

EMPOWERING



SOLAR EFFICIENCY

TCO COATING

# VU

## TCO COATED GLASS FOR THIN FILM APPLICATION (a-Si/ $\mu$ c-Si)

VU is an extra clear float glass, coated with Transparent Conductive Oxide (TCO). The right balance between transmission, haze and conductivity of the TCO coating enables for improving the thin film cell efficiency. Indeed, when rightly deposited, the TCO has the potential

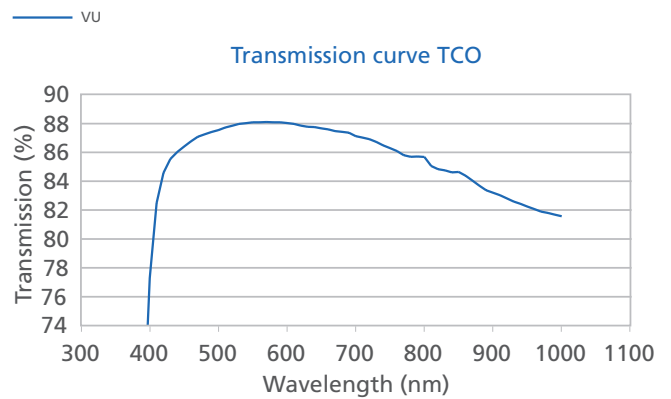
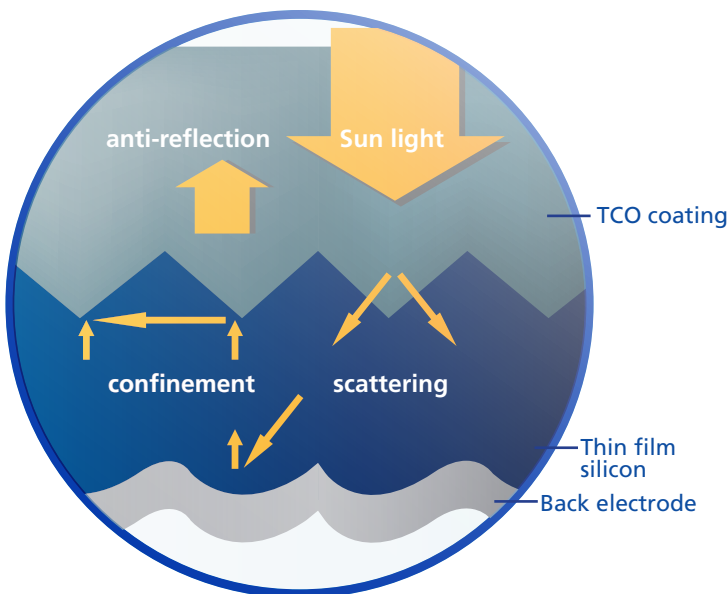
- to lower the reflection at the interface with the absorber;
- to increase the path of light into the absorber;
- to trap the light into the absorber.

Combined with the excellent durability of glass, VU is the product of choice for thin film photovoltaic modules (high efficiency micromorphous silicon).

VU conforms to EN572 and is delivered toughened.

### PRODUCT DESCRIPTION

Type	TCO coated extra clear float glass (low iron)	
Coating	Barrier layer	SiO <sub>2</sub> based
	Conductive coating	SnO <sub>2</sub> :F based
Deposition	CVD	
Applications	Front glass for thin film photovoltaic modules (micromorphous silicon)	



AGC Solar has a long history as a key player in the solar glass business. As part of the world leader in glass production, it benefits from the latest glass technologies to make renewable energy a success. It offers glass solutions for photovoltaic modules, thermal collectors and concentrating solar mirrors. It aims for the highest production standards for increased performance and works through a worldwide network.

## MAIN CHARACTERISTICS \*

Transmission (%)	86	Average between 400 and 1000nm
Transmission measured with index matching liquid CH2I2 (haze compensation) on 3.2mm (1/8") glass.		
AGC can help evaluating these values according to other standards and/or to the specificities of the final application.		
Resistivity (Ohms per square)	8	4-points method
Haze (%)	>10	Hazeguard, illuminant C, 2° (Standard D1003-95)
Maximal width	1400mm (55")	
Specific weight (kg/m <sup>2</sup> )	8	For 3.2mm (1/8") glass
Processing conditions	Reinforced on coated side	

## MECHANICAL CHARACTERISTICS \*

Mechanical strength (MPa)	100 Coated side	EN1288-1 (5% breakage, 4-points bending)
	45 Uncoated side	EN1288-1 (5% breakage, 4-points bending)
Young modulus (GPa)	70	EN572
Poisson ratio	0.2	EN572
Hardness	Moh (scratch hardness)	6 EN572
	Knoop (indentation hardness)	470 Indenter load 500g
Density (kg/m <sup>3</sup> )	2500	EN572, at 18°C

## THERMAL CHARACTERISTICS \*

Hemispherical emissivity	0.84 Uncoated side	Between -18°C and 66°C
	0.17 Coated side	Between -18°C and 66°C
Expansion coefficient (10 <sup>-6</sup> 1/K)	9	EN572, between 20°C and 300°C
Specific heat (J/kg/K)	720	EN572
Thermal conductivity (W/m/K)	1	EN572
Softening point (°C)	722	
Annealing point (°C)	552	
Strain point (°C)	500	

## GLASS CHEMICAL COMPOSITION \*

Silicon dioxide (SiO <sub>2</sub> , %)	69 to 74	EN572
Sodium oxide (NaO, %)	12 to 16	EN572
Calcium oxide (CaO, %)	5 to 12	EN572
Magnesium oxide (MgO, %)	0 to 6	EN572
Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> , %)	0 to 3	EN572
Trace elements (FeO, etc., %)	<1	

AGC is committed to environmental stewardship through the use of recyclable materials and sustainable process in the manufacturing and distribution of our state-of-the-art, energy efficient flat glass products.

In North America, the product performs to the appropriate ASTM standards.

\*The information contained in this datasheet is intended to assist you in designing with AGC materials. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. The user is responsible for determining the suitability of AGC materials for each applications.

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