

INSTALLATION & PRODUCT MANUAL

1.	INTRODUCTION	3
	1.1. Purpose	3
	1.2. Terminology	3
	1.3. General Information	3
	1.4. Limitations & Responsibilities of WK Marble & Granite & the Consumers	4
2.	SAFETY PROCEDURE	5
	2.1. Basic Guidelines	5
	i) Safety Procedures	5
3.	VARIOUS APPLICATIONS OF QUANTUM QUARTZ	6
	3.1. Interior Applications	6
	3.2. Exterior Applications	6
4.	TECHNICALS SPECIFICATIONS	7
	4.1. Quantum Quartz Specifications	7
	4.2. Quantum Quartz Colour, Surface Finish & Pattern	7
	4.3. Quantum Quartz Colour Consistency & Tonal Characteristics	7
	4.4. Quantum Quartz Technical Characteristics	8
5.	QUANTUM QUARTZ HYGENIC CHARACTERISTICS	9
	5.1. Surface Flammability & Smoke Development	10
6.	GENERAL INSTRUCTIONS TO CUSTOMERS	11
	6.1. General Instructions to Installers	11

6.2.	Product Identification	11
7.	DESIGN & INSTALLATION GUIDE	12
7.1.	Kitchen/Vanity Cabinets	12
7.2.	Installation of Benchtops	12
	i) Complete Perimeter Substrate Support	12
	ii) Complete Full Substrate Support	13
7.3.	Planning & Installation of Tops with Joints & Cut-outs	13
7.4.	Overhang & Supporting Brackets	16
7.5.	Installation of Splashback	17
7.6.	Cladding Walls	18
7.7.	Installation of Tiles	18
7.8.	Installation of Kitchen Sinks & Cooktops	19
7.9.	Installation of Return Side Panel	19
7.10.	Quantum Quartz Kitchen Benchtop on top of Wooden Floor	19
7.11.	Edge Profile Details	20
8.	MATERIAL SAEFTY DATA SHEET	21
9.	10 YEAR LIMITED WARRANTY	26
9.1.	Warranty Terms & Conditions	26
9.2.	General	26
9.3.	Claims	26
9.4.	Manufacturing Defects	26
9.5.	Implied Warranties	26
9.6.	Sales to Non-Consumers	27
9.7.	Sales to Consumers	27
9.8.	Limitation of Liability	27
9.9.	Governing Law	27
10.	CARE & MAINTENANCE	28

1. INTRODUCTION

1.1. Purpose

The purpose of this manual is to define the basic technical requirements, suggestions and guidelines related to the introduction of the product, design, its usage, installation and maintenance.

1.2. Terminology

The word Quantum Quartz® used in this document refers to any Engineered or manufactured stone in slab , tile or cut to size forms, marketed and sold by WK Marble & Granite Pty Ltd or its approved distributors or agents in Australia , New Zealand and Pacific Islands.

The word “the Customer” used in this document refers to any to any person, firm or company placing an order with WK Marble & Granite Pty Ltd or its approved distributors (“the Company”) for the purchase of any Quantum Quartz®.

The word “Product manual” used in this document refers to the technical information, specification, design, fabrication, maintenance and other data relating to the use and application of Quantum Quartz® .

1.3. General information

Quantum Quartz® is a composite of natural minerals and rocks- mainly Quartz mineral bound with resin, pigments and other fillers. Quantum Quartz® is manufactured using the most advanced and latest technology from Breton stone machinery of Italy.

Quantum Quartz® engineered stone collection is sold all over Australia, New Zealand and Pacific Island countries by WK Marble & Granite Pty Ltd, the leader in the supply of natural stones and manufactured stones for the past 16 years. Quantum Quartz® collection is unsurpassed in quality and variety by any other supplier of engineered stones in Australia.

Quantum Quartz® can be used in a variety of domestic and commercial interior applications including kitchen and vanity tops, splashbacks, flooring, wall cladding, stairs, furniture, fire place mantles and surrounds, lift cab floors and walls, food service counters etc.

Quantum Quartz® is manufactured using the world renowned Breton Stone technology (Breton spa of Italy). The quality of engineered stone will vary from brand to brand depending on the quality of resin and raw materials used in the manufacture of the stone. Quantum Quartz® has been manufactured using the quality raw materials as specified and recommended by Breton spa of Italy.

Quantum Quartz® is a high quality, non-porous product that is highly resistant to scratching, staining and water absorption. Quantum Quartz® requires minimum maintenance and the surface remains in immaculate condition for years.

1.4. LIMITATIONS & RESPONSIBILITIES OF WK MARBLE & GRANITE & THE CONSUMER/S.

We have taken every care to provide information in this document; this information should be used as a guide in the design, installation and care of Quantum Quartz®. No warranty, however implied or expressed, is given in relation to the procedures outlined in this Product Manual except that is required by law.

WK Marble & Granite Pty Ltd. assumes that the designers, fabricators and installers using the Product, are familiar with all aspects outlined in this Product Manual and strictly adhere to the recommendations and specifications described in the manual for use with Quantum Quartz® only. Any deviation from the recommended guidelines may result in the products not performing as expected and may result in the warranty becoming null and void.

A word of caution for people who are using this Product Manual, though every care and precaution has been taken in the preparation of this document, The Company assumes no responsibility for errors and or omissions, or for the damages resulting from the use of information contained in this Product Manual. Under no circumstances the Company shall be liable for any loss of profit or any other loss or damage caused or alleged to have been caused either directly or indirectly as a result of any person solely relying upon any information contained in this Product manual.

The Company reserves the right to change or modify this Product Manual or its electronic version from time to time without notice, it is the responsibility of the Consumer/s to consult or contact their local Quantum Quartz® distributor for accessing the latest version or updates.

2. SAFETY PROCEDURE

2.1. BASIC GUIDELINES

i) Safety Procedures:

We recommend that the stonemason always adhere to good stone working and safety work practices and abide by all the building codes and regulations. In order to prevent any accidents we strongly recommend that the stonemason follow these simple safety procedures:

- Prior to commencing the job the Consumer should read The Product Manual, The Material Safety Data Sheet, the instruction manuals of adhesives and manuals for operating various tools.
- The Quantum Quartz® sheets should be carried with at least two people. When handling these sheets always use industrial protective gloves (AS/NZS 2161) and proper lifting devices and make sure that the lifting straps and lifting clamps are free from defects.
- When cutting Quantum Quartz® always wear safety glasses (AS/NZS 1337) and earmuffs (AS/NZS 1269). The Quantum Quartz® is made up of quartz and resin and the quartz powder (silica) when inhaled is injurious to your health. Always try to cut the stones in well-ventilated areas. Respiratory Particle Filter Dust Mask to AS/NZS 1715 and 1716 standards should be worn when processing and fabricating Quantum Quartz®.
- The Quantum Quartz® should be cut using only wet tools to avoid inhalation of fine silica dust. Waterproof protective apron should be worn when using machines/tools with water applications. All cutting and polishing of Quantum Quartz® should not be carried out at the installation premises and WK Marble & Granite Pty Ltd should not be held responsible for any pollution either directly or indirectly resulting out of processing the Quantum Quartz®.
- Make sure that the work area is free of all debris and keep the work area clean and tidy.
- Always wear proper clothing and never wear loose clothing or loosely hanging jewels for safety reasons.
- It is important to wear only steel capped rubber soled industrial safety boots (AS/NZS 2210) when working with Quantum Quartz®.

3. VARIOUS APPLICATIONS OF QUANTUM QUARTZ®

3.1. Interior applications

Quantum Quartz® is ideal for use in interior applications such as kitchen benchtops, bathrooms - vanity tops, floors and walls, stairs, fire places and surrounds, restaurants, hotels, hospitals, and laboratories and also wherever high quality, sanitary and maintenance-free bench tops are required. Their use is comparable to that of natural stone, with the following additional advantages:

The uniformity of colouring permits additional, coordinated applications

- Minimum wastage of material used due to consistent size of the slabs
- Natural defects such as veining, pores, cracks or fissures are eliminated
- Resistant to moderate heat temperatures for a short period of time
- Resistant to stains
- Resistant to acids, alkalies, chemicals and solvents
- Resistant to mildew and mould
- Immune to freezing and thawing

Quantum Quartz® when exposed to direct sunlight may result in colour change and warping, it is advisable to avoid direct sunlight over a prolonged period on the surfaces used in the above applications.

3.2. Exterior Applications

The company does not recommend Quantum Quartz® for use in exterior applications, as Quantum Quartz® when exposed to direct sunlight may result in colour change and warping.

4. TECHNICAL SPECIFICATIONS

Quantum Quartz® is a high quality solid surface product that is long lasting and is practically maintenance free. Quantum Quartz® has a carefully designed colour palette of products that can be used in a variety of domestic and commercial applications. Quantum Quartz®, however is not an ideal product for exterior use as exposure to direct sunlight for prolonged periods can result in colour changes or fading and warping.

4.1. Quantum Quartz® Specifications

Quantum Quartz® slabs sizes: 3050mm x 1340mm and 3040mm x 1410mm and available in 20mm and 30mm. The thickness may vary by plus or minus 0.08mm per linear meter.

Quantum Quartz® Tiles : Available in most of the colours in 300mm x300mm x10mm, 400mm x 400mm x10mm, 600mm x300mm x10mm and 600mm x600mm x10mm. The thickness may vary by plus or minus 0.05 mm. Tiles are calibrated for both dimension and thickness and bevelled around the edges.

4.2. Quantum Quartz® colour, surface finish and pattern:

Quantum Quartz® manufacturing process is renowned worldwide and contains more than 93% of natural quartz , 7% combined bonding agent, special additives and pigments, making it an extremely hard wearing, practical and highly versatile surface.

Quantum Quartz® - the ultimate in stone technology and sophistication has a colour palette ranging from the subtle beige tones to the vibrant beauty of the luminescent Starlight Colours, which provide you the opportunity to perfect your individual style and decor.

Quantum Quartz® slabs and tiles are generally available in the gloss finish only.

4.3. Quantum Quartz® colour consistency and tonal characteristics:

Variation in colour may occur from batch to batch of Quantum Quartz® slabs and tiles due to the location from which the natural material is sourced. The composition of natural quartz and granite particles used in the products may sometimes produce minor irregularities such as crazing in the grains, blotches, spots, coloured particles. Such imperfections are generally accepted by the industry.

Quantum Quartz® is a non porous product but very fine micro pores could be present with the product range and is unavoidable during manufacturing process.

4.4. Quantum Quartz® Technical Characteristics

CHARACTERISTICS	TEST METHOD	UNIT OF MEASUREMENT		QUANTUM QUARTZ (Range of Values)
Density	ASTM C 97	Kg/dm ³		2.27 – 2.48
Flexural Strength (Modulus of rupture)	ATM C 880	PSI	DRY	7.74 -7.82
			WET	4.87 -8.31
Water absorption	ASTM C 97	%		.005-.02
Compressive Strength	ASTM C 170	PSI	DRY	22.08 – 29.89
			WET	15.76 – 29.89
Breaking Load	ASTM 648	Lbs		1207 1340
Coefficient of Thermal Expansion	ASTM C 531-0	20 ^o to100 ^o C AT (10 ⁻⁶ /C ⁻¹)		20.1 to 31.9
Hardness	EN 101	Moh's scale		6-7
Tensile Strength	ASTM D 638	MPa		17.8
Resistance to deep abrasion	ASTM C241	Index		58-63
Wear resistance of the Surface (Abrasive power Index)	ASTM C 501			113 TO 212
Slip resistance	DIN 51130	POLISHED	Wet Pendulum	Y classification
Resistance to chemical acids	ASTM C 560			NOT AFFECTED
Bacteria & Fungal resistance	ASTM G 21			NO GROWTH
Toxicity	Complies with the Standard 51 NSF/ANSI – Food equipment materials, solid surfaces for splash zone.			
Suitability for use in Kitchen Benchtops	EMPFEHLUNG XII BGVV			SUITABLE

Note: The values quoted above for Quantum Quartz® are average range of values of the different Quartz products tested and should be considered as an indication only. The test results may vary depending on the colours and also the batches of the products.

5. QUANTUM QUARTZ® HYGIENIC CHARACTERISTICS

Quantum Quartz® is certified by the National Health Institute for health harmlessness, the certificate declares the suitability of using Quantum Quartz® for the production of kitchen countertops.

The product is certified by the NSF International organization with this outcome: the product complies with the Standard 51 NSF/ANSI – Food equipment materials, Solid surfaces for Splash zone.

- Content of natural radionuclides (mass activity Ra-226)
is less than 120 Bq/kg.

Concentration of organic substances in extract into distilled water doesn't exceed these limits:

- Phenol Compounds: 0.05 mg/dm²
- Aromatic Substances formulated as styrene: 0.1 mg/dm²
- Compounds with amino group: 0.05 mg/dm²
- Primary aromatic amines: 0.05 mg/dm²
- Formaldehyde: 0.01 mg/dm²

Concentration of metals in extract of up to 4% acetic acid does not exceed these limits:

- Mercury: 0.01 mg/dm²
- Lead: 0.7 mg/dm²
- Arsenic: 0.01 mg/dm²
- Cadmium: 0.001 mg/dm²
- Antimony: 0.01 mg/dm²
- Barium: 0.2 mg/dm²
- Chromium: 0.01 mg/dm²
- Selenium: 0.01 mg/dm²
- Cobalt: 0.01 mg/dm²

5.1. Surface flammability and Smoke Development

Quantum Quartz® samples tested comply with Surface flammability and smoke development in accordance with ASTM E 84-97a. Average results show the

Flame Spread Index : 10
Smoke Developed : 115

The tests confirmed that the product could be classified as Class A as per the Interior Wall & ceiling finish Category of The National Fire Protection Association Life Safety code 101, Section 6-5.3 (USA).

**AS/NZS 1530.3:1999 SIMULTANEOUS DETERMINATION OF
IGNITABILITY, FLAME PROPAGATION, HEAT RELEASE & SMOKE
RELEASE**

Ignitability Index (0-20)	6
Spread of Flame Index (0-10)	4
Heat Evolved Index (0-10)	3
Smoke Developed Index (0-10)	7

6. GENERAL INSTRUCTIONS TO CUSTOMERS

6.1. General instructions to installers:

When taking delivery of Quantum Quartz® sheets, please make sure of the following:

- *Check all the slabs for uniformity of colour and granulometry (aggregate distribution) as slabs vary in colour and granulometry from batch to batch.*
- *Check the slabs for any surface defects including contamination of grains, fine fissures, stains chipping and for warping and thickness variation if any.*
- *Do not transport slabs horizontally and use proper “A” frames to transport the slabs. Always keep the polished surface covered with plastic film and remove any sharp tools or implement from the vicinity of the slabs to avoid scratches on the polished surface.*

If you detect any of the problems after taking delivery of the slabs and prior to cutting, then do not proceed with the processing and return the slabs immediately.

6.2. Product Identification

Quantum Quartz sheets carry product identification label on one side of the slabs giving the details of the product.

7. DESIGN AND INSTALLATION GUIDE

7.1. Kitchen / Vanity Cabinets:

Prior to installing the bench tops care should be taken to check the cabinets and base units for the following:

- *Strong and stable, the cabinets and the sub strata base should be able to withstand Quantum Quartz® bench top of weight in excess of 55 to 60 kgs per square meter.*
- *Units are fastened to both the wall and each other.*
- *Check that the cabinets are levelled properly. The cabinets must be plumb, true and flat. Make sure that the level does not vary by a maximum tolerance of 1.6mm over a length of 3 metres.*
- *Remove any nails, screws or sharp edges from the surfaces where the tops would be placed*

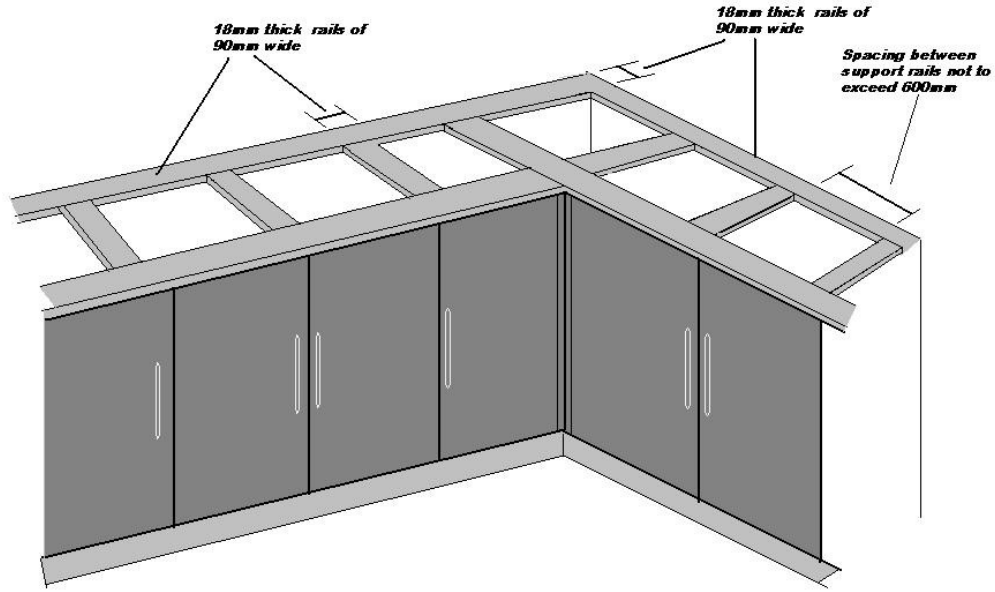
7.2. Installation of Benchtops:

No one kitchen bench top is the same as the other, however, we have given below some guidelines for installing Quantum Quartz® bench tops. The base supporting the Quantum Quartz® bench tops can be either Complete Perimeter support or Complete underlay support.

- *It is not common to have all the walls perfectly square. Please make allowance for such imperfections prior to cutting.*
- *Benchtops should be placed on a very sound and solid frame or a base which is perfectly flat and true.*

i. Complete Perimeter substrate Support:

- *Support the top both front and back with a moisture resistant rail of not less than 90mm wide of 18mm thickness. Then support the back of the slab with 90mm-100mm wide rails spaced at regular interval of approximately 600mm apart as shown below.*
- *It is important to provide a minimum of 3mm between the edge of the tops and the wall so that any expansion in the wall or top due to temperature variation in the atmosphere could be accommodated. Additional gap of one mm per lineal meter should be provided for bench tops lengths exceeding three meters.*
- *Apply dabs of flexible glue (silicon) at a regular intervals of not less than 25 cm apart on the back of the top then place the tops gently and level the tops before the glue (silicon) cures.*

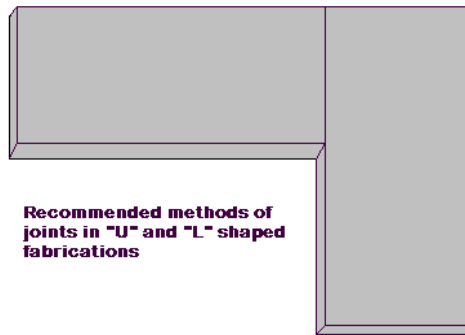


ii) Complete Full substrate support

Alternately the complete surface area of the bench top can be supported over the kitchen cabinets with full width self supporting underlay made up of high moisture resistant MDF or marine plywood of minimum thickness of 18mm.

7.3. Planning and installation of tops with joints & cut-outs:

- *It is important when planning the joints that the cut outs for the sink and cook top etc are not placed less than 15 cm from the joints.*
- *WK Marble & Granite Pty Ltd does not recommend installing "L" shaped (or other angled) bench tops without a joint at the corner of angle due to various mechanical stresses to be experienced by such tops after installation (example settlement of floors, cabinets etc.). Fabricator should use his own discretion when installing "L" shaped (or other angled) bench tops as our warranty does not apply when "L" (or other angled) shaped bench tops are fabricated from one piece of Quantum Quartz® slabs.*

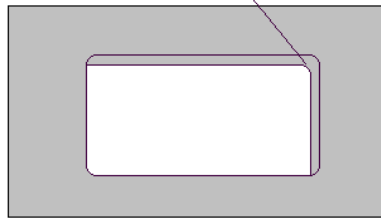


- *All the joints in the tops should be well supported underneath.*
- *All the joints should be properly cleaned with acetone or denatured spirit to get rid of all the dust and grime.*
- *All the sides of the joints should be straight cut as no to alter the normal thickness and grooved or slotted in the middle so that the glue joining the tops will be well distributed for good adhesion.*
- *Apply the flexible glue to the joints and also for joining the frame to the bench tops.*
- *Check that the tops are well aligned both along the joints and also along the front and check that the tops are levelled properly and plumb and true. Use paper masking tape at the joints so that the glue applied to the joints does not move to the polished face.*
- *Ensure that the joints are perfect and then place clamps at the joints until the adhesive sets properly.*
- *Once the joints properly set, remove the masking tape and clean off any excess adhesive and also the contact surface with acetone or denatured spirit.*
- *Do not use any mechanical fasteners like screws and nails to Quantum Quartz®.*
- *Any modification, alteration to the surface of the products of Quantum Quartz (e.g. cutting & grooving the surface including manufacture of drain boards etc) is not recommended.*

If you are planning to cut the cut outs at the site of installation, it is most essential that the operation is done in an area where you can use wet tools. Never attempt to cut the sink cut outs and cook top cut outs on the top of cabinets with dry cutting tools.

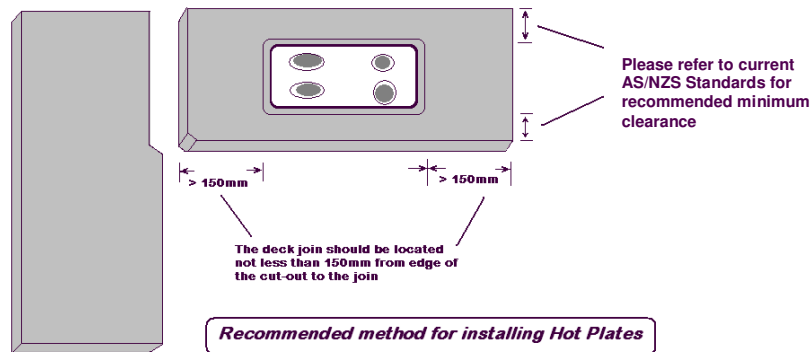
All the cut outs should be cut using only wet cutting tools to avoid generating excess heat to the tops and the corners. The radius of the corner should be around 6mm. When cut outs are planned allow extra 3mm between the appliance edges and the top cut out sides. This is essential to accommodate any expansion that may develop in the top due to temperature changes of the atmosphere.

Internal corners of the cut-outs should be rounded. Prior to cutting cut-outs, drill the corners with a minimum drill hole diameter of 12mm.

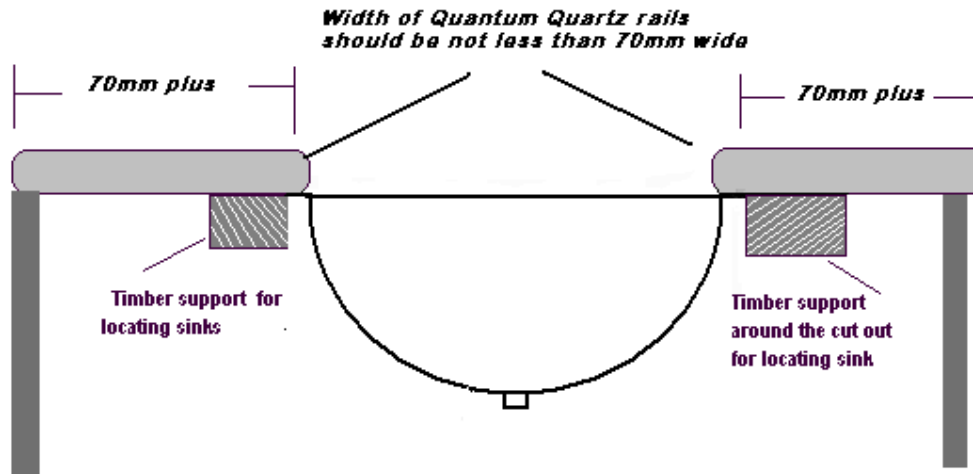


Planning Cut-Outs

- All care should be taken when installing appliances like cook top and sink etc. Read the instruction manual that was supplied along with the appliance prior to commencing installing the appliances. Make sure that all the brackets and supporting nuts are with the pack.
- Care should be taken when joining the tops above any heat generating appliances (eg. Under bench oven), avoid joins above such heat generating appliances. The warranty becomes null and void if any joints are placed above such appliances.
- Centre all the appliances in the cut out and make sure that you allow minimum of 3mm space between the inside edges of the appliance and the cut out walls.

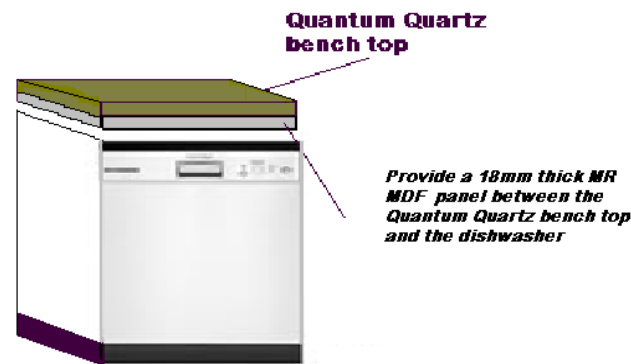


- Position all the appliances in place and make sure that the seals provided with the appliances are properly placed prior to tightening the fasteners to keep the appliances in place. All the fasteners should be only fingering tight never use force in tightening the fasteners.
- Any appliances weighing more than 5 kg should be adequately supported by the cabinet frames.



Installation of under the counter sinks

- *All the joints between countertop and the appliance edges can be sealed with a high quality transparent flexible sealant. Clean any excess sealant immediately.*
- *Uneven thermal distribution over part of the bench top may occur in areas above dishwasher and over hot water plumbing systems which may cause the top to crack. To avoid this all the hot water plumbing should be thermally insulated, it is a good practice to make the tap holes slightly oversized so that the hot plumbing system is not in direct contact with the product, and when installing dish washer it is essential to fit a 18mm thick moisture resistant board or marine plywood above the dishwasher in the cabinet.*



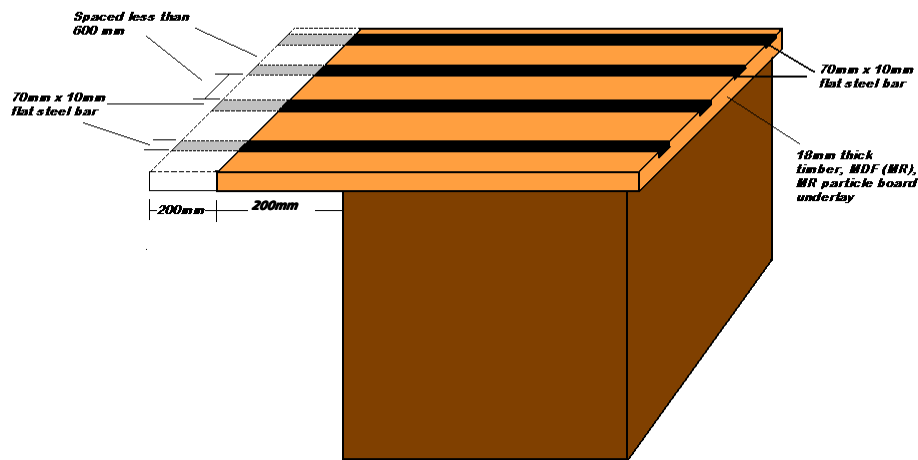
Dishwasher installation

7.4. Overhang and supporting brackets:

All the overhangs provided for the breakfast bar or any top should be properly supported with brackets. Rule of thumb is that any overhang exceeding 200mm shall require 10mm thick 70 mm wide steel bar placed underneath the top. However, if 40mm thick laminated edges are used then the piece pasted to the top can extend the whole width of the over hang to take some stress placed on the overhangs.

If the overhang is less than 400mm then the general practice is to provide a support base made up of timber and the brackets placed approximately 500mm apart. All

overhangs exceeding 400mm should be supported with proper metal legs. The brackets should be fastened to a backer plate, which is secured with the cabinet with screws.



Breakfast bars - support details for overhang exceeding 200mm

7.5. Installation of splashback:

Quantum Quartz® can be used for splashback applications in wet areas, behind the wash basins/sinks and behind cook tops. However, when installing splashbacks behind gas cook tops and heat generating appliances, it is important that the Installer and Kitchen Designer must refer to and follow:

- The Australian & New Zealand Standards AS 5601-2004 Gas Installations
- AS NZS 4386.2-1996 Domestic Kitchen assemblies-Installation.
- Cooktop and appliance manufacturer's specific installation guidelines.

The installer must also ensure that the following general guidelines are strictly followed:

- Make sure that the walls are vertical and free from dirt and grime; if so clean the entire surface.
- It is not advisable to install splash backs on gyprock boards and any paper lined gypsum product.
- A fibre cement sheet is recommended, the splash back pieces should be thoroughly cleaned on the back and on the top and place it in the area to be installed and check whether the pieces fit properly.
- After the pieces of cladding satisfactorily fit, then clean the surface of contacts with acetone or denatured spirits and apply dabs of transparent two part epoxy glue to both the surfaces of the contact and place the cladding. It is not advisable to use grout between the cladding and the counter top. Use a flexible silicon to fill the gap between the bench top and the splash backs
- "L" shapes should not be fabricated in one solid piece as this does not allow for movement due to thermal expansion.
- Cut-outs for items such as power points should be core drilled to produce radius internal corners. Cross cutting should be avoided at all times.

7.6. Cladding Walls:

Quantum Quartz® can be used for all internal cladding of walls and vertical applications. The installation of vertical panels varies from location to location. When designing and installing vertical panels and cladding, it is necessary to take the mass of the product into account and the services of an experienced structural engineer should be sought during the designing and installation phases.

7.7. Installation of Tiles:

Quantum Quartz® slab and tiles selected for wall / floor applications is an excellent choice that offers the flexibility and visual impact not previously available in the market place. However, as with any tile application it is important to follow the correct fixing methods suitable for the specific applications.

There are no established Australian standards for adhesive fixing of engineered stone tiles, installers in Australia tend to fix the engineered tiles similar to fixing ceramic tiles using adhesives meant for ceramic tiles. Such practices lead to failures in installation.

Tiling systems vary from location to location and may be installed in a number of ways. It is important for installers to take in to consideration, the following characteristics of the materials that make up the different layers of the tile system and understand how they interact with each other if the complete system has to perform successfully.

- Differential movement
- Structural deflections
- Foundation movements
- Thermal movements
- Moisture movements
- Dimensional stability

Most importantly the thermal movement (expansion and shrinking) of engineered tiles should be taken in to consideration when designing a tile system as the engineered stones have a much higher linear thermal expansion when compared to natural stones and ceramic tiles.

Moisture movements both permanent and reversible changes may occur due to moisture content of the tiling system. Engineered stones have known to possess appreciable reversible moisture movement.

Dimensional stability: This refers to ability of an engineered stone tile to resist curling or warping when exposed to water contained in the adhesives. When the tile surface absorbs moisture the surface of the wet side expands more than the dry side with the result the tiles tend to warp.

The adhesive manufacturers Mapei have vast experience in the installation of the Tiling system using Engineered Stones. Accordingly, we strongly recommend that the installer should consult the manufacturer and seek their advice prior to installation of Quantum Quartz® slab and tiles.

The link to their website is:

Mapei (Australia) <http://www.mapei.com>

Quantum Quartz® does not accept any responsibility nor does recommend a particular method of installation, it is the responsibility of the installer / buyer to design the tiling system based on the advice obtained from the engineered tile adhesive manufactures.

7.8 Installation of Kitchen Sinks & Cooktops:

Cracks have been known to occur in the narrow strips of bench tops of Quantum Quartz in front and back of the kitchen sinks and cook tops.

The reasons for the development of cracks are due to several factors. Stainless steel and fibreglass sinks come in a variety of sizes and shapes. There are several variables associated in the installation of such sinks above or underneath the bench tops:

- *the thermal expansion of the units*
- *fully laden weight of the sinks*
- *fastening & fitment of the support brackets*
- *the gauge of the stainless steel*
- *the type & amount of glue used*
- *insufficient thermal insulation in the installation of cook tops*
- *ground movement etc.*

It is not practical for Quantum Quartz to oversee whether all the parameters have been met by the installer at the time of installation of such equipment/s. Therefore Quantum Quartz will not entertain any claims arising out of cracks developed in the peripheral area of cook tops and sinks and are not covered under 10 Year Limited manufacturers Warranty.

7.9 Installation of return side panel:

Cracks developing in the side/return support of Quantum Quartz panel can be avoided provided the panels are glued only to the cabinet. Gluing the Quantum Quartz panel to cabinet and to both floor (in particular to wooden floor which is prone to warping and movement) and walls should be avoided completely. Gluing the panel to cabinet, floor and walls result in preventing the Quantum Quartz panel to expand or shrink freely thus causing the panel to develop cracks.

Quantum Quartz Warranty does not cover such cracks developed due to non conformity of approved installation procedures.

7.10 Quantum Quartz kitchen bench tops installed on top of wooden floor :

Wood being a natural product will expand and contract due to temperature and moisture and also wooden floors installed over structurally unstable base can cause nasty things like buckling, gapping or warping if the installation is not properly carried out initially.

Accordingly Quantum Quartz bench tops laid on the kitchen cabinets installed over wooden floors are susceptible to develop hairline fractures and cracks. It should be noted that these defects are not due to manufacturing defects and are not covered under the 10 Years Limited manufactures Warranty.

7.11 Edge Profile Details:

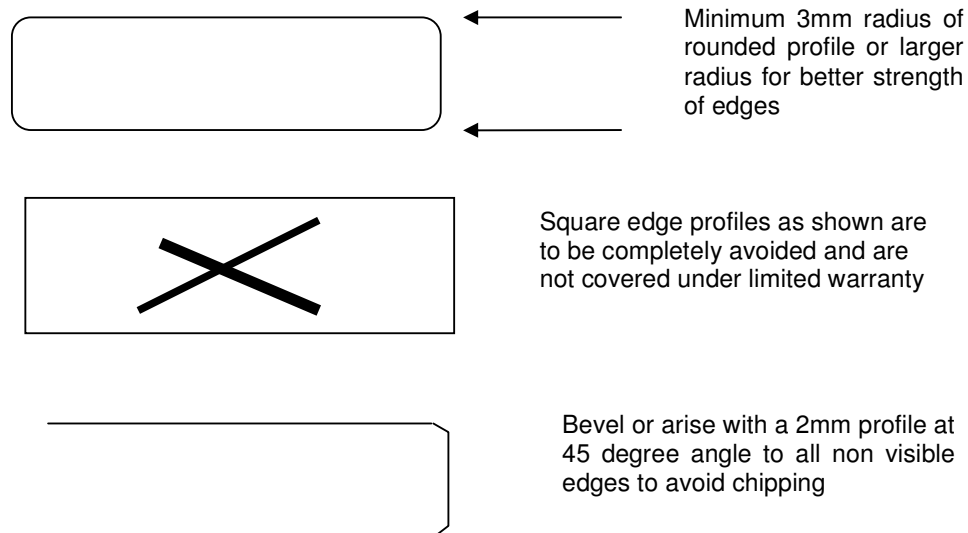
There are numerous edge profiles that can be used to design the edges of Quantum Quartz bench tops. These edges can be designed using 20mm or 30mm slabs or creating 40mm edges by laminating two pieces of 20mm slabs.

Though it is feasible to produce many types of edges the most practical and safest way to design an edge should be a well rounded one with a minimum of 3mm profiled radius or more, the larger the radius the better results in a longer life & general the long life and overall performance of the edge of the bench top. Designing a sharp edge should be completely avoided both from the safety point of view and also to prevent the chipping away of edges.

In addition to designing all visible edges with a minimum of 3mm radius profiles, all the cut edges should be bevelled or chamfered with a minimum of 2mm profile at an angle of 45 degrees. This will prevent accidental damage to edges.

It should be noted that Quantum Quartz Limited Warranty does not cover where the exposed edges have a square edge profile.

The following diagrams show the correct and preferred edge profile design.



- *Stains caused by fruit juices, liquid food colouring, coffee, tea, wine, grapes, soft drinks, paints, nail polish and remover, automotive fluids, and permanent markers. If accidentally any of the above is spilt on the top / floor, wipe off the stained area with any commonly available multi-purpose cleaner or household detergent and then with ordinary water immediately. It is possible that some of the stubborn stains may leave a light mark or very slight discolouration on the stones.*

8. MATERIAL SAFETY DATA SHEET

Section 1: Identification of the material & supplier:

Product name : Quantum Quartz®
Other Names : Quartz based Engineered stone
Recommended use: Bench tops, flooring and cladding.
Supplier name: WK Marble & Granite Pty Ltd.
Address : 129, Fairford Road, Padstow, NSW 2211
Telephone : (B.H) (02) 97722377

Section 2: Hazards Identification:

The Quantum Quartz® slabs and tiles are not classified as hazardous. When the product is subjected to sawing, drilling, sanding and routing can generate silica dust. The fine dust of quartz (silicon dioxide) containing crystalline silica can cause serious harm to human health. Prolonged exposure to respirable crystalline silica can cause silicosis.

Section 3: Composition/Information on ingredients:

Substance	CAS No.	Weight by Volume	Exposure Limits TWA
Quartz(i)	14808-60-7	< 93%	0.1 mg/cu.m. *

(The national exposure standards of 0.1 mg/cu.m (TWA , 8 hours) for quartz is based on the amendments made as of 1st January, 2005 by NOHSC for *Adopted National Exposure Standards for Atmospheric Contaminants in the occupational Environment* NOHSC: 1003(1995)].)

Quartz grains and micronised silica content of Quantum Quartz® may contain up to 93% of the weight by volume of the products and the balance made up of polyester resin ,fillers and pigments are determined to be non hazardous.

Section 4: First Aid Measures:

Inhalation:

The prolonged inhalation of airborne silica can cause the respiratory disease Silicosis, a progressive, incapacitating and sometimes fatal disease of lungs. The risk of lung disease increases if smoking is combined with silica inhalation. Always use a respirator or particular mask when cutting or abrading this material and to avoid generating dust wet cutting methods should be used.

If symptoms including coughing, sneezing and breathing difficulties develop remove the victim to fresh air and ensure the airways clear and administer oxygen by a qualified first aid person and seek medical assistance immediately.

Swallowed:

It is unlikely to swallow Quantum Quartz® due to its physical form. If dusts of silica formed during handling, grinding, cutting or abrading may irritate the gastric tract, causing nausea and vomiting. Seek medical advice if symptoms persist.

Skin:

Any silica dust accumulated on the skin should be washed off with soap and water. Remove contaminated clothing and wash thoroughly before using again or discard.

Eye:

If silica dusts enter eye, use standard eye washing method to flush particles from eyes. Always use protection with side shields when cutting or abrading Quantum Quartz® slabs or tiles.

Section 5: Fire Fighting Measures:

Fire extinguishers: Use alcohol stable foam, dry chemical powder, carbon dioxide and water spray or fog based fire extinguishing equipment.

Fire fighting:

Keep all personnel removed from the area and from the upwind of fire.

Fire fighters should wear complete fire protective clothing and self contained breathing apparatus operated in positive pressure mode.

Hazards from combustion products: Quantum Quartz® is flammable above 406° C and self ignite above 484° C.

Section 6: Accidental release measures:

Quantum Quartz® if accidentally broken then, handle the broken pieces with industrial gloves and observe safe handling procedures. The wastes should be disposed off properly and observe the local and State regulations for waste disposal.

If large amounts of dust develop during cutting or sawing processes then vacuum or sweep the dust and dampen the contaminated area with water to avoid the dust getting airborne. Always wear respiratory protecting masks and protective clothing when handling silica dust. Seal all the waste in vapour tight containers for proper waste disposal. Care should be exercised all the time to ensure that the silica dust and sludge do not enter the waterways and should the waterways are contaminated immediately contact the waterways authority and/or your local waste management authority.

Section 7: Handling and Storage:

Quantum Quartz® slabs should be carried with at least two people, when handling these slabs always use industrial gloves and proper lifting devices and also make sure that the lifting straps and clamps are free from defects.

Slabs should be stored vertically on a 150 angle with support at top and bottom of the steel "A" frame.

When cutting slabs /tiles protect your eyes from the dust and chips with industrially approved safety glasses, protect your ears with earmuff and avoid inhaling the dust and use proper respiratory masks.

Section 8: Exposure controls / personal protection:

Keep exposure to silica dust levels as low as possible, preferably below the National exposure standards of 0.1 mg/cu.m. (TWA)

Engineering controls:

Always cut the slabs/tiles in well ventilated areas. Mechanical ventilation and waste storage facilities should be provided to prevent dust escaping to atmosphere. When cutting slabs/tiles wet cutting methods must be employed, to minimise the generation of dust and release of fine silica from the stones.

Personal protective equipment:

Personal protective equipment as described below should be used during cutting, grinding, abrading and sanding operations of the products. The working environment must always be free from the dust generated from the products and the equipment should be thoroughly vacuumed before and after use of the equipment.

Respiratory Protection: All care and protection should be taken during cutting, grinding, abrading and sanding operations of the products and avoid breathing the airborne silica dust by wearing industrially approved (AS/NZS 1716 approved P1 or P2 particulate respirator) disposable or cartridge dust mask. Users should be familiar with the Australian and New Zealand Standards AS/NZS 1715 Selection, use and maintenance of respiratory devices and AS/NZS 1716 Respiratory protective devices when exposed to dust.

Eye Protection: Non-fogging dust resistant safety goggles or glasses conforming to Australian and New Zealand Standards AS/NZS 1337 Eye protectors for industrial applications should be worn during the cutting, grinding, abrading and sanding operations of the products.

Body protection: When handling the products, always wear proper clothing and never wear loose clothing or loosely hanging jewels for safety reasons. Always wear industrial safety helmets conforming to local and state industrial safety regulations.

Hygiene measures: Wash hands before eating and drinking and always wash the contaminated clothes before using again.

Smoking: Inhalation of the dust generated from products including those from cigarette smoke, may increase the risk of lung diseases and other respiratory related illness. The working environment must be smoking free zone.

Section 9: Physical and chemical Properties:

Appearance : Various colour shades
Odour : Odour will arise when the product is un stuffed from container.
Odour is possible during the cutting and grinding operations of the products.
pH : Note relevant
Vapour Pressure : Not relevant
Boiling Point/range : Not relevant
Freezing : Not relevant
Solubility : Not relevant
Specific Gravity : 2.4 to 2.5

Information for flammable materials, including:

Flash Point : 484°C
Upper and lower flammable limits in air :

Ignition Temperature : At temperatures above 484⁰C the material will self ignite.

Additional information:

Specific heat value : Not relevant
Particle size : Not relevant
Volatile organic compounds (VOC) content : Not available
Evaporation rate : Not relevant
Viscosity : Not relevant
Percent volatile : Not relevant
Octano/water partition coefficient : Not relevant
Saturated vapour concentration: Not relevant

Additional characteristics not noted above:

Flame propagation or burning rate of solid materials : The material conforms to Class "A" as per ASTM E 84a test method
Properties of both flammable& non flammable materials that may initiate or uniquely contribute to the intensity of a fire: Not available
Potential for dust explosion : Not available
Reactions that release flammable gases or vapours: Not available
Fast or intensity burning characteristics : Not available
Non-flammables that could contribute unusual hazards to a fire, such as oxidising and reducing agents or peroxide formers: Not relevant
Release of invisible flammable vapour and gases : Not available
Decomposition temperature : Not available

Section 10: Stability & reactivity:

Chemical stability : Stable
Conditions to avoid : Stable at normal conditions
Incompatible materials : None reasonably foreseeable
Hazardous decomposition products : Decomposition of the product could release carbon monoxide, hydrocarbons and smoke. Metal oxide fumes and particles of mica could also be released.
Hazardous reactions : Not available

Section 11: Toxicological Information:

Health effects from the likely routes of exposure:
No data on Toxicology available for this product. The following information is available on the fine crystalline silica released during the processing of the product using grinding and cutting tools.
Inhalation (Human) : 0.3mg/cubic meter/10 Y
LC Lo: Inhalation (Human) : 16mppcf/8H/17.9 Y
TC Lo: Intermittent, focal fibrosis, pneumoconiosis, cough dyspnoea
Inhalation (rat) TC Lo:5.0 mg/cubic meter/6 H/71W- Intermittent – Liver Tumours.

Warning for inhalation exposure only: Crystalline silica (respirable size) has been classified by the IARC as Group 1 Carcinogen to humans.

Section 12: Ecological Information:

Ototoxicity : This product should be used only for its designated purposes.
Persistence and degradability : Not available
Mobility : Not available
Additional information:
Environmental fate: Not available
Bioaccumulative potential : Not available

Section 13: Disposal Considerations:

Disposal methods and containers :
Special precautions for landfill or incineration:

Section 14: Transport Information:

UN Number : Not available
UN Proper Shipping Name : Not available
Class and subsidiary risk : Not available
Packing group : Not available
Special precautions for user : Not available

Section 15: Regulatory Information:

Regulatory status of a material (including its ingredients) under relevant Australian health, safety and environmental legislation: Not available

Additional national and/or international regulatory information: Not available

Section 16: Other Information:

Date of preparation or last revision of MSDS:
Additional information: 21/08/2006
Key/legend to abbreviations and acronyms used in the MSDS:
Literature references :
Sources for data :

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9. 10 YEAR LIMITED WARRANTY

9.1 WARRANTY TERMS & CONDITIONS

These are the entire Warranty Terms and Conditions of all reconstituted quartz based slabs ("the Products") supplied by QUANTUM QUARTZ PTY LTD. (ABN 191 022 34346) and WK MARBLE & GRANITE PTY. LTD. (ABN 29 074 331 981) its associated and subsidiary companies (all of which are referred to as "Quantum Quartz") to any person, firm or company placing an order with Quantum Quartz for the purchase of any Products ("the Customer") and except as otherwise expressly agreed upon in writing between a duly authorised officer of Quantum Quartz and the Customer, these Warranty Terms and Conditions shall apply notwithstanding any provisions to the contrary which may appear on any Order Form or other document issued by any Customer.

9.2 GENERAL

1. Quantum Quartz offers a limited warranty to the original Customer of the Products for a period of ten (10) years from the date of installation free from defects arising in the manufacture of the Products PROVIDED THAT the Products are fabricated and installed by a fabricator(s) and/or installer(s) according to The Product Manual ("the Manual"). It is the responsibility of the fabricator and/or installer to obtain a copy of the latest version of the Manual or its electronic version from Quantum Quartz and to install the Products in accordance with the Manual.

2. Quantum Quartz warrants that the Products are safe for use in interior applications only including but not limited to such applications as counter tops, vanity tops, wall cladding and laminating.

9.3 CLAIMS

This Limited Warranty does not cover:

3. any defect in, or damage to, the Products arising out of any work done by person/s other than Quantum Quartz
4. for the fabrication or installation of the Products by person/s other than Quantum Quartz
5. The Products used on any exterior application including but not limited to outdoor areas and areas in or near swimming pools.
6. Discolouration of the Products, if the Products are exposed to direct sunlight over a prolonged period.
7. Any modification, alteration to the surface of the Products of Quantum Quartz (Example: cutting and grooving the surface including manufacture of drain boards...etc)
8. Damage to The Product by prolonged exposure to chemicals and solvents.
9. If the Product is damaged by placing hot saucepans and pans directly on the surface and/or sudden change in the temperature, excessive heat or excessive weight applied to the surface.
10. The 'Pearly Shores' Product has sea shells embedded on the surface of the Product. These shells are susceptible to staining and react to vinegar, citric and fruit juices and other mild acids. These shells can also be easily abraded or scratched if it comes into contact with harder materials or sharp tools. No claims will be accepted if such defects appear after the installation of the Products.
11. Failure to follow the Care & maintenance instructions of the product.
12. Variations in colour, pattern and shade of the material against the sample material, materials displayed and /or as illustrated in the printed and electronic media
13. Failure of adhesives, caulking materials, damage resulting due to the accessories installed, failure due to inadequate support to joints and seams
14. Failure to follow any procedures, instructions and recommendations given in the Product Manual provided to the fabricators and/or Customers
15. damage caused by physical abuse, vandalism, misuse and/or accidents including, without limitation, fractures, burns, scratches, stains, cuts and scuffs of the product.
16. Do not climb on your counter tops or sit on them. The risk of damage to the bench tops from localised additional weight is high.
17. The appearance of a crack does not imply faulty material. Cracks are generally associated due to ground movement or settlement. Thus limited warranty does not include cracks developed in the tops after installation.

9.4 MANUFACTURING DEFECTS

18. Quantum Quartz warrant that the Products are free from manufacturing defects, however, this does not apply to colour variances, thermal shock, chemical abuse or defects caused by misuse or wrongful installation, negligence, vandalism and misuse. Quantum Quartz reserve the right in its sole discretion to determine whether there are any such defects and whether there has been any misuse or wrongful installation and further claims for visible defects of the Products must be made before any fabrication or installation of the Products.

The Customer acknowledges that any claim must be notified in writing to Quantum Quartz within twenty-eight (28) days after becoming aware of any possible defect and further that if notification does not take place then the Customer's rights to claim shall lapse.

9.5 IMPLIED WARRANTIES

19. These Warranty Terms and Conditions do not exclude, restrict or modify the application of any provision of any Commonwealth, State or Territorial Law which by law cannot be excluded, restricted or modified.

9.6 SALES TO NON-CONSUMERS

20. In the case of Products supplied by Quantum Quartz to a Customer who is not a "consumer" (as defined in the Trade Practices Act, 1974 as amended from time to time) ("the Act"), if the Products do not correspond with the description of them on the invoice or are defective then provided that the Products are preserved intact and made available for inspection by a representative of Quantum Quartz and are returned to Quantum Quartz in the same order and condition as that in which they were delivered, Quantum Quartz shall at its option replace those Products or reimburse the Customer for the amount of the purchase price paid for them but any claim in this respect must be made in writing within seven (7) days of the date of delivery of those Products

21. Should the Customer seek indemnity from Quantum Quartz in respect of any claim by a consumer on the Customer as a result of a breach of condition or warranty implied by the Act in a contract for the supply of Products by the Customer to that consumer, clause 15 will not apply and in respect of Products that are of a kind ordinarily acquired for personal, domestic or household use or consumption, Quantum Quartz's liability is limited to indemnifying the Customer in accordance with the Act.

Limited to a liability to pay to the Customer an amount equal to the cost of replacing the Products or the cost of obtaining equivalent Products or the cost of having the Products repaired, whichever is the lesser amount

22. Quantum Quartz may determine that a replacement Product may not be reasonably available in the same colour or shape as the original Quantum Quartz Product covered by this limited warranty. Quantum Quartz reserves the right to provide a replacement Product of as close a shape and colour match as is reasonably possible from Quantum Quartz current Product range, if replacement Product of the same colour or shape is not reasonably available.

23. This limited warranty is applicable only for the manufacturing defects, if the material develops defects after the Products is installed and if Quantum Quartz feel the defects are not due to manufacturing defects, then the Customer may approach any approved testing authority to evaluate the causes for the defects at their own cost.

9.7 SALES TO CONSUMERS

24. In the case of Products supplied by Quantum Quartz to a Customer who is a consumer, to the extent that the Products are not consumer Products, the liability of Quantum Quartz to the Customer for breach of any warranty or condition (other than a warranty or condition implied by section 69 of the Act) or for breach of any duty of care shall in all cases be limited, at the option of Quantum Quartz, to any one or more of the replacement of the Products or the supply of equivalent Products, the repair of the Products or acquiring equivalent Products or the payment of the cost of having the Products repaired.

9.8 LIMITATION OF LIABILITY

25. Except for those conditions and warranties implied by the Act or other sale of goods or consumer protection legislation which may not be excluded, the Customer agrees that:

- a) It has not relied on any inducement, representation or statement made by or on behalf of Quantum Quartz in purchasing the Products and there are no implied conditions or warranties herein and no collateral contracts in connection herewith (except such as may be in writing and signed by a duly authorised representative of Quantum Quartz); and
- b) Clauses 19 - 25 set out the entire liability of Quantum Quartz in respect of its liability under the Act or otherwise in respect of liabilities for a breach of a condition or warranty with respect to the sale of goods or Products. In no circumstances will Quantum Quartz incur any liability in respect of or arising out of or in connection with any special, consequential, direct or indirect loss, damage, harm or injury suffered or incurred by the Customer.

9.9 GOVERNING LAW

26. The Customer agrees that these Warranty Terms and Conditions shall be construed according to the laws of the State or Territory as Quantum Quartz may in its sole discretion determine. Proceedings by either Quantum Quartz or the Customer may be instituted and/or continued in such State or Territory as Quantum Quartz may in its sole discretion determine. Failing such determination the Customer consents to any proceedings being instituted and heard by any appropriate Court sitting in the State of New South Wales applying.

10. CARE & MAINTENANCE

- **Hygiene:** Quantum Quartz is the ideal surface that is used in food courts, restaurants and even hospitals where hygiene is paramount. Quantum Quartz does not promote the growth of bacteria as it has 0.005 water absorption.
- **Cleaning:** Quantum Quartz is extremely low maintenance. Wiping the surface with warm water and stone cleaner or mild neutral detergent & a damp cloth is all that is needed to remove everyday marks left on the benchtop. The use of scourers may dull the surface of your countertop & it is not covered under Warranty.
- **Heat Resistance:** Quantum Quartz solid surfaces can handle exposure to moderate temperature. However it is not recommended that hot pots and trays be taken out of the oven and placed directly onto the surface. This practise can cause thermal shock to the product or burning to surface. The use of hot pads or trivets for these hot items is thoroughly recommended.
- **General:** Quantum Quartz does not require sealing due to its almost impervious nature. As with most surfaces, exposure to chemicals containing trichlorethane or methylene chlorides which are present in paint strippers, even cleaners which have high alkaline levels will etch or deteriorate the surface. Avoiding these chemicals will ensure your countertops physical properties will never be undermined. Use a Neutral Ph (PH7) as cleaner. To avoid damage to the Quantum Quartz surface when preparing food we recommend the use of a cutting board.
- **Colour Consistency:** A slight colour variation may occur from batch to batch due to the location from which the natural material is quarried. Also, due to the natural quartz composition of Engineered Stone, irregularities such as spots or colour particles in the slab may occur. The sample you have selected for your countertop may vary to the installed product due to natural differences in the raw material.
- **'Pearly Shores':** Any accidental spillage of vinegar, citrus fruit juices on the surface of Pearly Shores should be immediately wiped off with clean water to avoid any reactions.