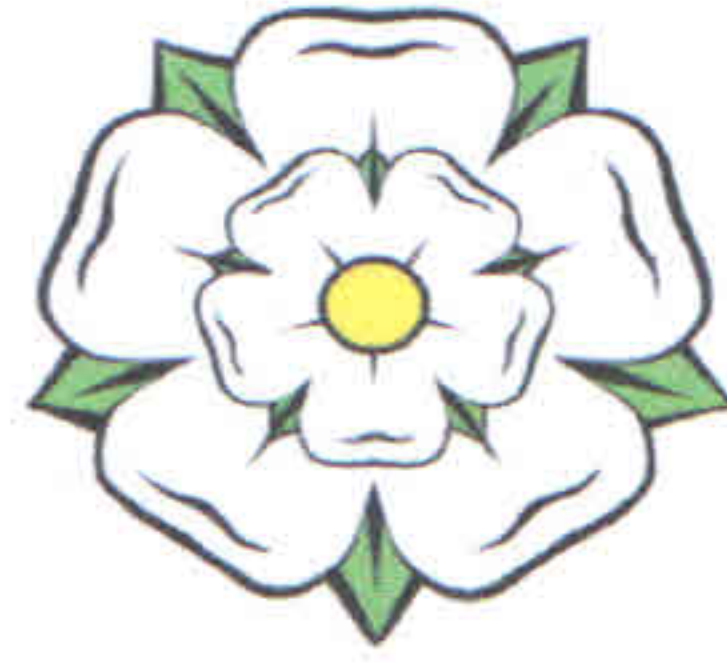


# Tanda Engineering (Yorkshire) Ltd

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Tel: 0113 2502917 Fax: 0113 2505160

[www.tandaengineering.co.uk](http://www.tandaengineering.co.uk)



## DELIVERY NOTE

Delivery Note No: 4147

Job No: 9631

Date: 21-7-14

Viamed Ltd

Purchase Order No: POR09753

15 Station Road  
Crosshills  
Keighley  
BD20 7DT

Quantity	Description
10	PP8533 Phototherapy light shield
	Part delivery, 20 to follow

Goods received in good condition by

Print Name Jonathan Connor Signed [Signature] Date: 21/7/14



## PERSPEX® CAST

PERSPEX®  
FROM LUCITE®

The information given in this report is confidential. Its reproduction in whole, in part or in summary form without our written consent in each instance is expressly forbidden. The information is given in good faith and is based on our general experience, but because of the many particular factors which are outside our knowledge and control that affect the use of products, no warranty is given or is to be implied. Freedom from patent rights must not be assumed.

### Perspex® from Lucite® Cast Sheet – RoHS Statement

Compliance of Perspex® from Lucite® cast sheet to the RoHS Legislation (European Directive 2011/65/EU)

Lucite International confirms that Perspex® from Lucite® cast acrylic sheet conforms to European Directive 2011/65/EU (Restriction on the use of certain hazardous substances in electrical and electronic equipment).

Perspex® and Lucite® are registered trademarks of the Lucite International UK Limited (registered in England No 3830161) group of companies.

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PERSPEX® CAST

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FROM LUCITE®

## Perspex® from Lucite® Technical Data Sheet

### Table of Properties

Values quoted for the properties of Perspex® from Lucite® are the results of tests on representative samples and do not constitute specifications.

Property	Test Method	Units	GS CAST	GS IM CAST
<b>General Properties</b>				
Relative Density	ISO 1183	-	1.19	1.18
Rockwell Hardness	ISO 2039-2	M scale	102	98.5
Water Absorption	ISO 62	%	0.2	0.4
Flammability	BS 476 Pt 7	Class	3	3
	DIN 4102	-	B2	B2
	NFP 92-507	-	M4	-
	UL94	-	HB	HB
	ISO 11925-2	-	E	-
<b>Mechanical Properties</b>				
Tensile strength (5 mm/min)	ISO 527	MPa	75	62
Elongation at Break (5 mm/min)	ISO 527	%	4	-
Flexural Strength (2 mm/min)	ISO 178	MPa	116	105
Flexural Modulus (2 mm/min)	ISO 178	MPa	3210	2960
Impact Strength – Charpy (unnotched)	ISO 179	kJ.m <sup>-2</sup>	12	21.7
	ISO 179	kJ.m <sup>-2</sup>	-	1.2
Izod Impact Strength	ISO 180/1A	kJ.m <sup>-2</sup>	-	-

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# Technical Data Sheet

Values quoted for the properties of Perspex® from Lucite® are the results of tests on representative samples and do not constitute specifications.

Property	Test Method	Units	GS CAST	GS IM CAST
<b>Thermal Properties</b>				
Vicat Softening Point	ISO 306 A	°C	> 110	> 110
Coefficient of Thermal Expansion - Linear	ASTM D696	$\times 10^{-5} \cdot K^{-1}$	7.7	-
<b>Optical Properties</b>				
Light Transmission	ASTM D1003	% (0 mm)	> 92	> 92
Refractive Index	ISO 489 A		1.49	-
<b>Electrical Properties</b>				
Surface Resistivity	IEC 93	$\Omega \cdot m^{-2}$	$> 10^{14}$	-
Electrical Strength	IEC 243	$kV \cdot mm^{-1}$	15	-

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## SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME	PERSPEX® CAST ACRYLIC SHEET: CLEARS AND TRANSPARENTS
Product Description	Clear or transparent tinted sheet. A high molecular weight acrylic sheet used in a wide range of applications. Does not include PERSPEX® AS 017. Polymethylmethacrylate : greater than 90%.
Address/Phone No.	Lucite International, PO Box 34, Darwen, Lancashire, BB3 1QB, United Kingdom Tel: +44 (0)1254 874000 msdsinfo@lucite.com
Emergency Phone No.	+44 (0) 1642 452461

### 2. HAZARDS IDENTIFICATION

Low toxicity under normal conditions of handling and use. Thermal decomposition will evolve toxic, irritant and flammable vapours. Care should be taken during thermoforming to ensure that the product is not exposed to temperatures exceeding 200°C. Certain machining operations e.g. laser cutting, can give rise to toxic and corrosive fumes. Adequate ventilation MUST be used.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.

HAZARDOUS INGREDIENT(S)	%W/W	CAS No.	EC No.	EC Classification
No classifiable hazardous ingredient(s).				

### 4. FIRST AID MEASURES

Inhalation	Remove patient from exposure, keep warm and at rest. Obtain medical attention if ill effects occur.
Skin Contact	Wash skin with soap and water. If symptoms develop, obtain medical attention.
Eye Contact	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Ingestion	Do not induce vomiting. Obtain medical attention if ill effects occur.
Further Medical Treatment	Symptomatic treatment and supportive therapy as indicated.

### 5. FIRE-FIGHTING MEASURES

Combustion will evolve toxic, irritant and flammable vapours.

Extinguishing Media	Water spray, dry powder or carbon dioxide.
Fire Fighting Protective Equipment	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

### 6. ACCIDENTAL RELEASE MEASURES

Offcuts, swarf or dust should be collected and disposed of in a safe way.



## 7. HANDLING AND STORAGE

### HANDLING

These sheets are heavy and unwieldy. They should be handled with care, particularly in windy locations or outdoors. If broken or chipped the resultant edges can be sharp and cause cuts to skin and eyes. Take precautionary measures against static discharges.

### Process Hazards

All polymers degrade to some extent at their processing temperature, an effect which increases with increasing temperature. Under normal conditions where thermoforming temperatures will not exceed 200°C thermal decomposition products will include Methyl methacrylate. Local exhaust ventilation and/or respiratory protective equipment should be used. Certain machining operations e.g. laser cutting, can give rise to toxic and corrosive fumes. Adequate ventilation MUST be used.

### STORAGE

#### Storage Temperature

Keep away from heat. Store vertically on A-frames.

#### Storage Life

< 40°C

Indefinite under specified storage conditions.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required. Local extraction close to the cutting head must be used when laser cutting. When thermoforming local exhaust ventilation should be used. Where suitable engineering controls are not fitted or are inadequate, wear suitable protective equipment. The following information is given as general guidance.

### Respirators



NORMAL HANDLING : Not normally required.

PROCESSING:

Dust: A suitable dust mask or dust respirator with filter type P may be appropriate. (EN141/EN143).

Vapour: If high levels above the Occupational Exposure Limit are likely a suitable mask with filter type A may be appropriate (EN141/EN143).

### Eye Protection



Wear eye/face protection. Safety spectacles/goggles/full face shield.

### Gloves



Sharp edges may cause cuts. Wear suitable gloves.

### Other

Wear suitable protective clothing. For information regarding process hazards refer to Section 7, Handling and Storage.

The following values apply to substances which may be evolved during thermal processing.

Substance	CAS No.	LTEL ppm (8Hr TWA)	LTEL mg/m3 (8Hr TWA)	STEL ppm	STEL mg/m3	Notes
Methyl methacrylate	000080-62-6	50	208	100	416	WEL

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Form

Sheet

### Colour

Clear or coloured

### pH (Value)

Not applicable.

### Boiling Point (°C)

Not applicable.

### Melting Point (°C)

Not applicable.

### Flash Point (°C)

11.5 (MMA) Sheet has no flash point.

### Flammable Limits

Not applicable.

### Auto Ignition Temperature (°C)

421 (MMA)

### Explosive Properties

Not explosive.



Oxidising Properties	Not oxidising.
Vapour Pressure (Pascal)	Not applicable.
Vapour Pressure (mm Hg)	Not applicable.
Density (g/ml)	1.19
Solubility (Water)	Insoluble.
Solubility (Other)	Soluble in most organic solvents, acetone and chlorinated hydrocarbons
Partition Coefficient (n-Octanol/water)	Not applicable.
Viscosity (mPa.s)	Solid.
Freezing Point (°C)	Not applicable.
Vapour Density (Air=1)	Not applicable.
Softening Point (°C)	>100
Relative Evaporation Rate (Ether = 1)	Not applicable.

## 10. STABILITY AND REACTIVITY

Hazardous Reactions	None known.
Hazardous Decomposition Product(s)	Methyl methacrylate, traces of Acrolein.

## 11. TOXICOLOGICAL INFORMATION

Inhalation	Unlikely route of exposure.
Skin Contact	No evidence of irritant effects from normal handling and use. Sharp edges may cause cuts.
Eye Contact	Sharp off-cuts may cause eye damage.
Ingestion	Unlikely to be hazardous if swallowed.
Long Term Exposure	No known hazards are associated with the use of this material.

## 12. ECOLOGICAL INFORMATION

This environmental hazard assessment is based on information available on similar products.

Environmental Fate and Distribution	High tonnage material produced in partially contained systems. Solid with low volatility. The product is essentially insoluble in water. The product has low potential for bioaccumulation. The product has low mobility in soil.
Persistence and Degradation	The product is non-biodegradable in soil. There is no evidence of degradation in soil and water.
Toxicity	The product is predicted to have low toxicity to aquatic organisms.
Effect on Effluent Treatment	Unlikely to have an effect on effluent treatment systems. The material is essentially insoluble in water and can therefore be separated from aqueous medium by sedimentation and filtration processes at an effluent treatment plant.

## 13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with local, state or national legislation. Incineration may be used to recover energy value. Bury on an authorised landfill site or incinerate under approved controlled conditions, using incinerators suitable for the disposal of noxious chemical waste. Large quantities of waste may be recoverable. Contact supplier for specialised advice.

## 14. TRANSPORT INFORMATION

Not Classified as Dangerous for Transport.

## 15. REGULATORY INFORMATION

Not Classified as Dangerous for Supply/Use.



## 16. OTHER INFORMATION

This product is an Article and as such Article 31 (Requirements for Safety Data Sheets) of Regulation (EC) No 1907/2006 does not apply.

LUCITE® and PERSPEX® are Registered Trade Marks of companies within the Lucite International Limited Group of companies.

For other technical information, contact the address in Section 1.

Lucite International does not recommend this product for use in applications involving long-term contact with body tissues.

PERSPEX® acrylic sheets are generally suitable for use in applications involving food contact however, regulations are known to vary from country to country. If statements on the compliance of any grades of PERSPEX® acrylic sheet with specific food contact regulations are required, please contact Lucite International for further details.

It is the responsibility of the end-product manufacturer to identify all market and use-specific regulations and to ensure compliance with these regulations.

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The following sections contain revisions or new statements: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

### GLOSSARY

Note: Not all of the following are necessarily contained in this Safety Data Sheet:

IOELV: Indicative Occupational Exposure Limit Value

WEL: Workplace Exposure Limit (UK HSE EH40)

Bmgv: Biological Monitoring Guidance Value

Sen: Capable of causing respiratory sensitisation

Sk: Can be absorbed through skin

Carc: Capable of causing cancer and/or heritable genetic damage

CHAN: Chemical Hazard Alert Notice

COM: The company aims to control exposure in its workplace to this limit

LTEL: Long Term Exposure Limit

STEL: Short Term Exposure Limit

TWA: Time Weighted Average

STOT SE: Specific Target Organ Toxicity - Single Exposure

Repr.: Reproductive toxicity

Aquatic acute/chronic: Hazardous to the aquatic environment