ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

CERTIFICATE

No. B 18 01 03063 001

Holder of Certificate: **Tomark-Worthen LLC**
64 Watkin Avenue
Chadds Ford PA 19317
USA

Certification Mark:

Product: **Superstrate and Substrate for use in Photovoltaic (PV) Modules**
Backsheet for photovoltaic modules

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition the certification holder must not transfer the certificate to third parties. See also notes overleaf.

Test report no.: 704071710501-00

Valid until: 2023-01-03

04052768052513

Date, 2018-01-29 (Yaqun Liu)

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

CERTIFICATE
No. B 18 01 03063 001

Model(s):

PhotoMark Reflections 205 White/Black
PhotoMark Reflections 225 White/Black
PhotoMark Reflections 255 White/Black
PhotoMark Reflections 360 White/Black

Parameters:

Thickness: (stated by manufacturer)	Total thickness: 205µm±5% for 205 White/Black 225µm±5% for 225 White/Black 255µm±5% for 255 White/Black 360µm±5% for 360 White/Black Layer 1(PA-Ionomer Alloy): 38µm±5% or 5µm±5% Layer 2(PA): 52µm±5% or 55µm±5% or 115µm±5% Layer 3(PO): 38µm±5% or 75µm±5% Layer 4(PA): 52µm±5% or 55µm±5% or 115µm±5% Layer 5(PA-Ionomer Alloy): 38µm±5% or 45µm±5%
TI (Electrical):	125°C except PO layer
TI (Mechanical):	125°C except PO layer
Distance through insulation(DTI):	172,21µm for 205 White/Black 325,18µm for 360 White/Black
Max. system voltage:	1000VDC for PhotoMark Reflections 205 White/Black, PhotoMark Reflections 225 White/Black and PhotoMark Reflections 255 White/Black 1500VDC for PhotoMark Reflections 360 White/Black
Ambient Temperature:	-40°C~ + 85°C
Weather resistance test items:	Damp heat(85°C, 85%RH, 2000h) UV(xenon lamp, 0,8 W/m²/nm at 340nm, black panel temperature 80°C or 90°C, chamber air temperature 55°C or 65°C, 20%RH, 2000h)

Tested according to:

PPP 59060A:2017
IEC TS 62788-2(ed.1)

Production Facility(ies):

03278

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

TÜV®