

# QUANTUM<sup>®</sup> 221

## Recoatable High Gloss Polyurethane Finish

PC 431

- FEATURES**
- OUTSTANDING WEATHERING AND CHEMICAL RESISTANCE
  - EXCELLENT APPLICATION PROPERTIES
  - EXCELLENT GRAFFITI RESISTANCE
  - HIGH GLOSS QUANTUM<sup>®</sup> CLEARCOAT AVAILABLE

**USES** QUANTUM<sup>®</sup> 221 is a premium quality, high gloss two-pack acrylic polyurethane. QUANTUM<sup>®</sup> 221 has been designed for superior weathering and gloss retention even in areas of extreme UV radiation. QUANTUM<sup>®</sup> 221 is readily recoatable with minimal surface preparation.

QUANTUM<sup>®</sup> 221 imparts an ultra-premium quality high gloss finish for high demand areas such as commercial facades, awnings, lift doors and frames, joinery in hotels, showrooms and restaurants, and is equally suitable for heavy industrial applications such as factory and farm machinery, earth moving equipment, and structural steel in power generation plants, bulk handling equipment, oil refineries, mining and chemical processes, offshore structures, road and rail infrastructure and exposed pipelines.

QUANTUM<sup>®</sup> 221, when fully cured, exhibits excellent graffiti resistance and durability to areas subject to public scrutiny such as sporting facilities, public transport and retail complexes.

**SPECIFICATIONS** AS/NZS 3750.6

### RESISTANCE GUIDE

<b>WEATHERABILITY</b>	Excellent gloss and colour retention on exterior exposure	<b>SOLVENTS</b>	Excellent resistance to splash and spillage of common alcohols, aliphatic and aromatic hydrocarbons, esters and ketones
<b>HEAT RESISTANCE</b>	Up to 120°C dry heat	<b>WATER</b>	Excellent resistance to fresh and salt water but not suitable for immersion
<b>SALTS</b>	Unaffected by splash and spillage of most salt solutions	<b>ALKALIS</b>	Good resistance to splash and spillage of most common alkalis
<b>ACIDS</b>	Suitable for splash and spillage exposure to most acids	<b>ABRASION</b>	Excellent when fully cured

### TYPICAL PROPERTIES AND APPLICATION DATA

<b>CLASSIFICATION</b>	Acrylic polyurethane coating	<b>APPLICATION CONDITIONS</b>			
<b>FINISH</b>	High Gloss		Min	Max	
<b>COLOUR</b>	White and a range of tintable colours	<b>Air Temp.</b>	10°C	45°C	
		<b>Substrate Temp.</b>	10°C	45°C	
		<b>Relative Humidity</b>		85%	
		<b>Concrete Moisture</b>		<10%	
<b>COMPONENTS</b>	Two	<b>COATING THICKNESS (MICRONS)</b>			
<b>VOLUME SOLIDS</b>	52.9% (White)		Min	Max	Recommended
<b>VOC LEVEL</b>	<432 g/L (White)	<b>Wet film per coat (µm)</b>	76	113	95
<b>FLASH POINT</b>	4°C	<b>Dry film per coat (µm)</b>	40	60	50
<b>POT LIFE</b>	2 hours (4 Litre kit, 25°C)				
<b>MIXING RATIO V/V</b>	Part A : 2    Part B : 1	<b>SUITABLE SUBSTRATES</b>	Primed steel, aluminium, galvanised steel, MDF, concrete or fibreglass		
<b>THINNER – BRUSH</b>	965-42166    Duthin <sup>®</sup> 040	<b>PRIMERS</b>	Most Dulux <sup>®</sup> two pack epoxy primers		
<b>THINNER – SPRAY</b>	965-42166    Duthin <sup>®</sup> 040 965-63023    Dulux <sup>®</sup> Urethane Thinner	<b>TOPCOATS</b>	Not applicable		
<b>PRODUCT CODE</b>	722-63313    White 722-63001    Light Base 722-63003    Clear Base 976-H0149    Standard Hardener	<b>APPLICATION METHODS</b>	Brush, roller, conventional, airless spray or air assisted spray		

### DRYING CHARACTERISTICS AT 50 µm DRY FILM THICKNESS\*

Temperature	Humidity	Touch	Handle	Full Cure	OVERCOAT	
					Min	Max
25° C	50%	40 Minutes	7 Hours	7 Days	7 Hours	Extended

\*These figures are a guide only, as ventilation, film thickness, humidity, thinning and other factors will influence the rate of drying.

### SPREADING RATE 10.5 square metres per litre equals 50 µm dry film thickness

ASSUMING NO LOSSES

NOTE: Practical spreading rates will vary depending on such factors as application method, ambient conditions, surface porosity and roughness.

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## TYPICAL SYSTEMS

This is a guide only and not to be used as a specification. Your specific project needs must be discussed with a Dulux Protective Coatings Consultant.

SURFACE	ENVIRONMENT	PREPARATION GUIDE	SYSTEM	DFT (µm)
STEEL – NEW	Very high corrosivity (AS2312.1 Cat C5) Exceeds System PUR5	Abrasive blast clean AS1627.4 Class 2.5	1 <sup>st</sup> Coat Zincanode <sup>®</sup> 402 2 <sup>nd</sup> Coat Duremax <sup>®</sup> GPE MIO 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221 4 <sup>th</sup> Coat QUANTUM <sup>®</sup> 221	75 µm 200 µm 50 µm 50 µm
STEEL – NEW	High corrosivity (AS2312.1 Cat C4) Exceeds System PUR3	Abrasive blast clean AS1627.4 Class 2.5	1 <sup>st</sup> Coat Duremax <sup>®</sup> GPE ZP 2 <sup>nd</sup> Coat Duremax <sup>®</sup> GPE 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221	125 µm 125 µm 50 µm
STEEL – NEW	Low corrosivity (AS2312.1 Cat C1-2) Exceeds System PUR2	Abrasive blast clean AS1627.4 Class 2.5	1 <sup>st</sup> Coat Duremax <sup>®</sup> GPE ZP 2 <sup>nd</sup> Coat QUANTUM <sup>®</sup> 221 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221	125 µm 55 µm 50 µm
CONCRETE	Exterior/Interior	Remove release agents and other surface contaminants	1 <sup>st</sup> Coat Durebild <sup>®</sup> STE 2 <sup>nd</sup> Coat QUANTUM <sup>®</sup> 221 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221	125 µm 50 µm 50 µm
HARDWOOD & MDF	Interior	Sand and dust down before and after first coat	1 <sup>st</sup> Coat Luxepoxy <sup>®</sup> 4 White Primer 2 <sup>nd</sup> Coat QUANTUM <sup>®</sup> 221 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221	50 µm 50 µm 50 µm
ALUMINIUM & FIBREGLASS	Exterior/Interior	Clean, degrease and abrade surface	1 <sup>st</sup> Coat Luxepoxy <sup>®</sup> 4 White Primer 2 <sup>nd</sup> Coat QUANTUM <sup>®</sup> 221 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221	50 µm 50 µm 50 µm
FIBRE CEMENT SHEET	Exterior/Interior	Clean, degrease and lightly sand surface. Dust down.	1 <sup>st</sup> Coat Luxepoxy <sup>®</sup> 4 White Primer 2 <sup>nd</sup> Coat QUANTUM <sup>®</sup> 221 3 <sup>rd</sup> Coat QUANTUM <sup>®</sup> 221	50 µm 50 µm 50 µm

NOTE: If application is by brush or roller, additional coats will be necessary to achieve the minimum DFT and full opacity. Appearance may greatly differ depending on application method (brush, roller and spray).

\*Plasterboard surfaces may move and crack, particularly at the joints. Quantum<sup>®</sup> 221 is not sufficiently flexible to be suitable over surfaces prone to movement, therefore, ensure that any movement is borne by expansion joints and that these joints are masked off when applying Quantum<sup>®</sup> 221 to avoid painting over the movement joint.

### SURFACE PREPARATION

Specifiers should follow the surface preparation guidelines from the data sheet for the primer or first coat selected. The surface must be clean, sound and free from moisture, grease, oil, dirt, rust, loose paint, and other contaminants and abraded to provide a suitable key for the coating system. If application of the second coat has exceeded the recoat window of the first coat (refer to data sheet) then the entire surface MUST be abraded.

**Steel:** Round off all rough welds, sharp edges and remove weld spatter. Remove grease, oil and other contaminants in accordance with AS1627.1. Degrease with Gamlen CA 1 (a free-rinsing, alkaline detergent) according to the manufacturer's written instructions and all safety warnings. Abrasive blast clean to a minimum of AS1627.4 Class 2.5 with a blast profile of 40 – 70 microns. Remove all dust brushing or vacuum.

**Steel where abrasive blast cleaning is not viable:** Rust, mill scale, oxide deposits and old paint films on metal surfaces must be removed by power tool cleaning according to AS1627.2 Class 2. Coating performance is proportional to the degree of surface preparation.

**Galvanised steel:** Round off all rough welds, sharp edges and zinc dags and remove weld spatter. Clean surface in accordance with AS1627.1. Whip blast, taking care not to damage the galvanising layer. Remove all dust by vacuum cleaning.

**Non-ferrous metals:** Round off all sharp edges. Remove grease, oil and other contaminants in accordance with AS1627.1. Whip blast with fine non-metallic media such as plastic, glass or garnet to provide a key. Remove all dust with compressed air. Alternatively, degrease and abrade the surface with a non-metallic abrasive pad wetted with Gamlen CA 1 (a free-rinsing, alkaline detergent) and water. Rinse thoroughly with fresh potable water.

**Concrete:** Concrete must be at least 28 days old before coating. Remove curing compounds, oil, grease and other oily contaminants with Gamlen CA 1 (according to the manufacturer's written instructions and all safety warnings). Remove all laitance and loose material. Fill any large cracks or voids using Luxepoxy<sup>®</sup> Filler.

**Concrete Floors:** Concrete must be at least 28 days old before coating. Remove curing compounds, oil, grease and other oily contaminants with Gamlen CA 1 (according to the manufacturer's written instructions and all safety warnings). Diamond grind, track or light shot-blast concrete floors to remove laitance and to provide a suitable profile. Remove all dust by vacuum cleaning. Fill any large cracks or voids using Luxepoxy<sup>®</sup> Filler.

**Asphalt:** Allow asphalt to fully cure. Remove all oil, grease, dust and other surface contaminants. Ensure surface is clean and dry prior to painting.

**MDF and hardwood:** Sand thoroughly and remove all dust. Resand lightly after priming to remove raised fibres

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<b>APPLICATION</b>	Mix each can thoroughly using a power mixer until the contents are uniform. Ensure bases have been tinted to the correct colour before use. DULUX <sup>®</sup> ASSUMES NO RESPONSIBILITY FOR THE APPLICATION OF INCORRECT COLOUR. Mix the contents of both packs together thoroughly with a power mixer and let stand for 10 minutes. Box all containers before use to ensure colour consistency. Remix thoroughly before and during application to prevent settling.												
<b>BRUSH/ROLLER</b>	Suitable for small areas only. Thin with up to 100 ml/litre with Duthin <sup>®</sup> 040 (965-42166) to aid application. When brushing and rolling additional coats may be required to attain the specified thickness and full opacity. <b>Colour and appearance are dependent on thinning levels and application technique. The effect achieved will differ from that obtained by spray application.</b>												
<b>CONVENTIONAL SPRAY</b>	Up to 200ml/litre Dulux <sup>®</sup> Urethane Thinner can be used to aid atomisation. Apply in multiple wet on wet coats overlapping each pass 50%. Between two and four wet on wet coats are required to achieve opacity. Opacity may vary depending on colour. A short flash time of approximately two minutes is required between coats  <table border="0"> <tr> <td>Typical Set-up</td> <td>Graco AirPro:</td> <td>1.4mm (239542)</td> </tr> <tr> <td></td> <td>Pressure at Triton 308:</td> <td>70-100 kPa (10-15 p.s.i.)</td> </tr> <tr> <td></td> <td>Pressure at Gun:</td> <td>380-410 kPa (55-60 p.s.i.)</td> </tr> <tr> <td></td> <td>HVLP</td> <td>1.4 Fluid Tip Set</td> </tr> </table>	Typical Set-up	Graco AirPro:	1.4mm (239542)		Pressure at Triton 308:	70-100 kPa (10-15 p.s.i.)		Pressure at Gun:	380-410 kPa (55-60 p.s.i.)		HVLP	1.4 Fluid Tip Set
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<b>AIRLESS SPRAY</b>	Standard airless spray equipment such as a Graco Xtreme 30:1 with a fluid tip of 15 thou (0.38) and an air supply capable of delivering 550-690 kPa (80-100 p.s.i.) at the pump. Thinning is not normally required but up to 150 ml/litre of Duthin <sup>®</sup> 040 (965-42166) may be added to aid application.												
<b>PRECAUTIONS</b>	This is an industrial product designed for use by experienced Protective Coating applicators. Where conditions may require variation from the recommendations on this Product Data Sheet contact your nearest Dulux <sup>®</sup> Consultant for advice prior to painting. Do not apply in conditions outside the parameters stated in this document without the written consent of Dulux <sup>®</sup> Australia. Freshly mixed material must not be added to material that has been mixed for some time. The rate of cure is dependent upon temperature. Do not apply at temperatures below 10°C. Do not apply at relative humidity above 85% or when the surface is less than 3°C above the dewpoint. Ensure that you read and understand the safety precautions on the Material Safety Data Sheets for the two components before using. The recommended thinner MUST be used as some solvents react with the isocyanate hardener seriously degrading the life of the coating. Under no circumstances should water or non-recommended thinner be allowed to contaminate the product. In hot conditions use Duthin <sup>®</sup> 040 (965-42166) for improved flow and to reduce dry spray.												
<b>CLEAN UP</b>	Clean all equipment with Dulux <sup>®</sup> Urethane Thinner (965-63023) immediately after use												
<b>OVERCOATING</b>	Degrease with Gamlen CA 1 according to the data sheet. Test adhesion of existing coating by standard cross hatch adhesion test. If the coating fails, remove it. High-pressure water wash at 8.3 to 10.3 MPa (1,200-1,500 p.s.i.) to remove chalk and dust. Abrade surface to provide a good key for the new coating.												
<b>SAFETY PRECAUTIONS</b>	<b>Read Data Sheet, SAFETY DATA SHEET and any precautions on container labels. SAFETY DATA SHEET is available from Customer Service (132377) or <a href="http://www.duluxprotectivecoatings.com.au">www.duluxprotectivecoatings.com.au</a></b>												
<b>STORAGE</b>	Store as required for a flammable liquid Class 3 in a bunded area under cover. Store in well-ventilated area away from sources of heat or ignition. Keep containers closed at all times.												
<b>HANDLING</b>	As with any chemical, ingestion, inhalation and prolonged or repeated skin contact should be avoided by good occupational work practice. Eye protection approved to AS1337 must be worn while handling. Always wash hands before smoking, eating, drinking or using the toilet. Gas is evolved when isocyanate in the hardener reacts with water. If a closed container shows signs of internal pressure, cover it completely with a cloth and remove the lid slowly to prevent splashing or violent expulsion of the lid.												
<b>USING</b>	Use with good ventilation and avoid inhalation of spray mists and fumes. When spraying, wear a positive-pressure, air-supplied respirator. Users must always comply with the provisions of the respective State Spray Painting Regulations at all times.												
<b>FLAMMABILITY</b>	This product is flammable. All sources of ignition must be eliminated in, or near the working area. DO NOT SMOKE. Fight fire with foam, CO <sub>2</sub> or dry chemical powder. On burning will emit toxic fumes.												
<b>WELDING</b>	Avoid inhalation of fumes if welding surfaces coated with this paint. Grind off coating before welding.												

COMPANY INFORMATION		PACKAGING, TRANSPORT AND STORAGE	
Dulux Protective Coatings a division of		<b>PACKAGING</b>	Available in 5 litre packs
DuluxGroup (Australia) Pty Ltd 1956 Dandenong Road, Clayton 3168 A.B.N. 67 000 049 427	DuluxGroup (New Zealand) Pty Ltd 150 Hutt Park Road, Lower Hutt, NZ A.B.N. 55 133 404 118	<b>TRANSPORTATION WEIGHT</b>	1.40 kg/litre (Average of components)
		<b>DANGEROUS GOODS</b>	Part A: Class 3 UN 1263 Part B: Class 3 UN 1263

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