Optics facility in Torrance, CA serve diverse industries such as microelectronics and displays, semiconductor, military, automotive, aerospace, medical, biomedical and scientific R&D.

We provide custom specialty flat glass and coating products for applications such as: flat panel display, touch and gesture recognition; visible to IR imaging and surveillance; entertainment, indoor and outdoor lighting; advanced instrumentation; and photonics.



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