



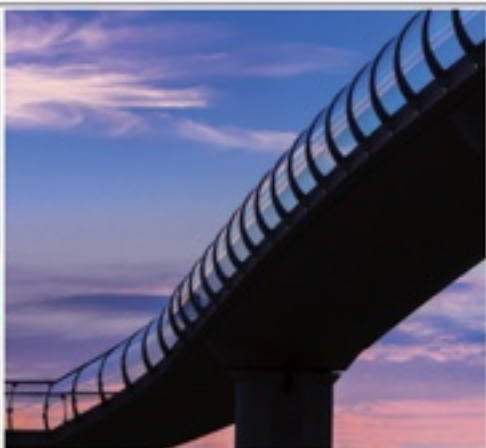
VULCAN PLASTICS

POLYCARBONATE SHEETS

BETTER LIVING THROUGH OPTIMUM GLAZING

WWW.TWPOLYCARBONATE.COM





**Table of Contents****Contents**

Company Intro and Timeline	1
Polycarbonate Sheet Basics	2
List of Corrugated Profiles	3
List of Flat and Hollow Profiles	4
Solarshield Series	5~6
Pearly	7~8
Valuview Series	9~10
Ti-Lite Series	11~12
LiteGuide	13
Material Properties Comparison Table	14
VULCAN PlastXpand™	15
VULCAN POLY-FAST™ - Metal	16
VULCAN POLY-FAST™ - Timber	17
VULCAN POLY-FAST™ - Duo	18
Fastening and Sealing Accessories	19
Glazing Bar and Accessories	20
List of Harmful Chemicals	21



Company Intro and Timeline

VULCAN POLYCARBONATE SHEETS

Better Living Through Optimum Glazing

Pre 1991

Began importing polycarbonate sheets from Japan for building projects which are mostly used mostly as windows and patio skylights.

Post 1991

Purchased polycarbonate co-extruders for mass production. Our PC sheets were mainly sold through distribution channels in Taiwan or used on our own building projects.

2007

Vulcan Plastics was established as a separate segment, targeting international markets - starting with the Middle East.

2008

Received ISO9001 certification.
Ti-Lite Series introduced.

2009

LiteGuide Series introduced.

2010

Set up In-House laboratory.
Began exporting to the Americas.

2011

Began development of Pearly series.
Purchased Breyer co-extruder; producing solid and embossed in single or double-sided UV coated configurations.

2012

Breyer machine fully setup and functional.
Pearly officially launched and introduced to customers.

2013

Began development of Solarshield.
Collaborated with ITRI and KISR to build experimental greenhouses using Vulcan Solarshield.

2014

Collaborated with BAFI and AFAN (KW) on experimental Pearly sheet covered greenhouses.

2015

VULCAN sheets were selected and used on King Khaled's greenhouses in Al-Kharj, Riyadh, KSA.

2016

Attended our first overseas exhibition – Philconstruct in Manila, The Philippines

2018

Introduced Vulcan Pearly, Gen 2.
After 6 years of research, development and testing - Solarshield solid flat sheet specifications are finalized and officially launched.

2019

Exhibition Attendance :
Archidex Expo Malaysia
Cambuild Expo Cambodia
Architect Expo Thailand
Myanbuild Expo Myanmar
Philconstruct Expo Philippines
Indobuildtech Expo Indonesia

2022

Added Ultra-Thin Sheets production line
Added Aluminum Glazing Bars to Product Portfolio
Poly-Fast™ for Timber Development
Poly-Fast™ for Metal Development

2023

Poly-Fast™ Duo Development
Attend the Big 5 International Building and Construction Show in Dubai



Polycarbonate Sheet Basics

Polycarbonate (PC) are a particular group of thermoplastic polymers which offers excellent optical clarity and instills a combination of unique properties, making it a good choice for safety and security glazing to fit in a wide variety of applications.

Strength - Extremely high impact resistance

Polycarbonate is half the weight of glass and yet both of these plastics are much stronger than glass. Polycarbonate has 250 times the impact resistance of glass and 10 times over FRP, which lowers the risk of breakage even when subjected to violent blows from heavy objects.

Light & Clarity

Polycarbonate has a light transmittance of 88%. It must be noted that for greenhouse applications, the light diffusing properties of polycarbonate actually benefits vegetation because direct sunlight creates burning effects. Polycarbonate sheets can be tailored to provide optimal light transmission (ranging from 35% to 90%) enabling the designer to create interesting solutions for naturally lit interiors.

High resistance to climatic change

Polycarbonate sheets have good insulation properties. They are neither affected by the fluctuating environmental temperatures nor the humidity. VULCAN PC sheets co-extrudes UV-absorbing agents (Benzotriazole) as a surface coating, screening UV wavelengths between 290~400nm. By blocking 99.5% of the harmful radiation, sheets are protected against loss of clarity due to the yellowing caused by extreme heat and sunlight, and can last more than 10 years under extreme conditions.

Cleaning

Polycarbonate is also highly resistant to various chemical substances. However, they should be prevented from coming in contact with certain materials, as specified by the manufacturer. The best choice for cleaning is a microfiber or 100-percent cotton cloths.

Ease of handling and installation

The lightweight of VULCAN Polycarbonate Sheets makes them easy to handle and can be cut to fit at site with minimum tooling. Being lightweight also eliminates the need for heavy support structures, and makes it easier to install, meaning reduced cost.

Flexible, Formable, Machinable

VULCAN Polycarbonate sheets can handle temperatures up to 115°C and either be hot or cold bent, drilled, thermoformed to virtually unlimited size and shape. It is also easily machined or fabricated with conventional tools.

Fire Retardant

Polycarbonate is a high polymer that has excellent resistance to flame, is self-extinguishing and stable in heat, making it a suitable choice in dry, heated areas.


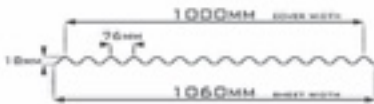

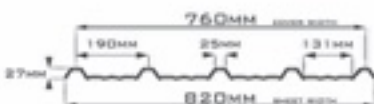

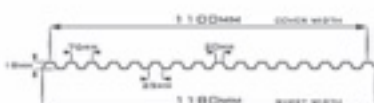

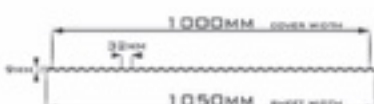

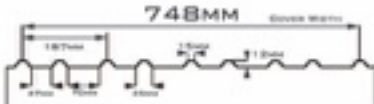



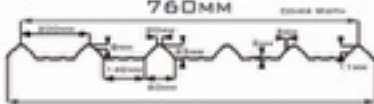
Warranty

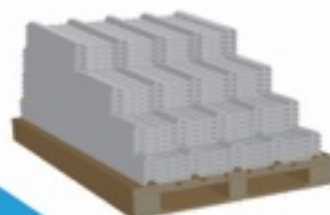
VULCAN UV & Light Stabilizers Co-Extruded Polycarbonate Sheets are backed by 5 years of limited warranty against loss of light transmission and a 10 year limited warranty against breakage. Solarshield Sheets are backed by 10 years of limited warranty against loss of visible light transmission, and a 15 year limited warranty against breakage.

**All of the information and properties listed above fits only sheets made from 100% Virgin Polycarbonate Resin.*

***Polycarbonate sheets made with recycled material, though cheap, are very prone to yellowing and breaking.*

List of Corrugated Profiles

Profile	Illustration	Cover width	Pitch	Depth	Thickness
 Roma (76/18)		1000mm 915mm 836mm 760mm	76mm	18mm	Min:0.6mm Max:2.0mm
 Trimdek (190/27)		760mm	190mm	27mm	Min:0.7mm Max:2.0mm
 Greca (76/18)		1100mm 970mm 895mm 820mm 750mm	76mm	18mm	Min:0.6mm Max:2.0mm
 Mini (32/9)		1000mm	32mm	9mm	Min:1.0mm Max:1.2mm
 JEMPAL (187/12)		748mm	187mm	12mm	Min:0.7mm Max:2.0mm
 PUMA (190/22)		760mm	190mm	22mm	Min:0.7mm Max:2.0mm
 JAGUAR (200/23)		760mm	200mm	23mm	Min:0.7mm Max:2.0mm







Packaging

Seaworthy wrapping at 10, 15, 20 or 30pcs per bag.


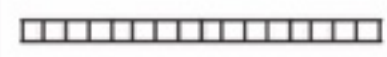




Shipping

LCL - Wrapped in thick kraft paper and palletted.
 FCL - Seaworthy wrapping and laid flat in container.

Flat Profiles

Profile	Illustration	Thickness (mm)	Standard widths (mm)	Lengths (mm)
 Embossed	 *1900mm available by request and subject to MOQ.	2	700 / 800 910 / 1000 1100 / 1220	42420 (roll)
		3		24240 (roll)
		4.5	1220	15150 (roll)
		6		2424 (sheet) 4848 (sheet)
 Flat	 *2100mm available by request and subject to MOQ.	2	1520 1830	30300 (roll)
		3		18180 (roll)
		4.5		15150 (roll)
		6	4848 (sheet)	
		8	1220 1830	2424 (sheet) 3636 (sheet)
		10		2424 (sheet)

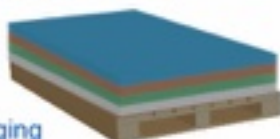
Multiwall Hollow Profiles

Profile	Illustration	Thickness (mm)	Standard widths (mm)	Lengths (mm)
 Twin-Wall		4 / 6 8 / 10	1200 / 1220 1810 / 1830 2100 ⁽¹⁾	1220 2440
 Triple-Wall		10 16		3050 3660 4270
 Four-Wall		20 25	1210	4880 5487 5795
 Honeycomb		8 10 12		6100 9000 11800

(1) 2100mm wide panels only available on select profile thicknesses.

Flat & Hollow Profiles

Packaging

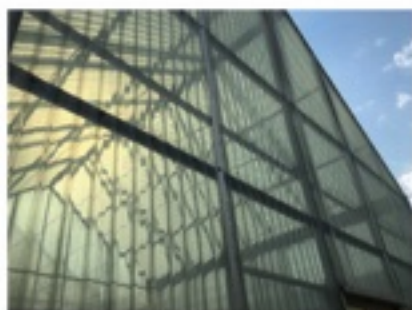


Thick, Double Sided Laminated Film Protection.
 Sheets under 6mm thick can be packed in rolls.
 Customized film design and printing available.
 (Subject to MOQ)

Shipping



Thickness > 6mm:
 Laid flat, wrapped in thick kraft paper and palletted.
Thickness < 6mm:
 Rolled, wrapped in thick kraft paper and palletted.



Available Profiles



ROMA



TRIMDEK



GRECA



MINI



FLAT



EMBOSSED

Applications



Windows



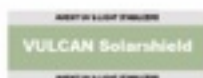
Warehouse



Pergola



15 Year Limited Warranty



Weathering Resistance

Double layered, Co-Extruded Avient CESA-Light UV & Light Stabilizers Protection.



Best Bang for the Buck

Provides the same clarity, heat reduction properties as Low-E (Emissivity) glass, but costs 1/2 less.



Solar Heat Gain Coefficient

SHGC 0.26 - 26% of the solar radiation will pass through and **74% excluded**. Excellent Passive Solar Cooling Properties.



IR Reflection

Less cooling required.
Lower power consumption.



Reduce Temperatures

Max. 15 °C / 59 °F Reduction.



Light Weight

1/2 the weight of glass.



Shatter Proof

250 times the impact strength over glass.
10 times over FRP and Acrylic.



BLOCKS 99% UVA/UVB



Self Extinguishing

Solarshield



Base Material	Additives
Covestro UV Stabilizer Included Base Resin	Solarshield IR Reflective Pigment
Weathering Resistance	Advantages
AVIENT CESA-Light UV & Light Stabilizers. (UV Resistant + Weather Proof)	<ul style="list-style-type: none"> • High Light Transmission (VIS:40%) • Reflects Far Red Light (735nm) • Lowers Heat by max. 15°C / 59°F.
Interference Color (Reflection)	Warranty
Solar Green / Blue	15 year limited warranty*

*Warranty will only be in affect if VULCAN Installation and Care Instructions are followed.



Weathering Resistant

Single or Double side co-extruded CESA-Light UV and Light Stabilizers.

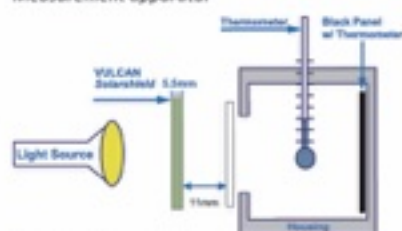
VULCAN Solarshield

Blocks UV and far IR Radiation. Allow over 50% of energy savings.
Up to 80% Visible Light transmission.

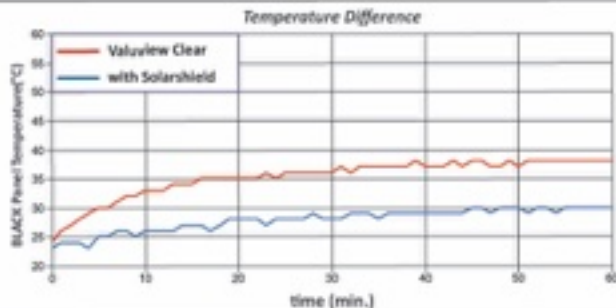
Base Material

100% Virgin Covestro UV stabilizer included master-batch.

Measurement apparatus



- Practically relevant set-up chosen
- No standardized (ISO) procedure available



VULCAN Solarshield
Solid Flat (5.5mm)



Shading Coefficient (SC)*	0.30
Energy Transmittance (g)	0.38
Light Transmission (Ty)	40.0

Interference Color : SOLAR Green

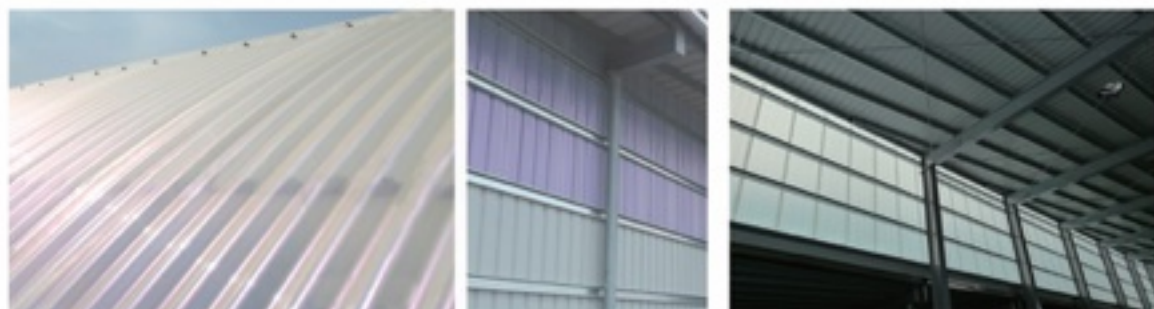
Base Material : 100% Virgin Covestro

UV and Light Stabilizer : 100% AVIENT CESA-Light

Dimensions : 5.5mm x 1212mm x 7272mm

Warranty : 15 Years Limited Warranty

*SC: g value Solarshield / g value 3mm glass



Available Profiles



ROMA



TRIMDEK



GRECA



MINI



FLAT



EMBOSSED

Applications



Greenhouse



Warehouse



Parking lot



Excellent UV protection.
Lower surface temperatures.



Weathering Resistance

Double layered, Co-Extruded
Avient CESA-Light UV & Light
Stabilizers Protection.



Light Transmission Rate

Diffused, Indirect Green Light.
Excellent Shading Properties.
Perfect for living organisms.



Shatter Proof

250 times the impact strength over glass.
10 times over FRP and Acrylic.



BLOCKS 99% UVA/UVB



Self Extinguishing



Reduce Temperatures

Controlled NIR (700-2500nm).
Max. 10 °C / 50 °F Reduction.



Pearly Technology

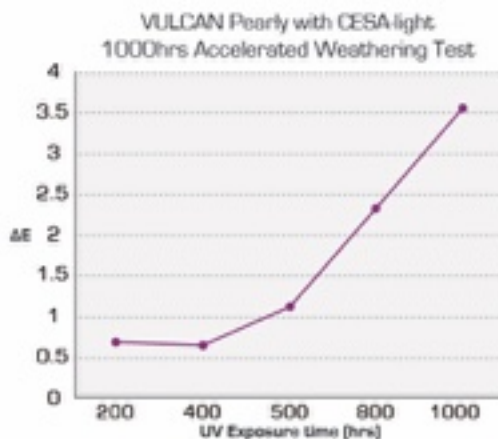
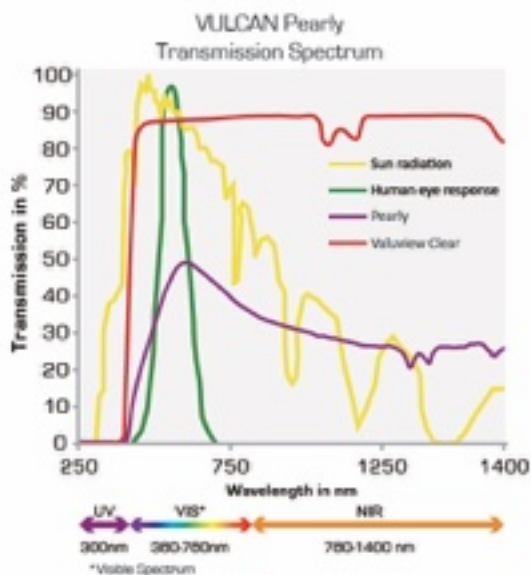
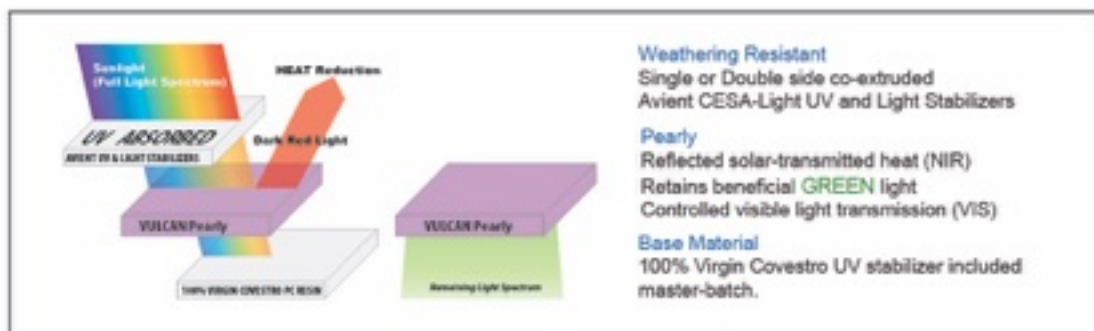
Made with Genuine Mother of Pearls.
Suitable for general-purpose IR
(Infrared) blocking applications.

Pearly



Base Material	Additives
Covestro UV Stabilizer Included Base Resin	PAR Selective Pearly Material
Weathering Resistance	Advantages
Avient CESA-Light UV & Light Stabilizers. (UV Resistant + Weather Proof)	<ul style="list-style-type: none"> • GREEN light transmission within the VIS spectrum • Controlled NIR (780-2500nm) • Lowers Heat up to 10°C
Interference Color (Reflection)	Warranty
Lilac	10 year limited warranty*

*Warranty will only be in effect if VULCAN Installation and Care Instructions are followed.



Time (hrs)	200	400	500	800	1000
ΔE	0.68	0.65	1.12	2.33	3.56

Test Protocol: ASTM G-154

Tester: QUV Accelerated Weathering Tester (UVA-340nm incidence)

ΔE: Lower is better



Available Profiles



ROMA



TRIMDEK



GRECA



MINI

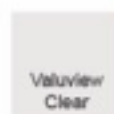


FLAT



EMBOSSED

Standard Colors



Valuview
Clear



Valuview
Blue



Valuview
Green



Valuview
Bronze



Valuview
Grey



Valuview
Opal

Applications



Greenhouse



Windows



Warehouse



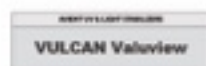
Pergola



Parking lot



Excellent UV protection.
Lower surface temperatures.



Weathering Resistance
Protected by Co-Extruded Avient
CESA-Light UV & Light Stabilizers.



IR Reflection
Less cooling required.
Lower power consumption.



Shatter Proof
250 times the impact strength over glass.
10 times over FRP and Acrylic.



BLOCKS 99% UVA/UVB



Self Extinguishing



Light Transmission Rates

Valuview Series

Comfort level under VULCAN Valuview

Light level under VULCAN Valuview



Base Material	Additives
Covestro UV Stabilizer Included Base Resin	<ul style="list-style-type: none"> • AVIENT UV Stabilized Pigment • AVIENT Light Diffusers (Opal)
Weathering Resistance	Advantages
AVIENT CESA-Light UV & Light Stabilizers. (UV Resistant + Weather Proof)	<ul style="list-style-type: none"> • Direct Lighting (Clear) • Diffused Lighting (Blue / Green / Bronze / Opal) • Light Weight: 1/2 Weight of Glass • Impact Resistant: x250>Glass, x10>FRP / Acrylic
Interference Color (Reflection)	Warranty
Clear / Blue / Green / Bronze / Opal	10 year limited warranty*

*Warranty will only be in affect if VULCAN Installation and Care Instructions are followed.



Weathering Resistant

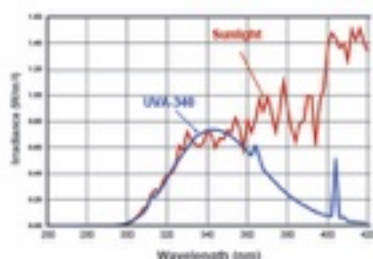
Single or Double side co-extruded CESA-Light UV and Light Stabilizers.

Base Material

100% Virgin Covestro UV stabilizer included master-batch.



QUV Accelerated Weathering Tester -
Uses Fluorescent UV lamps to reproduce
the damaging effects of sunlight.



UVA-340 lamps provide the best available simulation
of sunlight in the critical short-wave UV region.



After 3000 hours Q UV, ΔE of VULCAN Polycarbonate sheet is at 3 to 4.

Sunlight Simulation

The QUV is designed to reproduce the damaging effects of sunlight on durable materials using fluorescent UV lamps. These lamps are electrically similar to the common cool white lamps used in general lighting, but are designed to produce mainly UV rather than visible light or infrared.

Time(hrs)	250	500	1000	1500	2000	3000
ΔE	1.58	4.5	11	17.9	28	35
ΔE	0.08	0.89	1.99	2.7	3.5	4.8

Test Protocol: ASTM G-154
 Tester: QUV Accelerated Weathering Tester (UVA-340nm irradiance)
 ΔE: Lower is better
 UV Cap Layer: 1.0 mm



Available Profiles



ROMA



TRIMDEK



GRECA



MINI



FLAT



EMBOSSED

Available Colors



Metallic Silver



Metallic Blue



Metallic Green



Metallic Bronze

Applications



Greenhouse



Warehouse



Pergola



Parking lot



Sign



Excellent UV protection.
Lower surface temperatures.



Weathering Resistance

Protected by double layered,
Co-Extruded Avient CESA-Light
UV & Light Stabilizers.



Reduce temperatures

Controlled NIR (780-2500nm).
Max. 15 °C / 59 °F Reduction.



Shatter Proof

250 times the impact strength over glass.
10 times over FRP and Acrylic.



BLOCKS 99% UVA/UVB



Self Extinguishing



Light Transmission Rates

Controlled VIS (380-780nm).
Excellent shading Properties.
Less than 40% light transmission rate.



Ti-Lite Technology

TiO2 plus other heat reducing material.
Providing excellent shading properties.

Ti-Lite Series

Comfort level under VULCAN Ti-Lite



Light level under VULCAN Ti-Lite



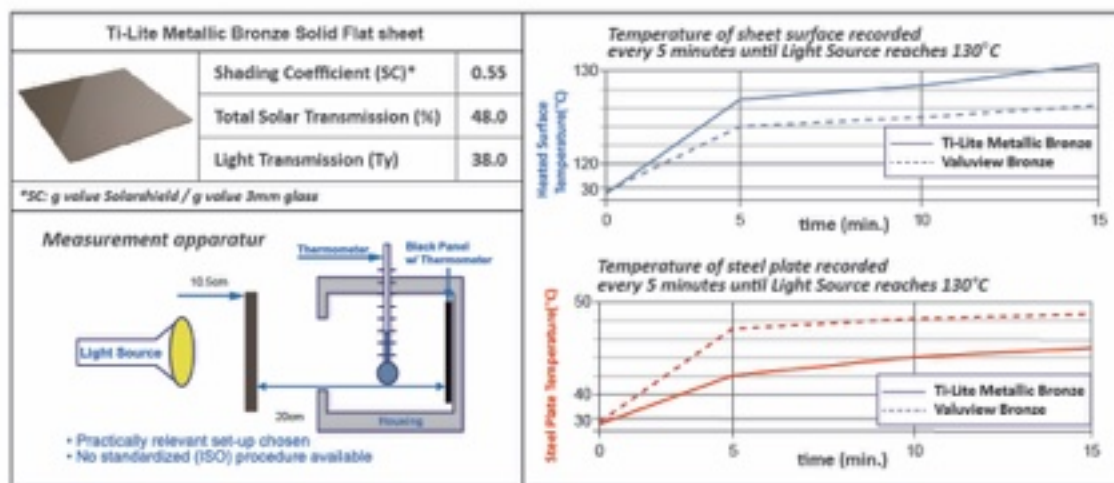
Base Material	Additives
Covestro UV Stabilizer Included Base Resin	Ti-Lite TiO ₂ Included master-batch
Weathering Resistance	Advantages
AVIENT CESA-Light UV & Light Stabilizers. (UV Resistant + Weather Proof)	<ul style="list-style-type: none"> • Diffused Lighting. • Exceptional heat reduction. • Blocks heat inducing Far Red Light (735nm) - Lowers Heat. • Excellent shading properties. • Customizable VIS transmission rate (Avg. 25%).
Interference Color (Reflection)	Warranty
Metallic Silver / Blue / Green / Bronze	10 year limited warranty*

*Warranty will only be in effect if VULCAN Installation and Care Instructions are followed.

Weathering Resistant
Single or Double side co-extruded CESA-Light UV and Light Stabilizers.

Ti-Lite Metallic Silver
Controlled solar-transmitted heat.
Reduced visible light transmission.
Metallic Silver / Blue / Green / Bronze Tint.

Base Material
100% Virgin Covestro UV stabilizer included master-batch

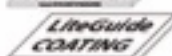


LiteGuide



Base Material	Additives
Covestro (Bayer) UV Stabilizer Included Base Resin	LiteGuide light diffusers
Weathering Resistance	Advantages
AVIENT CESA-Light UV & Light Stabilizers. (UV Resistant + Weather Proof)	<ul style="list-style-type: none"> • Light Diffusing • Indirect Light Transmission • Enhanced Privacy
Interference Color (Reflection)	Warranty
ICE	10 year limited warranty*

*Warranty will only be in affect if VULCAN Installation and Care Instructions are followed.



Weathering Resistant

Single or Double side co-extruded CESA-Light UV and Light Stabilizers.

LiteGuide

Aesthetically pleasing. Breaks up and distributes light evenly. Reduce hot spots and diffuses light.















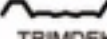

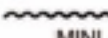


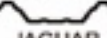

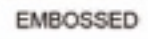
Base Material

100% Virgin Covestro UV stabilizer included master-batch.

LiteGuide Material Properties

Material Typical Properties	Test Method	Results	Remark
Tested on 1.5mm LiteGuide TRIMDEK Sheets			
Tensile Strength @yield (kg/cm ²)	CNS 11335	670	Should exceed 551 (kg/cm ²)
Tensile Elongation (%)	CNS 11335	57	Should exceed 50%
Impact Strength	CNS 12093	No Rupture	Mean Value of 3 Specimen
Change Percent of Yellow Index after Weather Resistance Test (YID)(1200hrs)	ASTM G154 (for 1 cycle) UV-A (340nm): 60°C, 8hrs Condensation: 50°C, 4hrs	ΔYI -0.49	
Visible Light Transmittancy (%LT)	ASTM D1003	88	
Ultraviolet Transmittancy (%)	ASTM D1003	0.20	
Density (ρ)	ASTM D792	1.20 g/cm ³	
Heat Resistance	CNS 12093	Burnt portion self extinguishes after burner is removed.	
Properties	LiteGuide provides soft and diffused lighting, reduces direct sunlight penetration while still maintaining high light transmission rates.		
Places to Use	Specially designed for areas which requires ample but indirect lighting. Recommended for warehouse, patios, rainsheds, canopies, carpark, and many more.		

VULCAN Polycarbonate Sheets Material Properties Comparison Table

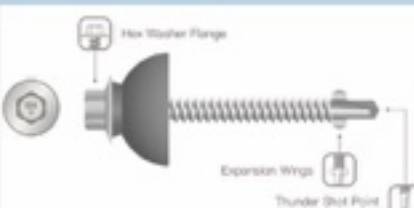
Material		LiteGuide	Solarshield	Pearly	Ti-Lite Series				Valuview Series					
Color Choices														
Suitable Profiles	Corrugated Profiles							Solid Profiles						
										 				
Weather Resistance	CESA-Light Co-Extruded	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Optional					
	Raw Material Inclusive	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Warranty	10yrs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Only if CESA-Light Co-Extruded					
	1yr								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Visible Light Transmission Rate		85%	73%	46%	Avg. 25%*				88%	40%	40%	25%*	20%*	26%*
Transparent									<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Translucent		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<input checked="" type="checkbox"/>
Lighting	Direct								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
	Diffused	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<input checked="" type="checkbox"/>
Shading (Lower VIS)	Excellent			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
	Average									<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Minimum	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>					
IR Control (Less Heat)	Excellent		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
	Minimum									<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Poor	<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/>					
Spectrally Selective	Excellent		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
	Average													
	Minimum	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

*Custom light transmissions are available, subject to minimum order quantity.

The information above is only a general classification. To match your requirements accurately, please consult us or your local distributor for more details. Sample color chips are also available upon request.

Polycarbonate sheets expands and contracts due to its relatively high coefficient of thermal expansion. A 3-meter-long (10 ft) sheet of polycarbonate for example will expand by approximately 2.1 mm (0.08 in.) for each 10°C (50°F) temperature increase. A 5-meter-long (16 ft) sheet restrained at one end by being butted up against a brick wall can have its free end move by over 10mm (0.4 in.) in the course of a day with a 30°C (86 °F) temperature rise.

POLYXPAND™ Techinal Specifications

PolyXpand	Specifications	Head Size		Drill Capacity		Length (L)		
		mm	inch	mm	inch	mm	inch	
	<ul style="list-style-type: none"> • #12 - 14 x L • C1022 Carbon Steel • EPDM Dome Washer • EPDM SS Dome Washer • No. 3 Self Drilling Point 	7.9	5/16	0.75	.0295	40	1- ¹ / ₁₆	
		Washer O.D.	inch			55	2- ¹ / ₁₆	
			25	1"	4.5	.1772	65	2- ¹ / ₁₆
							72	2- ³ / ₁₆
	Targeted Use	Surface Treatment / Weather Proof Coating						
	Fixing Plastic Sheets to Metal	Australian AS 3566 Standard Class 3 or Class 4 Coating						



VULCAN POLYXPAND™ is designed with a wing feature to cut an enlarged expansion hole in the skylight material to allow for skylight sheet movement under weathering effects. This expansion hole will prevent VULCAN Polycarbonate sheets from damage as a result of stress and fatigue due to thermal expansion and contraction. The POLYXPAND™ wing feature is also designed to break off automatically when it comes into contact with the steel substrate.

VULCAN POLYXPAND™ screw includes a dome shaped EPDM (Ethylene Propylene Diene Monomer) washer, which is resistant to ozone and ultraviolet light damage. The EPDM dome washers provide an excellent waterproof seal— even under the most severe weather conditions— if properly installed. The large diameter EPDM dome washer will also provide that perfect water proofing.

The trick is not to overdrive or underdrive the screws. If the screw is not tightened enough, moisture leaks around the washer. An overtightened screw squishes the washer too thin, which can also result in leaks. That is why a good screw gun with a clutch is so important. The adjustable nose allows the user to set the countersink to exactly the right depth.

The Thunder-Shot point on the POLYXPAND™ provides precise positioning and is designed to penetrate batten thickness ranging from 0.75mm~4.5mm. For optimum performance, VULCAN recommends drilling the POLYXPAND™ @1800~2000rpm.

POLYXPAND™ Sealing Washer Installation Problems- Causes and Remedies

Problem	Cause	Remedy
EPDM Dome Washer squashing or bursting out from under the fastener head.	Incorrect product	VULCAN EPDM Dome washers are made for AS Standard Hex Washer Flange Head screws designed for fixing roof or side claddings.
 Excess overtightening	Over tightening of the fastener.	Release the trigger on the driver tool as the fastener meets the metal surface being fixed into.
	Too much pressure is applied to the fastener.	
 Non-perpendicular drilling and insertion.	Fastener not driven at right angles to the cladding.	Hold the fastener at 90 degrees to the cladding.
	Fastener not held at right angles and at the center of the crest or valley of corrugated profile.	

PC Sheets expands and contracts due to its high coefficient of thermal expansion.

A 3-meter-long (10 ft) sheet of polycarbonate for example will expand by approximately 2.1mm (0.08 in.) for each 10°C (50°F) temperature increase. A 5-meter-long (16 ft) sheet restrained at one end by being butted up against a brick wall can have its free end move by over 10mm (0.4 in.) in the course of a day with a 30°C (86 °F) temperature rise.

POLY-FAST™ - Metal Technical Specifications

POLY-FAST™ - Metal	Specifications	Head Size mm inch	Drill Capacity mm inch	Length (L) mm inch
	<ul style="list-style-type: none"> • #12 - 14 x L • C1022 Carbon Steel • EPDM Dome Washer • Expansion Hole Cutter • No. 3 Self Drilling Point 	7.9 5/16	0.75 .0295	60 2 - 1/8
		Washer O.D. mm inch	4.5 .1772	Product Code
		22 7/8"		SDH09PS12060C4
	Targeted Use	Surface Treatment / Corrosion Resistant Coating		
	Fixing Plastic Sheets to Metal	Australian AS 3566 Standard Class 3 or Class 4 Coating		

POLY-FAST™ - Metal is designed with a Circular Thermal Expansion Hole Cutter to cut a perfectly round 11mm Diameter thermal expansion hole with a 100% success rate. The thermal expansion hole allow for skylight sheet movement under weathering effects, and will prevent VULCAN Polycarbonate sheets from damage as a result of stress and fatigue due to thermal expansion and contraction.

POLY-FAST™ - Metal is designed with a set of fail safe, Depth Stop Knurls.

When mated with the Thermal Expansion Hole Cutter, with the Depth Stop Knurls acts as a stopper, the height at where it stops upon coming in contact with the purlins; enough so that it prevents screw over-run or over-drive, provide a perfect seal to the enlarged hole, but not deform the corrugations.

POLY-FAST™ - Metal includes a dome shaped EPDM (Ethylene Propylene Diene Monomer) washer, which is resistant to ozone and ultraviolet light damage. The large EPDM dome washers provide an excellent waterproof seal— even under the most severe weather conditions— when properly installed.

The Thunder-Shot point on the POLY-FAST™ - Metal provides precise positioning and designed to penetrate batten thickness ranging from 0.75mm~4.5mm. For optimum performance, VULCAN recommends drilling POLY-FAST™ - Metal @1800~2000rpm.



Save 50% of labor time, create a perfectly round expansion hole, and fix sheets in one go.



A perfectly round nominal 11mm diameter hole is created by the Thermal Expansion Hole Cutter during the process.



The Expansion Hole Cutter works in combination with the Depth Stop Knurl, and prevents overdriving of the screw after touching the purlin.



A large Domed Weatherseal EPDM washer conforms to the shape of the profile and provide a perfect seal.

Polycarbonate sheets expands and contracts due to its relatively high coefficient of thermal expansion. A 3-meter-long (10 ft) sheet of polycarbonate for example will expand by approximately 2.1 mm (0.08 in.) for each 10°C (50°F) temperature increase. A 5-meter-long (16 ft) sheet restrained at one end by being butted up against a brick wall can have its free end move by over 10mm (0.4 in.) in the course of a day with a 30°C (86 °F) temperature rise.

POLY-FAST™ - Timber Technical Specifications

POLY-FAST™ - Timber	Specifications	Head Size mm inch	Drill Capacity mm inch	Length (L) mm inch
	<ul style="list-style-type: none"> • #12 - 11 x L • C1022 Carbon Steel • EPDM Dome Washer • Expansion Hole Cutter • Type 17 Needle Point 	7.9 5/16	0.75 .0295	50 2
		Washer O.D. mm inch	4.5 .1772	Product Code
		22 7/8"		T1710P51250C4
	Targeted Use	Surface Treatment / Corrosion Resistant Coating		
Fixing Plastic Sheets to Timber	Australian AS 3566 Standard Class 3 or Class 4 Coating			

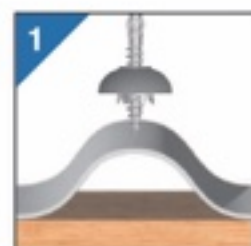
POLY-FAST™ - Timber designed with a Circular Thermal Expansion Hole Cutter to cut a perfectly round 11mm Diameter thermal expansion hole with a 100% success rate. The thermal expansion hole allow for skylight sheet movement under weathering effects, and will prevent VULCAN Polycarbonate sheets from damage as a result of stress and fatigue due to thermal expansion and contraction.

POLY-FAST™ - Timber is designed with a set of fail safe, Depth Stop Knurls.

When mated with the Thermal Expansion Hole Cutter, with the Depth Stop Knurls acts as a stopper, the height at where it stops after embedded flat against the timber purlins; enough so that it prevents screw over-run or over-drive, provide a perfect seal to the enlarged hole, but not deform the corrugations.

POLY-FAST™ - Timber includes a dome shaped EPDM (Ethylene Propylene Diene Monomer) washer, which is resistant to ozone and ultraviolet light damage. The large EPDM dome washers provide an excellent waterproof seal— even under the most severe weather conditions— when properly installed.

The Type 17 Needle Point on the POLY-FAST™ - Timber provides precise positioning and is designed to penetrate and embedded into timber battens to at least 25mm depth.



1 Save 50% of labor time, create a perfectly round expansion hole, and fix sheets in one go.



2 A perfectly round nominal 11mm diameter hole is created by the Thermal Expansion Hole Cutter during the process.



3 The Expansion Hole Cutter works in combination with the Depth Stop Knurls, and prevents overdriving of the screw after touching the purlin.




4 A large Domed Weatherseal EPDM washer with two concentric sealing rims on the washer underside completes the package.

PC Sheets expands and contracts due to its high coefficient of thermal expansion.

A 3-meter-long (10 ft) sheet of polycarbonate for example will expand by approximately 2.1mm (0.08 in.) for each 10°C (50°F) temperature increase. A 5-meter-long (16 ft) sheet restrained at one end by being butted up against a brick wall can have its free end move by over 10mm (0.4 in.) in the course of a day with a 30°C (86 °F) temperature rise.

POLY-FAST™ - Duo Technical Specifications

POLY-FAST™ - Duo	Specifications	Head Size mm inch	Drill Capacity mm inch	Length (L) mm inch
	<ul style="list-style-type: none"> • #12 - 14 x L • C1022 Carbon Steel • EPDM Dome Washer • Expansion Hole Cutter • Dual purpose Duofix V-Drill 	7.9 5/16	0.75 .0295	50 2
		Washer O.D. mm inch	4.5 .1772	Product Code
	Targeted Use	Surface Treatment / Corrosion Resistant Coating		
	Fixing Plastic Sheets to Metal & Timber	Australian AS 3566 Standard Class 3 or Class 4 Coating		

POLY-FAST™ - Duo is designed with a Circular Thermal Expansion Hole Cutter to cut a perfectly round 11mm Diameter thermal expansion hole with a 100% success rate. The thermal expansion hole allow for skylight sheet movement under weathering effects, and will prevent VULCAN Polycarbonate sheets from damage as a result of stress and fatigue due to thermal expansion and contraction.

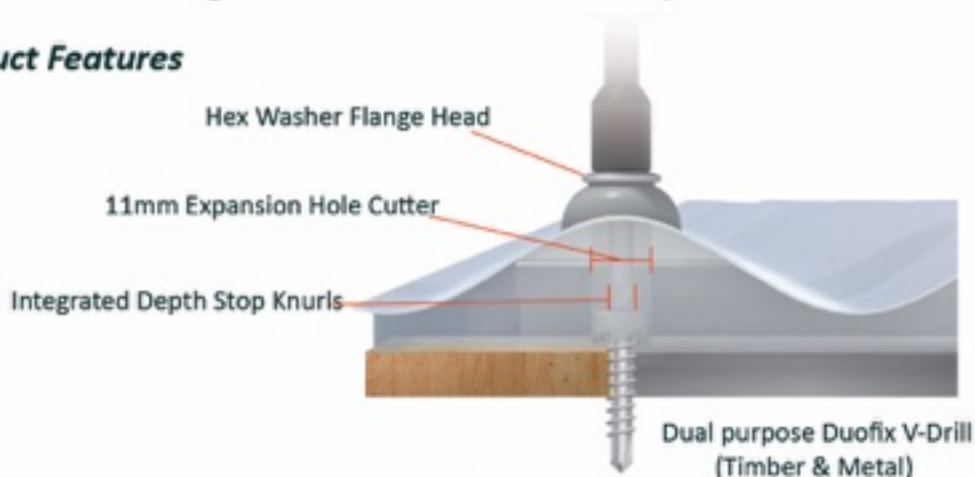
POLY-FAST™ - Duo is designed with a set of fail safe, Depth Stop Knurls.

When mated with the Thermal Expansion Hole Cutter, with the Depth Stop Knurls acts as a stopper, the height at where it stops upon coming in contact with the purlins; enough so that it prevents screw over-run or over-drive, provide a perfect seal to the enlarged hole, but not deform the corrugations.

POLY-FAST™ - Duo includes a dome shaped EPDM (Ethylene Propylene Diene Monomer) washer, which is resistant to ozone and ultraviolet light damage. The large EPDM dome washers provide an excellent waterproof seal— even under the most severe weather conditions— when properly installed.

The Duo-Fix V type drilling point on the POLY-FAST™ - Duo is a dual purpose, tried and ture design for penetrating both metal and timber battens with ease. penetrate batten thickness ranging from 0.75m~4.5mm and embedded into timber battens to at least 25mm depth. For optimum performance, VULCAN recommends drilling POLY-FAST™ - Duo at no more than 2500rpm on Metal.















Product Features



















Recommended Accessories for Corrugated Profiles

Item	Purpose	Illustration	Material	Dimensions
Washer	Weatherseal Anti-static		Dome EPDM	O.D.: 25mm I.D.: #14

Recommended Eaves Infill Foam Strips for Corrugated Profiles End Sealing

Illustration	Profile	Eaves Infill Foam	Length	Color	Material
	ROMA		1065mm x 25mm	WHITE & BLACK	EVA & EPE
	TRIMDEK		815mm x 25mm		
	GRECA		1400mm x 25mm		
	MINI		1200mm x 25mm		
	JEMPAL		753mm x 25mm		
	PUMA		765mm x 25mm		
	JAGUAR		765mm x 25mm		

Glazing Bar & Accessories

Item	Name	Illustration	Length	Function	Material
	Top Cap		Standard Length: 6000mm Custom Lengths: Subject to MOQ.	Connector for two pieces of Solid or Hollow Sheets	6063 T5 Powder Coated or Raw Aluminum
	Top Glazing Bar			Connector for two pieces of Solid or Hollow Sheets	
	Bottom Glazing Bar			Connector for two pieces of Solid or Hollow Sheets	
	Edge Glazing Bar		Standard Length: 150 M / Roll Custom Lengths: Subject to MOQ.	Connector for Solid or Hollow Sheets at the edges	EPDM or Silicone Rubber
	Weather Seal			Weather Seal for Glazing Bar	
*Suitable for 4mm / 5mm / 6mm Solid and Hollow Sheets					
	Glazing Bar for Thick Sheets (10mm and above)		Standard Length: 6000mm Custom Lengths: Subject to MOQ.	Connector for two pieces of Solid or Hollow Sheets	6063 T5 Powder Coated or Raw Aluminum
	Weather Seal			Standard Length: 150 M / Roll Custom Lengths: Subject to MOQ.	
*Suitable for Solid Sheets: 10 - 15mm Hollow Sheets: 10 - 25mm					
	H Profile		Standard Length: 6000mm Custom Lengths: Subject to MOQ.	Connector for two pieces of Hollow Sheets	Polycarbonate
*Option A : For 4mm / 6mm Hollow Sheets *Option B : For 8mm / 10mm Hollow Sheets					
	U Profile		Standard Length: 6000mm Custom Lengths: Subject to MOQ.	Caps Off Sheet Ends	Polycarbonate
*Option A : For 4mm / 6mm Hollow Sheets *Option B : For 8mm / 10mm Hollow Sheets					
	Breathable Seal Tape		45 Meters per Roll	Dust Seal for Open ends of Hollow Sheets	N/A

The following chemicals listed are potentially harmful to VULCAN polycarbonate products and cause embrittlement.

1 Acetic Aldehyde	21 Cyclohexanone	41 Tetrachloroethane
2 Strong Acetic Acid	22 Cyclonexene	42 THF
3 Acetone	23 Dimethylformamide	43 Tetralin
4 Acrylonitrile	24 Dioxin	44 Thiophense
5 Amonia Water	25 Ethylmanine	45 Toluene
6 Saturated Ammonium Fluoride	26 Ether	46 10% Trichloroamine
7 Saturated Ammonium Chloride	27 PVC	47 Xylene
8 Benzene	28 2-Ethanolamine	48 Ammonium hydroxide
9 Bezonic Acid	29 30% Formic Acid	49 Chlorohydrocarbon
10 Benzyl Alcohol	30 Gasoline	50 Ketone
11 Brominated Calcium Nitrate	31 Methacrylic Acid Methyl	51 Methyl – Ethyl Ketone
12 Carboic Acid	32 Nitrobenzene	52 Dichloromethane
13 Carbon Disulfide	33 Nucleolus	53 Polyvinyl Chloride
14 Carbon Tetrachloride	34 Pyridine	54 Ethylene Hydroxide
15 5% Potassium Hydroxide Solution	35 Petroleum	55 Sodium Hydroxide
16 5% Sodium Hydroxide Solution	36 Benzyl Ethanol	56 Nitric Acid
17 Chlorobenzene	37 Phenol	57 Cement
18 Cloroform	38 Cloroperoxide	58 Oil dripped from Pipe
19 Lilca	39 Strong Prionic Acid	59 Chemical Aqua
20 Cresol	40 Stryrene	60 Phosphorus Trichloride

Caution

To maximise the life of your VULCAN polycarbonate sheets, VULCAN Plastics recommends avoid exposing your polycarbonate sheeting to excess heat from patio heaters. VULCAN recommends a distance of 1M kept between the sheets and the heater, adequate ventilation at all times and temperature to be below 90°C beneath the sheeing. If temperature underneath your sheet rises above 90°C, immediatly remove the patio heater from underneath the polycarbonate sheeting.



Although many of the commercially available shading compounds can be used with VULCAN polycarbonate sheets, care must still be taken prior to applying; it is best to test the compound on a non-critical location to ensure that it can be removed from the sheet.

It is important not to use vinyl materials which are incompatible with polycarbonate to clean the surface. Any breakage resulting from the polycarbonate sheets coming in contact with any of the chemicals in the list would completely void warranty.

NOTES



Vulcan Plastics

10F.-7, No.28, Sec.3, Ren Ai Rd., Da An Dist., Taipei City, Taiwan 10653

Tel : (886)2-27091757 | Fax : (886)2-27556758

E-mail : info@vulcanplasticstw.com / Hans@vulcanplasticstw.com

www.twpolycarbonate.com



NOTES



Vulcan Plastics

10F.-7, No.28, Sec.3, Ren Ai Rd., Da An Dist., Taipei City, Taiwan 10653

Tel : (886)2-27091757 | Fax : (886)2-27556758

E-mail : info@vulcanplasticstw.com / Hans@vulcanplasticstw.com

www.twpolycarbonate.com







VULCAN PLASTICS

Taipei Office

Address : 10F.-7, No.28, Sec. 3, Ren Ai Rd., Da An Dist., Taipei City, Taiwan 10653

Phone (886) 2 27091757

FAX (886) 2 27556758

E-MAIL : info@vulcanplasticstw.com

Kaohsiung Office

Address : No. 47-37, Jiahua Rd., Gangshan, Kaohsiung City, Taiwan 820

Phone (886) 7 6282702

FAX (886) 7 6282601

E-MAIL : info@vulcanplasticstw.com