



Liquid Quartz™
UNGLAZED CERAMIC SEALER
THE INDUSTRY LEADER SINCE 2014



The Liquid Quartz™ User Guidebook

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Welcome!

Welcome to the LQ ceramic arts community. The detailed information & instructions about Liquid Quartz™ found in this document are intended to help you get the most out of this product. The information here is a supplement to the frequently asked questions section of our website. Please read this document in its entirety before using Liquid Quartz™ to ensure you get the best results from this product, & keep a copy of it on hand for future reference. It contains lots of great tips & tricks, useful safety information, as well as troubleshooting advice that will come in handy as you get familiar with using this revolutionary product.

If you have any questions NOT covered here or on the website, please let us know by emailing hello@liquidquartzsealer.com

Shipping:

Liquid Quartz™ will soon be available direct from local warehouses in certain countries to alleviate the cost of shipping internationally. If Liquid Quartz™ is not already available from a local distribution point near you, please rest assured we are working on one. In the meantime we will continue to ship globally from Australia to anywhere on the planet with a compatible postal service. Please check the FAQ section of our online shop for info & updates on any postal issues where you live.

To find the best shipping solution to wherever you are in the world, please head to our shop:

www.liquidquartzsealer.com

Product Overview:

Liquid Quartz™ sealer is certified food safe water based sealer. It is UV stable & abrasion resistant. Once cured it is waterproof & stain resistant. It is also antibacterial & so can help prevent the formation of algae, moss, fungus, scale, & efflorescence on outdoor pieces. It is stable from -70°C to 450°C (-94°F to 842°F) & so is freezer/dishwasher/microwave/oven safe.

Liquid Quartz™ is generally touch dry within an hour & fully cured after 24 hours without firing or any further treatment. If working in a very humid or dark environment, note that the sealer could take up to 5 days to fully cure – see page 6.

Store the bottle in a dark, cool place away from direct sunlight (or your hot kiln).

Before you begin:

Please read this guide in its entirety – results can only be as good as your preparation & application is thorough.

In order to be sealed, your clay body must be bisque fired or fully vitrified (that is, the surface must be completely stable; no flaking, powdery residue, or crumbling when touched). Yes, even a “fully vitrified” piece is slightly porous, & Liquid Quartz™ is effective on these pieces because of its tiny particle size (20-100nm).

Low-fired bisque ware or underfired clay will likely not be stable enough to seal, nor be fit for use as tableware, so please ensure your clay body is appropriate for your intended purpose. Liquid Quartz™ will not be able to hold together an underfired/unstable clay body, as it is not a

binding agent or strata forming sealer. Liquid Quartz™ is a permeating sealer, & so requires a solid, porous structure (even if only slightly porous, like vitrified porcelain) to function effectively. Also note that this means all underglazes &/or surface treatments must also be properly fired, clean, & structurally stable before sealing. Liquid Quartz™ cannot seal over any water soluble treatments, like acrylic paint or ink, as it will simply rewet these treatments & wash them away. Likewise is not suitable for air drying clay or any other product that will dissolve in water.

It is impossible to apply a second coat of sealer, once the first layer dries the surface will be impermeable to more sealer.

Surface Preparation:

Ensure your surface is free from dirt, oil, & other contaminants before sealing. Remove any residues from oxides, minerals, or organic materials that may be left behind from your firing process, & oils from handling the wares with bare hands. Scrub all surfaces clean with a hard brush, scourer, or similar, using clean water (& an abrasive cleaner if desired, like a cream cleanser or bicarbonate soda solution). Ensure any traces of carbon, organic matter or other debris are completely removed from the surface. Soak the pieces if necessary to ensure no corrosive minerals (salts/oxides etc.) or cleaning products remain, & rinse thoroughly.

If the surface is contaminated with any waxy or oily residues that cannot be scrubbed off, consider refiring the piece (even if only at low temp) to burn off the contaminant completely.

If you have sanded the surface or your piece (or had it stored in your dusty studio for a period of time) you'll need to wash it thoroughly to remove any particulate matter. If you neglect to remove dust or other contaminants from the surface, Liquid Quartz™ will simply seal the loose particles (which will likely dislodge later, taking the sealer with them & potentially affecting the quality of the seal).

Thoroughly dry the pieces to be sealed to avoid trapping any moisture in the clay body. This could take days, depending on how much water your clay body has absorbed during the cleaning process & the climate you are drying the pieces in. Note that neglecting to dry the work thoroughly before sealing could result in trapped moisture that may explode in a microwave at a later date (when the moisture seeks to escape as steam & cannot permeate the sealer). Failure to dry the work before sealing may also result in mould formation inside the wares, or even cause a reaction with the sealer if the water used was not completely clean or was contaminated/chlorinated etc. – see troubleshooting checklist for more info).

Coverage:

Average coverage is 50-75ml/m², so a bisque fired plate will need less than 15ml of product. You'll use much less for high fired or vitreous works, but maybe more for very porous pieces.

Before Using or Decanting:

Always shake the bottle before use or decanting, to ensure even distribution of the active particles in the carrier liquid.

Application Methods:

1. Dipping/Submerging

Fully immerse the piece in an appropriately sized container of Liquid Quartz™ for up to 20 seconds (less if vitrified, more if very porous), agitating if necessary to ensure no air pockets are present & the whole surface has been covered. Remove the piece & wipe off any unabsorbed sealer with gloved hands, allowing the excess to drip back into the container of unused Liquid Quartz™.*

You can submerge in sections for very large pieces, but be sure to overlap the sections during application to avoid missing any of the surface area. For very large works, spraying may be more appropriate (see method 2.).

If the sealer beads on the surface, wipe off the excess with gloved hands to prevent staining or marking from over application (see attached troubleshooting checklist for more information).

This is the most thorough application process as it ensures the entire surface area is fully coated, & has absorbed enough sealer for optimum stain & water resistance. This method also ensures there is no wastage from overspray or missed areas from improper application. It is recommended for all commercial or domestic tableware/food service items or vessels destined to hold water, as it eliminates the possibility of human error (missing a section of the piece while sealing for example) & allows each section of the clay body to absorb exactly the right amount of sealer, depending on its porosity.

2. Spraying

The 125ml, 250ml, & 1L sizes come with an extra fine spray nozzle included, but larger quantities come in pouring containers. You can simply decant your Liquid Quartz™ from its larger container into any spray bottle for application. (Remember to shake well before decanting to ensure even distribution of the active particles within the carrier liquid.)

Spray Liquid Quartz™ onto the surface until completely wet, continuing to apply until the piece no longer absorbs the sealer readily. If the sealer beads on the surface, wipe off the excess with gloved hands to prevent staining or marking from over application (see attached troubleshooting checklist for more information).

If spraying small items, place into an oversize plastic container during application to catch any overspray for reuse, then simply pour the excess back into the bottle when done.*

This method is best for larger works that need to be protected from the elements but are too big for dipping (outdoor sculptural pieces or exterior mosaics that are already installed for example, or very large platters/bowls etc.).

For both brushing & spraying, you may notice that a different amount of sealer is required for different pieces (or even sections of the same piece) depending on porosity, so adjust the quantity used on each surface area, as required by your observation of its behaviour (apply more until the surface no longer absorbs the sealer). Do NOT let dry & then attempt to apply a "second coat".

3. Brushing

Brush Liquid Quartz™ over the surface until completely wet, continuing to apply until the piece no longer absorbs the sealer readily. If the sealer beads on the surface, wipe off as per the other methods mentioned here.

4. Pouring

To seal the unglazed inside of a vessel, Liquid Quartz™ can be poured in & allowed to absorb for up to 20 seconds. If the sealer beads on the surface, wipe off as per the other methods mentioned here. The unabsorbed liquid can be poured back into the container & reused.*

*IMPORTANT: Reuse is ONLY possible if you have followed all of the preparation instructions in this document. If sealing dirty or unstable surfaces, you will contaminate the entire container of Liquid Quartz™ & will need to discard it.

Drying/Curing:

After application, place the damp pieces on a non-absorbent surface to dry (a waterproof dish drainer is ideal, or non-absorbent plastic sheet, even a glass or stainless steel table will do). Turn the pieces over once touch dry, wiping of any drips or pooled sealer from where they were resting on the drying surface, & leave to cure the other way up for 24 hours (longer if in a damp/dark environment – see page 6, the troubleshooting checklist, for more information regarding this).

Avoid any unnecessary handling during curing time to allow the self-organising particles to create an even, durable, protective barrier.

Sealing Glazed/Underglazed Pieces:

There are many potters who only glaze the food contact area of their work, or a selected section of the surface for aesthetic reasons, leaving the rest raw or “naked” to showcase the texture of the clay. There are several advantages of sealing these unglazed areas with Liquid Quartz™; to prevent water seepage behind the glaze, staining of the unsealed areas during washing/use (dirty dishwasher water, lipstick etc.), & bacteria growth in the slightly porous, unglazed sections of the piece. Sealing will also dramatically reduce the drying time unglazed ceramics tend to require once wet, being essentially “waterlogged”.

It is popular amongst alternative firers, wood firers, hobbyists & professionals alike, as it is easy to use & effective wherever it is able to reach the exposed areas of clay to soak in to create a barrier (including between crazed or crawled glazes & underfired sections of pots, preventing seepage). Many have also had great success using Liquid Quartz™ to seal over underglazes, soft/matte glazes, or alternative surface treatments (like Obvara for example).

Since Liquid Quartz™ is a permeating sealer; it will not soak into a properly glazed, waxed or oiled surface (as it requires a porous surface penetrate). With this in mind, you can safely apply over any glazed sections of your work without concern, it will simply bead off any properly cured glaze during application. It can be applied using any of the methods mentioned here, providing added moisture protection & stain resistance to whatever porous areas it comes into contact with.

Care & Maintenance:

Liquid Quartz™ reduces the need for harsh chemical cleaners & detergents as it is hydrophobic & oleophobic; resisting staining from oil, grease, acids, alkalis, & alcohol, making any surface treated with Liquid Quartz™ easy to clean, as water will simply bead off the correctly sealed surface, taking surface contaminants with it. Avoid harsh chemical cleaners & abrasives to prolong the life of the sealed surface. Hot soapy water will suffice after your lamb roast.

While surfaces treated with Liquid Quartz™ display stain resistance far superior to any unsealed clay body, prolonged contact with certain substances well known for staining even glazed ceramic ware (black tea/turmeric etc.) may still mark the surface over time. To minimise the possibility of any permanent staining, avoid prolonged contact with these substances. Let those using your sealed pieces know to rinse the tableware immediately after use & clean it with hot soapy water as soon as possible, like any much loved, handmade items.

When first sealed, water & other liquids will readily bead on the surface of the sealer, this is referred to as the “Lotus effect”, & is caused by tiny nano particles of Liquid Quartz™ protruding from the sealed surface, much like the tiny hairs on a Lotus leaf. Over time these particles will be worn down with regular use & cleaning of the piece (wiping/washing/scraping etc.) & the beading will minimise, but rest assured the sealer is still effective, having created a root system deep within the piece, so the barrier remains permanently fused with the clay body.

Pieces sealed with Liquid Quartz™ will still be susceptible to thermal shock like any other ceramic ware, so do not take them suddenly from hot to cold (stove to fridge) or vice versa.

Safety Considerations:

Be sure to watch for areas that require more Liquid Quartz™ than others (they will soak up more sealer during application) due to uneven or varied porosity (caused by hot/cold spots in the kiln or mixed clay bodies etc.). Pieces not sealed correctly may not be food safe or waterproof, so remember the seal can only be as effective as your preparation & application is thorough.

Whilst Liquid Quartz™ is non-toxic, we recommend always wearing gloves during application for two reasons; firstly to prevent the natural oils from your hands leaving greasy fingerprints on the clay body (which in turn may create areas that will not soak up the sealer). Secondly, to avoid any possible skin irritation or penetration, as it contains nanoparticles that could pass through the skin & into your bloodstream. Whilst nano particles are widely in use in cosmetics & personal hygiene products already, there are still no long term studies on the safety of nano particles once absorbed through human skin. Even though these particles are made from a non-toxic substance (Quartz), the effect of these particles in your bloodstream is largely unknown. Armed with this knowledge, use Liquid Quartz™ without gloves entirely at your own risk.

Limitations:

Liquid Quartz™ is not designed to create a seal over a glazed/glossy/non porous surface, so it is unlikely to make your lead based or toxic glazes food safe. It has been designed to seal porous surfaces only. It has not been tested for sealing Raku/matte glazes, however it has been reported (by users of the product) to stop seepage & staining when applied to underfired &/or matt glazed pieces in some instances. Testing is recommended if you are at all concerned about your unconventional glaze/process.

Likewise, if you use a post firing chemical or toxic ingredient in the firing of your work (like ferric chloride) that will not burn out or cure at the temperatures you fire to, you should test your work for food safety before using it for food service. We also cannot guarantee the food safety of pieces treated with chemicals or minerals with a particle size of less than the particle gap of Liquid Quartz™ (20-100nm) as any particles smaller than this could in theory pass through. If your surface is stable & properly fired, this should not be a concern.

Discarding/Clean Up:

Contaminated or expired Liquid Quartz™ can be returned to the earth. Simply pour it into the garden or a patch of dirt away from water sources (dams/lakes/streams etc.). Rinse all containers & tools in a bucket of water & discard this the same way. Small quantities in the water system are not considered dangerous to the environment, as per the info in the SDS.

Testing:

It is recommended to always test the sealer for effectiveness for its intended purpose before embarking on any large volume production, especially if using a new firing process or clay body you are unsure of, just like you would with any new glaze, ingredient, or product.

Troubleshooting:

The table on page 6 gives you an overview of the most common application/storage mistakes & their solutions. Please refer to the table for advice & tips on solving any application issues you may encounter, but please get in touch if you have a problem not listed here or in the FAQ section of the website.

Removal:

Should you decide you wish to remove Liquid Quartz™ from a sealed surface, simply bisque fire the piece to a temperature over its stable maximum of 450°C (842°F). This will safely burn the sealer away without leaving any residue.

Composition:

Made primarily from SiO₂ (Silicon Dioxide, Silica, or Quartz crystals); a naturally occurring oxide & one of the most abundant minerals in the earth's crust, found in plants, animals, water, & the earth's crust (which is about 59% silica).

SiO₂ is most commonly used in the production of glass, ceramic glazes, underglazes, clay & clay body stains, so is already present in your ceramic work. It is also used as a thickener in the food industry.

Certification:

Tested & certified food safe to European Union standards (as at the time of testing, were deemed more stringent than FDA standards), & meeting the requirements for food contacting articles & materials according to paragraphs 30 & 31 of the German Food, Article & Feed Law. Also meeting the requirements of EC Regulation No. 1935/2004 of the European Parliament & of the Council on materials & articles intended for contact with food.

Liquid Quartz™ has been classified as a NON HAZARDOUS SUBSTANCE according to NOHSC criteria & is classified as NON DANGEROUS GOODS according to the ADG. The SDS (Safety Data Sheet) is available on the website.

Guarantee:

We guarantee satisfaction when the product is used as directed. The manufacturer's warranty is limited to replacement of the product or a refund of the purchase price.

Remember that the seal can only be as good as your preparation/application is thorough.

Website/Contact Info:

hello@liquidquartzsealer.com
www.liquidquartzsealer.com

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(Trading as MOFA Trading Pty Ltd)

ISSUE	CAUSE	SOLUTION
1 Discolouration of LQ in the bottle.	a. Contamination with particulate matter has occurred; e.g. dust, sanding debris, firing minerals/chemicals, or other unstable surface particles that were not removed properly before application (most common when using the dipping method or reusing overspray without proper surface preparation).	a. If reusing the sealer, ensure you are ONLY applying to very clean & dry surfaces, as any particulate matter left in the sealer will cause contamination that cannot be reversed. (Please read the instructions to ensure proper pre-application preparation has been performed.) Do not reuse the sealer if it becomes contaminated after sealing unstable or unclean surfaces.
	b. Incorrect storage (exposure to light or heat).	b. Store in a cool, dark place (out of direct sunlight & away from your kiln).
2 Discolouration on pieces after application.	a. Not fully cured (most common if used in very humid environments or in locations with poor sun/very little daylight).	a. Cure the pieces for longer before use (up to 5 days in very humid conditions), or cure directly in the sun/under UV light to accelerate curing time.
	b. Over application causing excess build up.	b. Apply less. Wipe all excess sealer off the surface before allowing the sealed pieces to dry naturally. NEVER apply a second coat. LQ cannot soak in to an already sealed surface, so will create sticky patches where it pools.
	c. Incorrect storage (exposure to light or heat).	c. Store in a cool, dark place (out of direct sunlight & away from your kiln).
3 Yellow bloom on surface of sealed pieces.	a. Not fully cured (most common if used in very humid environments or in locations with poor sun/very little daylight).	a. Cure the pieces for longer before use (up to 5 days in very humid conditions), or cure directly in the sun/under UV light to accelerate curing time.
	b. Reaction with a chemical used in firing that was not properly removed before application.	b. Ensure the pieces are washed & dried thoroughly to remove any residual chemicals before sealing.
	c. Reaction with a liquid the piece has come into contact with before LQ is fully cured.	c. Ensure the pieces have fully cured before use. (See solution a. above for very humid/dark environments.)
	d. Sealer was applied to a damp surface.	d. Ensure pieces are completely dry before application.
4 Bubbles/air escaping from the sealed surface during first use of the finished works.	a. Particle gap is nano sized (20-100nm) & so allows air to pass through but not liquid, (meaning it is waterproof but will still allow trapped air to escape under enough pressure).	a. Soak the sealed & fully cured pieces in water to force out the air bubbles prior to use/sale. Never apply LQ to damp pieces – this will seal the water INSIDE the pieces, potentially causing explosion if heated quickly & the resulting steam cannot escape, &/or encourage mould growth.
5 Pieces not fully waterproof/stain resistant.	a. Surface was not prepared correctly (dusty/wet/contaminated) before application.	a. Follow the preparation & application instructions fully.
	b. Surface was not suitable for sealing.	b. Use a stable clay body, suitable for the intended use.
	c. Surface was not sealed entirely.	c. Application was patchy
	d. The active particles were not applied evenly.	d. Shake bottle well before application/decanting.