HITCHINS TECHNOLOGIES Pty Ltd

EPOTEC NT Coated Swimming Pools

August 2019

Contractor Application Procedure

(With appendix how to look after EPOTEC and pool water)

1. Introduction:

***Congratulations**, you have a high-quality epoxy pool coating that will give your client many years of great service, when applied in accord with these notes.*

PLEASE FOLLOW THE DETAILS BELOW.

We've laid out the Application Procedure in sections, so you can easily follow it.

It's quite comprehensive, however not all sections will apply to you, so **select (MARK) the ones that are relevant.**

The general process for ALL pools is:

- ✓ Empty pool
- ✓ Wash surface with detergent
- ✓ Survey surface and mark any defects
- ✓ Remove any defective areas
- ✓ Repair areas that have been seen as defective
- ✓ Apply an Acid and / or Algaecide wash (if necessary)
- ✓ Allow pool to dry
- ✓ Apply Sealer (if necessary) and 2 - 3 coats of **EPOTEC NT**

Not sure about something, then please ask, before continuing. We want you to provide a great finish.

Done well your client can expect a 7 – 12 years life before a recoat is necessary with domestic pools.

Epotec, as with all epoxies slowly wears away so the thicker the dry finish the longer it will last. Therefore, don't be tempted to spread it out. If you do it won't last. We can't stress this enough!

Surface preparation is a key aspect in getting the best performance from the pool coating.

It probably represents 80% of the overall success. So, spend time and do it once and do it well. Your client will reap the rewards for doing so, for many, many years.

Also, there is a lot of useful material to guide you at **Info Bank** (on our website) and we will indicate this with **"IB"** in the margin throughout these notes. Visit: www.poolpaint.com.au and follow links.

All data given and statements and recommendations made are based on our research and experience and are believed to be accurate. However they are for guidance only and as no control can be exercised by this company over the end usage, no guarantee or their accuracy is made or implied. It is recommended that the user makes their own tests to determine the suitability of the product for their own requirements

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2. Before You Start

Look at the overall project and plan it in easy to manage stages. That way what seems daunting to start with will become a set of easy to accomplish stages which will give you confidence and satisfaction as each step is completed. Best to carry out any borderline tiling, resurfacing of paths, decking or related work before painting to save damage to new paint.

The main steps are:

✓ Check the weather conditions for the next week or so.

✓ Check safety and health issues.

✓ Empty the pool.

✓ Observe the condition of the pool surfaces, any surprises? (Loose or drummy areas, blisters or bubbles in the existing coating, rust spots, osmosis etc).

✓ Carry out the surface preparation, thoroughly, (usually about 2 - 4 days).

✓ Once all is ready, mix and apply (Sealer, if needed and then) two coats Epotec, allow 2 – 3 days.

✓ Allow 5 – 7 days for curing before refilling pool.

✓ Add pool water chemicals and start the fun.

✓ NOTE: Some areas have water restrictions…check with your council/water supplier first

✓ See our web pages designed for you: www.poolpaint.com.au, including **"Info Bank".**

✓ Concrete swimming pools which have not had the appropriate damp course affixed during construction may be subject to hydrostatic pressure causing problems with the paint coating

3. Leaking Pools.

If the pool has been leaking, then it's important to determine the cause**.** To make sure its leaking and not just evaporation, fill pool to its normal level and also fill a bucket of water and place close to pool edge. Mark water levels on both. Wait 24 or 48 hours and compare changes. If same decrease in levels, then its evaporation and if pool water has gone down more than bucket water, indicates a possible leak in the pool.
It may be best to let pool continue to lose water till it stops. Then determine cause.

✓ If at bottom of skimmer box, infers leaks here or in plumbing.

✓ If at a level where pipes leave or enter pool, then leaks there or in plumbing.

✓ If at some other level may mean cracks in concrete or fibreglass pool.

✓ If to nearly empty, then probably hydrostatic valve leaking.

Due to recent drought and then floods, some pools have moved slightly, and the pipe work has fractured. This has been reported in areas of clay type soils. So if in doubt get pipework pressure tested, See "Leak Detection" in Yellow pages. Have pipework issues attended to before paint.

4. Weather

In considering when to apply Epotec consider the weather over the next few days so as to have the best conditions. If need be wait till the weather is right as trying to beat it may mean an inferior application.

Generally surface preparation can be undertaken in colder, wetter or hotter weather than when actually painting. Just be aware of the weather conditions as to how they will affect your desire to work in them!!

✓ The best time to apply is when the ambient temperature is between 15 – 28 C, warm and sunny, with light winds.

✓ DO NOT apply if surface temperature is below 13C or going to fall below this within 4 – 6 hours. (At below 12 C surface temperature, the curing hibernates, till it reaches above 13 C. again).

✓ Consider a cover and gas or electric (inside) heaters to warm up if need be.

✓ Best not to apply when ambient temperature is over 30 C, as it will be too hot for you to work effectively.

✓ If rain is expected within 6 – 8 hours of application, DON'T start. (A waterproof cover excepted)

✓ Apply in early morning, and finish before lunch time.

Pool Cover

A well-fixed tarpaulin / marquee can help mitigate some bad, wet, cold or hot weather and if used make sure it's anchored to prevent being blown away or rain running into the pool. It will help prevent dust blowing onto wet EPOTEC. (Windblown dust leads to rough/hard/gritty finish which is uncomfortable to touch). If in a leafy area, consider a temporary shade cloth to prevent leaves falling on wet paint. **IB**

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5. Health and Safety

SAFETY IS NO ACCIDENT

Working around a pool requires care. Make sure you or children (and pets) do not fall in while you have the gates open and are working in the pool.

✓ Be aware of where the pool edge is at all times

✓ Move pots, ornaments and furniture away from the pool.

✓ Give yourself plenty of room.

✓ Do NOT mix electricity and water, use electric tools with a ground-fault detection system.

✓ When using equipment follow safety procedures

✓ When using cleaning chemicals protect skin, eyes, hands and clothes

✓ If grinding or sandblasting, protect eyes, ears and breathing with suitable products

✓ When using EPOTEC protect yourself properly. (See details later)

6. Emptying the pool:

(See Info Bank (IB) on our web site for more details / pictures of pool emptying, prepping and application process) www:poolpaint.com.au/info-bank/

You will need to empty the pool and it may be done via a siphon, a submersible pump or sometimes the back-wash feature on the pool. A siphon will take the longest, maybe 24 hours or longer. An electric submersible pump, from a hire company, (Kennard's) will usually take 10-12 hours and cut off when near empty. (You can purchase a submersible pump for about $250.00 from good plumbing suppliers). **IB**

You will usually need to keep the hire pump for several days to empty out the cleaning residues.

When emptying the pool note the following:

✓ A Hydrostatic valve should be in the bottom of Fibreglass pools and often others too. **IB**

✓ This valve is to release any water that is under the pool, into the pool, so as to relieve pressure.

✓ Such groundwater is pumped away as the pool is nearly or completely empty.

✓ Check that the pool has such a valve, especially Fibreglass ones, if not proceed carefully.

✓ You may choose to empty the (Fibreglass) pool in 1/3rds to see if any issues. (1/3 each day and monitor result and watch to see it does not "lift up - pop out", and if it does refill quickly).

✓ If pool at bottom of dip, in wet soil or near sea or lake, then ground water levels may be an issue.

✓ Some pools (Fibreglass) may have an inspection point (stand pipe) near pool to check ground water level, before emptying. Usually it shows as a grating near the pool in the surrounding paving. It may be connected to a porous/aggregate drain around the pool bottom. If water table high, insert flexible hose and attempt to pump the excess water and lower water table, using this feature. **IB**

✓ Hydrostatic valves may leak after pool is empty, this can be dealt with by using a 1 Metre x 50 mm stand pipe screwed into an Iplex 50 mm Press Adapt Valve, **IB** (see a good plumbing supply) which is screwed into your pools Hydrostatic valve fitting. Or fit a hose or build a dam and pump out as needed.

✓ Bracing may be needed across the pool (Fibreglass) to stop walls bending. Use screw jacks or timber as needed, (3 - 5 usually) across the pool with large pads to spread the load, about ¾ way up the wall from the bottom. You will need to move them to paint behind them. **IB**

✓ Consider replacing the Hydrostatic valve, when pool empty. (See a pool shop).

Most pools in "dry" Australia are fine when empty though should not be left too long in this state, especially fibreglass ones. Marblesheen pools can dry out and become frail if left empty in hot weather.

As a general guide leaving a pool empty for longer than 2 – 3 weeks is not recommended.

Use common sense and be ready for any issues which may arise.

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7. Equipment: (prep and application)

Having the right equipment for the job at hand will make for a better result.

Empty Pool: Submersible Pump **IB** (hire) or hose for siphon and wastewater outlet from property.

Surface Preparation:

General: Brooms, rags, buckets, sponges and old towels, respirator and suitable filters.

Sandblasting: Sand/abrasive/soda blaster contractor will bring everything. Make sure the contractor takes away all residues unless you agree otherwise.

Grinding- Sanding: Angle grinder (hire) and plenty of discs, (Flex O vit from ZEC), (Norton Sanding Discs), (Josco Flapper or Bluestrip) or Orbital Sander, goggles, dust masks, overalls. **IB** (ALL from Bunnings) NB: Use dustless / vacuum sanders.

Water blasting: Water blaster (1500 psi for general cleaning, 5000+ psi for old paint removal) (hire), **IB** overalls, gloves and full-face mask or goggles. Consider Ultra High-Pressure Water blasting at about 40,000 psi, (contractor)

Application:

EPOTEC: Overalls, gloves (disposable), goggles and barrier cream (to make it easier to wash your skin)

NOTE: Appropriate shoes should be worn at all times and have some clean rags handy along with fresh water, soap and a towel. Wash hands before consuming any food or drinks.

Mixing: Electric hand drill and stirrer. (450 - 600 rpm) Bunnings, DTA 80mm ribbon mixer.

Application: Roller Trays, (a spare one) Handles and Extensions. 270 mm wide is suitable (wider makes corner work difficult) 5L state sided bucket(s). Local Paint shop. Bunnings.

Brushes: 35- 50 mm, professional quality ($10 – 15) Paint Shop.

Roller Sleeves: (e.g. Draylon, Mohair or similar, solvent tolerant). Use 8/10/12 mm nap (15 - 25 mm for Pebblecrete). (Use short nap for smooth and longer length nap for rougher/uneven surfaces) Buy good ($15 – 25) quality. Can use lambs wool sleeves on rough/uneven surfaces. ALSO 3ins (75mm) sleeve for corners.

Spray Application: Airless unit, 2500 – 3000 psi, 519 – 515 tip.

Masking tape: (Painters Green Masking Tape) Paint shop.

Line Marking: Texta Jumbo Liquid Chalk.

Surface Temperature; Infra-Red Thermometer, from Jaycar QM7218, $35

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8. Materials:(for surface preparation and application)

Polyester based: For fibreglass pools, for worn areas & holes, use fibreglass repair kits See Bunning's.

Epoxy grout: For concrete type pools, as needed for repairing drummy areas, holes etc:

- ✓ (e g) Bostik's Patchfix Epoxy Paste, ph 1800 621 221
- ✓ Vivacity Engineering. Pty. Ltd's Megapoxy PM or P1, ph 02 9875 3044
- ✓ or Sika's Sikadur-31 ph 1300 22 33 48
- ✓ Selleys Aqua Knead – it. (Smaller areas, cracks) (Bunnings)

Cement based fillers: For concrete type pools, repairing drummy areas and (blow) holes etc:

(must be suitable for water immersion).

- ✓ RLA Just 2 Easy and RLA Uniprime (from Tile Shops) Use in thin layers.
- ✓ Maxplug (for deeper holes)
- ✓ Davco SMP EVO** (see Sections 9.5 & 9.10 below) (From Bunnings and Tile shops)
- ✓ Bostik Findley Patchfix Structural** HB or FS, ph 03 9279 9222
- ✓ Sika Mono Top 620** ph 1300 22 33 48
- ✓ MasterEmaco N 5100** BASF 1300 227 300. Usually at Mitres 10's.

** For larger areas as more cost effective.

Sealants: For moving joints, cracks.

- ✓ Emerseal CR (from Parchem ph 1800 624 322)
- ✓ Sika sil- Pool. From Bunnings
- ✓ Sika flex 291, 11FC or Pro – from Bunnings

If painting over sealants use Urethane, NOT silicone-based sealants.

Leaking concrete: (Inc Hydrostatic Pressure)

- ✓ Drizoro Maxplug, Quickset Watercrete or similar from Bunnings, for stopping leaks.
- ✓ Ardex WPM 300 – dealing with Hydrostatic pressure - (Ardex Australia 02 9851 9199)

Rusted steel work:

- ✓ Anticorrosive primer such Rustgard, Cold Gal, Quit Rust or Kill Rust, from paint shop.

Cracks in concrete: (Small cracks non-moving) Good hardware shops.

- ✓ Araldite - Super strength
- ✓ Bostik – Titan bond
- ✓ Selleys – Ultra clear
- ✓ Larger non-moving – see Epoxy grout, above.

Cleaning:

Acid Etching:	Hydrochloric acid – from pool shop
Cleaner/Degreaser:	Water based Degreaser 5L eg Diggers, Kenco, Pearless, fromBunings
Algaecide Treatment:	Such as Lo Chlor Tropiclear / Tropical Pool Algaecide (or local recommended type, from most pool shops)

Coating:

- ✓ **EPOTEC NT Epoxy packs** (Part A Base 4kg & Part B Hardener 1 Kg)
  Total 5kg in selected colour(s), EPOTEC Thinners 4 or 1 Litre cans.
  Also available in 1 Kg pack size (800 gm Resin, 200 gm Hardener)
- ✓ **CONCRETE WB Epoxy Sealer** 4L or 10 L packs, for porous surfaces or rough (abrasive blasted)

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9. Surface preparation: (clean, repair, dry and then paint)

All surfaces **must be** clean, dry, sound and stable, before application.

✓ EPOTEC will not bond to contaminated surfaces. (NOTE: Acid DOES NOT clean surfaces.)

✓ May be applied only to concrete/plaster surfaces, previously epoxy painted, Marblesheen, Pebblecrete and Fibreglass.

✓ Not usually suitable for Acrylic Surfaces (Spas).

✓ Not suitable on Chlorinated Rubber or Acrylic painted surfaces.

✓ Make sure not subject to hydrostatic water movement (seeping water from behind). Will blister.

✓ Some surfaces, such as plaster/render, Marblesheen/Pebblecrete may have drummy areas. (That is, areas where the surface has become detached from the underlying concrete. When tapped sounds hollow or drummy! Use a coin, screwdriver, old brick, stone, hammer or broom handle to tap your way around the pool, mark "hollow" areas as you go). Remove anything bigger than about 40 - 50 mm across.

9.1. New Concrete / Concrete Block / Brickwork (plaster/rendered):

Ideally should have a "light" wood float / sponge finish and walls to be structurally sound, (reinforced). Concrete block needs to be rendered first (or at least well "bagged" and stoned to give a reasonable surface). Create fillets/coves in all corners to aid pool cleaning. Any brick work needs to be secure and rendered too. Coated with EPOTEC such surfaces will look great.

✓ No major cracks should be visible. If in doubt contact us first. (Hairline cracks ok).

✓ Allow concrete to cure correctly for 28 days.

✓ For newly applied render, should cure correctly for 7 – 14 days.

✓ Make sure no oil, grease, release agents on surfaces.

✓ Fill any blow holes, sand flush. Use an epoxy or Just to Ezy, MasterEmaco N 5100 or refer Section 8. (if many)

✓ Any general depressions etc. may be filled with MasterEmaco N 5100 as a skim coat to 3 mm max thickness.

✓ Wash down with warm water/detergent and stiff brush.

✓ Rinse well to ensure all detergent is removed. Water blast (mild) is better.

✓ Then Acid Etch, refer Section 9.8.

✓ Allow to dry. (2 - 3 warm / windy days)

9.2. Old Concrete/Plaster Surfaces:

These surfaces will usually harbour many fats, algae and mould if not protected while pool has been in use. They may be stained, cracked and drummy. However, if well prepared and coated will provide a long lasting, attractive, easy clean finish.

✓ Make sure no grease, suntan or body oils on surfaces. Wash down all areas with warm water/detergent (Commercial Degreaser) and stiff brush. (Medium pressure water blaster with detergent feed okay). Thoroughly rinse well to ensure all detergent is removed. Repeat cleaning treatment if in ANY doubt, especially at water line (top 300mm) and on steps or where people sit. Can use Tri Sodium Phosphate as alternative cleaner. Sugar soap is NOT recommended. Check surface conditions as you go.

✓ Carefully check all surfaces, tapping to find "drummy" areas and digging into soft locations, to understand the extent of the condition. Refer beginning of Section 9 above. **IB**

✓ Remove all such material with cold chisel to expose sound surface underneath and nearby.

✓ Any rust spots also need to be dug out to solid concrete and around rusty steel to fully expose including to the rear. Wire brush to remove loose flakes. Treat exposed steel with an anticorrosive primer. (From hardware or paint shop). It is not likely you can stop rust coming back in adjacent areas as water runs along re bars and the rusting will start nearby again and break through a few years later. **IB**

✓ Rebuild any removed surfaces to match existing with epoxy mortar if areas small. Other wise use a Cement based Filler (see Section 8 above), for larger areas. Also see Section 9.10. Allow to cure. Sand flush to match adjacent areas.

✓ Any general depressions etc may be filled with MasterEmaco N 5100 as a skim coat to 3 mm max thickness.

✓ If necessary, apply algaecide to kill algae roots. See Section 9.9 below.

✓ Then Acid Etch, see Section 9.8.

✓ Allow to dry. (2- 3 warm / windy day

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9.3. **Previously Painted** (Cement, Fibreglass, Marblesheen or Pebblecrete)

Such surfaces may be chalky, whitish or flaky and with good preparation will produce a long-lasting finish. There may be algae present as well. Need to check paint type to see if epoxy, chlorinated rubber or acrylic.

✓ Make sure the existing coating is not Chlorinated Rubber, (check by cleaning a small area with soapy water and dry off. Soak a portion of clean white rag in Xylol / Xylene solvent. (or EPOTEC Thinners or Acetone based Nail Varnish remover). **IB**

✓ Hold the wet solvent rag on an area of about a 50-cent coin, for 20 - 30 seconds. Then slowly rub and remove rag.

✓ If the coating dissolves back to the substrate, with colour saturating the rag and also the moist paint forms "sticky" strings if touched repeatedly with the finger, the paint is most likely Chlorinated Rubber.

✓ To check for Acrylic paint, follow same process but use Methylated (Meths) Spirits. It will soften acrylic paint.

✓ This can also be done with pool full of water, but you will need to be quick so as to see the result and not put too much solvent into the pool water.

✓ Epoxy paints are not dissolved by Xylol (EPOTEC Thinners/Acetone) and may be over coated.

✓ Others (or not sure), call us

✓ Carefully check all cementitious surfaces, tapping to find "drummy" areas and digging into soft locations, to understand the extent of the condition. Also check for rust stains. Follow directions in Section 9.2

✓ For painted Fibreglass surfaces, follow directions in Section 9.4, as well.

If it is **Chlorinated Rubber (Or Acrylic/Oil Based** – both unusual in pools) paint, all these are NOT compatible with Epoxy. They must be removed before applying EPOTEC.

✓ This is best done by Sand (Abrasive) or Soda Blasting, carried out by a professional. It's not easily done by a painter. Make sure the blaster understands how to remove the paint without disturbing the underlying surface. If in doubt, contact us first. They may leave an area of up to 50 mm around tiles etc. that you will have to hand prepare. Also make sure blasting contractor removes all residues. **IB**

✓ You may choose to grind it off as an alternative. High pressure water blaster (5000+ psi) may also be successful.

✓ Chemical cleaning using thinners such as Acetone or Paint Stripper is possible though usually for small areas only.

✓ Rebuild surfaces to match existing with epoxy mortar if areas small. Other wise use a Cement based Filler (see Section 8 above), for larger areas. Also see Section 9.10. Allow to cure. Sand flush to match adjacent areas.

✓ Any general depressions etc. may be filled with MasterEmaco N 5100, refer Section 8.0, as a skim coat to 3 mm max thickness (Cement surfaces)

For **Epoxy painted** areas:

✓ Thoroughly clean surfaces by scrubbing with detergent solution (to remove body fats etc.) or water blast with detergent feed and thoroughly rinse to remove washing residues. See Section 9.2 above for more details. Can use Tri Sodium Phosphate as alternative cleaner. Sugar soap is NOT recommended.

✓ Remove all loose, flaking and degraded paint by machine grinding or sanding (wet and dry #60 grit paper with orbital sander) or wet/dry (sweep) sand or soda blasting. Sand blasting by a skilled operator usually provides the best solution and it should then be ready for recoating. The end result should be a profile of about 60/80 grit. **IB** Clean and remove all debris, with clean, freshwater wash (mild water blast).

✓ High pressure water blaster (5000+ psi) may also be successful in removing oxidised, loose epoxy as an alternative to abrasive blasting. Check effectiveness, however. (It may not allow for the best adhesion with the new coatings)

✓ Rebuild surfaces to match existing with epoxy mortar if areas small. Other wise use a Cement based Filler (see Section 8 above), for larger areas. Also see Section 9.10. Allow to cure. Sand flush to match adjacent areas.

✓ Any general depressions may be filled with MasterEmaco N 5100, Section 8, as a skim coat to 3 mm max thickness

✓ If necessary, apply algaecide to kill algae roots. See Section 9.9.

✓ Only where concrete/plaster exposed by grinding/sanding/blasting, then these should be acid etched and rinsed thoroughly – see Section 9.8.

✓ Allow to dry, (2- 3 warm / windy days).

✓ Consider Ultra High-Pressure Water blasting, 40,000 psi (contractor) as an alternative approach to above

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9.4. *Fibreglass Pools:*

Most pools will have a degraded, whitish surface, which responds well. Any small (hairline) cracks may be safely ignored as the Epotec will usually fill them. However, if you see any of:

- Larger cracks, holes or defects
- Fibreglass fibres or "brown" stains
- Osmosis, bubbles, blisters etc.
- Black spot may also be present

then **contact us first**

NOTE: Fibreglass pools come in different levels of quality and may be structurally weak from a range of issues during their life. If the pool seems in poor condition seek advice from a fibreglass or pool professional, before proceeding to empty. See Section 6 above also.

Safety Tread Areas: Some pools have these on steps and / or bottom. It is difficult to get good adhesion to bottom of the depressions, as one cannot clean or abrade these parts so either sand completely smooth (And apply non-slip surface within the EPOTEC application, Section 11) or clean and prepare with rest of pool surface, knowing that long term adhesion of EPOTEC may be an issue on these surfaces. A wire brush will help clean out the depressions. (Soda blasting recommended – see below)

Osmosis, (if in a pool and some older pools have it), is there for the life of the pool. It's a slow process which creates blisters on the inner pool surface (gel coat) and over time these break becoming holes into which algae may colonise. (Black spot). Generally, though unsightly osmosis will not be a structural issue with most pools. NO matter what you do to treat it, osmosis **will slowly come back** as it's a fundamental result of the method of construction. A lot has been written about Osmosis.

Heavily worn areas (Fibres visible) means the coloured gel coat has been worn away and the colour usually goes a brown-whitish hue to show you. Depending on the extent of wear, re coating with fibreglass mat and resin may be needed to rebuild the surface. In less worn areas, using just the EPOTEC may be sufficient. Usually you will need to wait till pool empty to decide best approach. NOTE: Areas above the water line, gutters and curves etc, get a lot of wear, so make sure you coat them well.

✓ Holes, cracks etc, will need substantial repairs and can only be fully assessed when pool is empty.

✓ Make sure no grease, suntan or body oils on surfaces. Wash down with warm water/detergent (Commercial Degreaser) and stiff brush. Rinse well to ensure all detergent is removed. Water blast (mild) is better. Repeat treatment if in ANY doubt, especially at water line (top 300mm) and on steps or where people sit. Can use Tri Sodium Phosphate as alternative cleaner. Sugar soap is NOT recommended

✓ Need to remove oxidised gel coat ONLY. Abrade by Soda Blasting (recommended) or machine disc sanding / orbital sander (#60 grit wet / dry paper or ZEC disk) the entire pool surface to be painted paying particular attention to all discoloured and degraded surfaces. Finished surfaces should be an evenly roughened, matt surface all over the pool. Any missed areas will result in blistering of the EPOTEC NT Epoxy. Be careful not to dig into surface beyond gel coat level. (Gel coat is usually 1 – 2 mm thick).

✓ Osmosis (and Black spot) maybe an issue and can be treated as follows:

- To check, prick any blisters and note if water runs out. If so, then make sure all blisters broken and allowed to dry out before application.
- As part of the overall sanding process sand off the tops of these, digging into any larger ones, allowing the dirty smelly water (if any) to run out. Get back to sound edges on larger holes. Let dry for several days.
- You will need to consider how interested the client is. Osmosis, once in a pool is there for life. It's a slow process so will come back over time. Generally dealing with the worst is what most people do, however if client wants a nicer looking pool for longer, seek out all bubbles and sand them out.
- We have a separate document on this if you wish to be more thorough, please ask.
- Repair these plus any small surface irregularities / holes with suitable epoxy

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filler, (Megapoxy or similar) or if not available a Polyester Filler may be used, (usually available from most hardware shops). Follow directions of manufacturer. Sand smooth when cured, 3 – 7 days, (see comments below)

✓ If holes through or the fibreglass fibres (white strands) are visible before repairs start, contact us.

General approach is:

- Holes, splits, cracks, can feel white fibres: Will require a bandage of chopped strand matt (CSM) and resin to repair area. Need to remove any water from the area first. Get fibreglass repair contractor to do this work. Can consider using fibreglass repair kit from Bunnings.
- Worn areas, but not feel fibres: Ideally apply one layer of resin from fibreglass repair kit.
- In all cases follow repair kit instructions.
- Note that NEW fibreglass repairs (or rebuilt areas) can have unreacted styrene resin and /or waxes that cause a failure with Epotec adhesion. This may not show for 1 – 2 years, however.

✓ Once ALL Fibreglass repaired areas cured (24 – 72 hrs +) then sand thoroughly, (60-80 grit) & scrub down with detergent and water using a stiff bristled brush or water blaster.

✓ If necessary, apply algaecide to kill algae / black spot roots. See Section 9.9 Thoroughly rinse off all detergent/residues with clean fresh water and allow to dry.

✓ Acid etching is NOT needed, however see 9.8.

✓ NOTE: Apply ample Epotec to all areas above the waterline, as these get a lot of wear and UV attack. Ensure coating applied as uniformly as possible so as to get maximum life. Can apply a 3rd coat if desired.

- **NOTE:** If you have a fibreglass lined pool ask for our INFO Sheet on how to deal with this.

9.5. ***Marblesheen or Pebblecrete and Mineral Finishes*** *(See Section 9.10):*

These surfaces over time become dirty, cracked and even soft, with missing areas however with care can be upgraded successfully.

✓ It is necessary to carefully check all areas, tapping to find "drummy" areas and digging into soft areas, to understand the extent of the condition. Refer to beginning of Section 9 for more detail.

✓ Remove all such material with hammer, cold chisel to expose sound surface underneath and nearby. Abrasive Blasting is NOT recommended. **IB**

✓ Any weak, unsound or friable areas should be removed by grinding as they may fail later on once coating has been in service for a period. Repair is best done as per Section 9.10. In some pools up to 40% has been found to be faulty and replaced. Also Cement Aid's Diamite (02 9810 0725) has been found to be suitable to strengthen friable Marblesheen, before EPOTEC application and to reduce possible delamination issues.

✓ Any rust spots also need to be dug out to solid non-rust stained concrete and all-around rusty steel. Wire brush to remove flakes of rust. Treat exposed steel with an anticorrosive or rust converter primer. (From hardware or paint shop). It is not likely you can stop rust coming back in adjacent areas as water runs along re bars and the rusting will start nearby again and break through a few years later. See Section 9.2. **IB**

✓ Rebuild surfaces to match existing with Epoxy if small or use a sand cement mix (see Section 8 above for materials to consider), for larger areas. Also see Section 9.10 about repairs to larger areas. You may be able to purchase some aggregate/pebbles to provide a profile like the original and imbed into wet filling material.

✓ You may want to consider reducing the profile of the pebbles and also any general depressions etc may be filled with MasterEmaco N 5100 as a skim coat to 3 mm max thickness. This will save on EPOTEC usage on VERY rough or porous surfaces.

✓ Make sure no grease, suntan or body oils on surfaces. Wash down with warm water/detergent (Commercial Degreaser) and stiff brush. Thoroughly rinse well to ensure all detergent is removed. Repeat cleaning treatment if in ANY doubt, especially at water line (top 300mm) and on steps or where people sit. Can use Tri Sodium Phosphate as alternative cleaner. Sugar soap is NOT recommended.

✓ If necessary, apply algaecide to kill algae roots. See Section 9.9 for details.

✓ Thoroughly rinse off all detergent/residues with clean fresh water and allow to dry.

✓ Acid etching recommended, to better prepare the surface. See Section 9.

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9.6. *Vinyl Liner Pools: (Not above ground pools)*

- Over time the vinyl liner usually becomes brittle, fades and tears. Some owners have decided the cost of a new liner is too much and prefer to coat the surfaces more effectively. This can be done with some pools. You will need to check the pool carefully before proceeding. After removing liner and all fittings check that:
- The floor and walls are of concrete, (concrete block / brick – rendered) and in a stable state. (Ideally, they all should be of reinforced concrete with no major cracks.)
- Some pools have a panel-based wall system often about 30 - 50 mm thick. This may not be suitable for coating as ground water can pass easily through them and cause blistering of any coating applied on pool side. (This can only be prevented if a damp-proof coating applied to rear of panels at installation time, which is unlikely)
- All joints between wall units, also between walls and floors need to be waterproof and may require cutting out and filling with an epoxy grout (or flexible sealant).
- Treat concrete surfaces as per Sections 9.1 and 9.2 above.
- If not sure contact us to discuss firs

9.7. *Tiles: (water line or whole pool)*

Water line tiles may need to be upgraded as part of the pool renovation process as some tiles are missing and cannot be replaced, or the old tiles will not match up with the new EPOTEC. Generally, it is not desirable to apply EPOTEC to tiles, however if there is no alternative it may be done.

The reason for NOT favouring this approach and no warranty is offered, is due to getting good adhesion of EPOTEC to the tiles and grout. Also, the fact water can get behind the tiles and grout, pass through the grout causing the coating to blister and fail. Finally, leaching water running over tiles may cause staining to the Epotec below.

The result is an unsightly mess and difficult to resolve. For a whole pool this is even more of an issue and should not be painted.

- Ideally existing tiles if generally okay are best cleaned and re grouted as necessary. See a tile shop for suitable cleaners.
- Any tiles to be coated need to be in sound condition and well adhered. Remove the glazed tile surface using grinding or sandblasting. All grout needs to be flush (repair if needed) with tiles as much as possible.
- All surfaces to be clean and free of oils, fats, algae and mould. Follow directions in Section 9.2 as a general guide.

9.8. ***Acid etching.*** *(for ALL calcium stained pools too)*

To remove laitance, (a fine cement powder on surface) and open the pores, plus neutralise the alkali surface, Acid etch with Hydrochloric Acid, and water.

- Concentration to be 10%, no more. (1-part acid, (As bought 33% conc) mixed with 2 (or more) parts water). Mix in a plastic bucket. Always add Acid to Water, **no** other way around.
- Wear protective clothing, goggles and gloves.
- Broom or brush onto surfaces, (about 2 sq M per L mixed).
- When fizzing stops (10 minutes), thoroughly wash all acid etched surfaces to remove all traces of the reaction. (Can neutralise surface with Bicarbonate of Soda and rinse away all residues).
- **Don't allow ACID etching to dry out**

Acid etching does not remove oils, fats, grease. Only detergent or sand blasting etc will remove oils, grease.

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9.9. *Algae removal:*

Many pools will have algae growing in the surface pits and crannies. (black stains are a good indicator). When you come to paint it, it's important to kill the roots (to stop re growing through the paint) and an algaecide treatment can do this, as part of the cleaning process. After prepping the pool and having it ready to paint, an algaecide treatment is almost the last thing to do. (unless acid etching after)

- Late in afternoon/early evening mix up a 5% solution of Algaecide, such as Lo Chlor Tropiclear / Tropical in clean water. (That is about 250 ml per 5 Litres water).
- Broom / brush it on all previously stained areas (or anywhere you think algae may have been – can do entire pool)
- Leave over night to react.
- Thoroughly rinse off residues and allow pool to dry.

9.10. ***Repairing Marblesheen*** *(and cementitious surfaces) using* Davco SMP EVO.

With a Marblesheen Pool (and some others) it may be useful to use **Davco SMP EVO** as a flushing and hole filling medium. You will need 3 Davco Products: **Ultraprime, Davelastic and Davco SMP EVO. (Note: it's best to use Davelastic but can use JUST clean water if not available).**

The recommended procedure is as follows;

✓ Thoroughly clean and prepare the Marblesheen as per the EPOTEC Application Notes, making sure all loose or drummy material is removed.

✓ Allow Marblesheen to dry out.

✓ Any larger holes may be filled first with Just to Ezy to slightly below adjoining surface, with a roughish surface finish and allow to cure at least 24 hours.

✓ Ensure all areas to be covered are free of loose material, dust, dirt and algae.

✓ Apply **Davco Ultraprime** onto bottom of any holes, depressions to aid in adhesion. Do not over wet or flood, as will affect the curing of the SMP EVO. Over coat within 24 hours.

✓ Mix **Davelastic,** 1 part, with 3 parts of clean water.

✓ Then place 1/3 Litre of this diluted Davelastic, into a bucket and add about 1 Kg of SMP EVO, while mixing, to creamy consistency.

✓ OR 20kgs SMP EVO with 5 litres of the diluted Davelastic, and mixing well as you add powder to liquid to creamy consistency.

✓ Once mixed to a smooth paste, Stand for 5 mins, remix and knife or trowel into holes, depressions, to slightly over fill. Max thickness 10 mm or so per layer. Use within 2 hours at 20 C.

✓ If more than 10 mm thick, make in 2 layers and leave first layer surface rough and let cure overnight.

✓ Use sponge on final surface whilst still moist to smooth out and reduce need for sanding.

✓ Allow to cure overnight and then sand back by hand or medium speed orbital sander and 40 – 60 grit paper.

✓ Then overcoat 24 – 72 hours, with EPOTEC as per rest of pool.

NOTES

Do not apply in temps above 35C or below 5C.

Ensure well pushed into depressions to get good adhesion.

Follow Davco Product Recommendations and Specifications

Davco available from most hardware and tile material suppliers.

TIP: When using epoxy mortars or urethane and silicone sealants, to smooth final surface when still fresh (uncured), wet out your fingers with a 5 % approx detergent / water mix and run over surface. This will smooth final surface. Use only enough mixture to stop mortar/sealant sticking to fingers. Can effect curing if too much used. Can also use on trowels for same result. Do not apply mortar/sealant to wetted surface.

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9.11. *Expansion Joints/Stress Cracks/ Random Cracks*

Cracks in concrete pools are due to some movement either expected or unexpected and their cause needs to be considered. Expansion (Control) joints are designed to allow for movement and need to be treated as such.

Any cracks in Fibreglass pools, see Section 9.4

Expansion joints: need to be filled with a flexible sealant in accord with the manufacturer's instructions, to maintain a watertight seal. Use Emerseal CR or similar from Parchem. A normal poly urethane sealant (Bunnings) may do as an alternative, but make sure suitable for water immersion. We have more details available on joint design.

Stress or shrinkage cracks: should be checked and if non-moving filled with a suitable epoxy compound in accord with manufacturer's instructions, such as Megapoxy, Araldite etc. If moving, treat as for expansion joints. Drought effected pools may have these shrinkage cracks.

Random Cracks: if smaller than about 1 – 2 mm (hairline) maybe coated with EPOTEC as a "spot primer" before first overall coat, to fill them in. If more than this usually means area may be drummy (see beginning of Section 9) or there may be some movement happening, in which case treat as per stress cracks.

Contact Parchem Toll Free (1800 624 322), for crack, joint filling materials, for recommendations.

These sealants may be over coated with the EPOTEC NT epoxy, however the epoxy may crack over time, as it's not as flexible as the sealant underneath. This should not be an issue, apart from aesthetics. Best to just take EPOTEC onto sealant, use tape for straight line.

We can provide additional information on how to handle such joints. Contact us.

9.12. ***Leaking Concrete*** *(incl. HYDROSTATIC pressure)*

Sometimes you will find water (ground) seeping into the pool and this maybe from high water table, leaking water pipes (check these and fix), underground streams and generally comes through cracks or weak /porous areas of the concrete. It will be necessary to stop this otherwise the EPOTEC may not adhere to the surface. If the water comes from cracks etc, dig out, check on the cause and if need be stop water using something like Drizoro Maxplug (Bunnings). Follow their instructions. Flush surface off with same or Just to Ezy. (See 9.10 as well). Consider the prospect of water seepage after application too. (Poor drainage/construction) Try to prevent by sealing surface – Ardex WPM 300. If pool previously painted and has bubbles or blisters in the old paint, it's a sign that hydrostatic pressure may be at work.

Before application check weather conditions. What is expected over the next day or so?

10. Prepare to APPLY

Before commencing application if there are any concerns about the condition of the surface, consult Hitchins Technologies Pty Ltd, Technical Department.

Commencement of application indicates acceptance of the substrate.

Best time to apply is in the **morning starting soon after first light** so as to finish by lunch time. This means about 6 – 7 am in Summer and 8 – 9 am in Winter. Allow about 4 hours for one coat to 70 – 80 sq M with one person. Don't be tempted to paint (late) in afternoon when evening dew will fall on still curing EPOTEC and may cause white marks. (See Section 15 for more details)

Ensure surface to be coated is thoroughly clean and dry to touch. **IB** Generally you may start painting even if light dew is still on surface, providing a warm sunny day follows.

Ponded water needs to be removed. Use sponges, old towels, blowers, heaters etc.

The **surface** temperature should be above 13 C for best curing and do not apply if surface temperature is below 12 C or is going to fall this low within 6 – 8 hours of application, as curing will stop.

Spray Application: EPOTEC may be spray applied. Use an airless unit of 2500 - 3000 psi and tip of about 519 size. May find a 515 tip better. Keep spray lines as short as possible to reduce clean up. Also add up to 5% EPOTEC thinners to aid application. EPOTEC may pin hole if not sprayed correctly. Watch coverage rates. (See section 12) Generally even on the biggest projects roller application provides a good, labour efficient finish. (As a guide a 5-man spray team (one sprayer, 4 support) can apply one coat on about 600 sq M per 6 hr day).

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11. NOTES before APPLICATION:

Is Surface Really Dry? IB

Some areas can seem dry on the surface, such as concrete and Marblesheen/Pebblecrete yet in cooler winter weather may be quite wet inside. So do check for Hydrostatic pressure issues. If too wet, once painted with EPOTEC it will draw moisture under the coating and may cause blisters to develop. This will be more likely with darker EPOTEC colours. Such blisters will break when pool full and require recoating. Best deal with it when pool empty and they show up after first coat. Cut back, allow to dry out for several days and recoat.

To check if sufficiently dry, tape a piece of clear polythene sheet (400 x 400 mm) and leave for at least 16 hours. Do this over several areas of the surface. If there is moisture (droplets) on the underside of the plastic sheet, then it indicates there is too much moisture for good adhesion. Allow pool to dry out before application.

Before application check weather conditions. What is expected over the next day or so?

Masking:

It's always better to use masking tape to get straight line against tiles etc., rather than relying on a good brush technique.

You can remove masking as soon as last coat applied, avoiding stepping on wet EPOTEC.

Painting Smaller Areas;

Sometimes you may want to paint smaller areas, (eg Spas, Swimming lines) and normal kit is too much material. With care smaller amounts can be mixed in a clean plastic container (2 Litre Ice Cream Container) in the same manner as described below. Weigh out (not by volume) in the ratio of 4 parts resin to 1-part hardener. E.g. **800 gm** Resin, **200 gms** Hardener. This will cover approx. 4-5 sq M per coat. Use kitchen scales to weigh out. Mix well and use immediately. DO NOT guess by volume, but **weigh** out amounts. Incorrect ratios will result in brown staining or uncured EPOTEC. We also have available a touch up kit available which covers about 1.5 Sq M in ONE coat.

Batch Numbers:

EPOTEC is made in batches and to ensure you have a uniform final colour make sure the batch numbers on the Resin tin (large one) are all the same for the final coat. Different batch numbers may be used in first coat. Batch number is on white printed label and will be 18xxxx, such as 180322.

Non-Slip Areas: IB

EPOTEC may be somewhat slippery for the first few months as it settles down. If this may be an issue on steps and ramps there are 2 approaches you can use.

Lightly sand with wet and dry paper any affected areas, to leave a slightly roughened surface, without sanding through the coating! This would normally happen after pool has been put into service.

For a more definitive non slip finish at time of application (On therapy pools, ramps etc), apply first coat as per normal instructions, then while still wet, "Blind Out" with washed beach sand (about 1 – 2 mm size particles) so you see only the sand and no EPOTEC grinning through. Let cure overnight. Before applying second coat sweep / vacuum up loose sand and apply second coating as per normal instructions. (see Info Bank, **IB** for more detail). Other non-slip materials can be used such as cork chips, ground rubber and glass balloons. Follow same procedure for them.

Murals and the like:

Your client may like to have murals on the pool walls using EPOTEC in selected colours. (See Project Gallery for ideas) These can be done in the following method. Prior to painting, draw out tracing paper tacked to the surface, what you want and where. Then remove and cut to shape. Transfer shape to heavy grade clear plastic film. Once pool painted, and within 72 hours of last coat, tape up pre-cut stencils and draw or paint in outline etc. Remove stencil and complete painting. You can use EPOTEC 1Kg or Touch Up Kits for this. If good at free hand, or have an artist friend, then do so without the use of stencil. As a comment keep murals near upper 1/2 of wall to see to best effect. On floor anywhere seems fine. If too deep in water effect is often lost. To make different colours mix up sufficient EPOTEC Resin and Hardener (touch up kits) in the key colours and then mix together in any colour mix you require much as for oil paints. You have about 60 minutes working life. (don't forget to mix resin and hardener first, before mixing different colours together to get the colour you need). There are a good range of colours in touch up kits to create a wide range of colours and thus images.

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12. Application

Epotec NT is normally applied in 2 coats. On porous, friable or soft surfaces a sealer coat is recommended, (Concrete WB Epoxy Sealer) and maybe a 3rd coat of Epotec NT in high wear areas. A sealer coat binds and seals the surface to provide a longer lasting finish. A 3rd coat will add life to the coating in high wear areas, by giving greater thickness.

- Marblesheen, Pebblecrete, Sandblasted surfaces: best to apply a sealer coat of Concrete WB Epoxy Sealer (or diluted Epotec NT) Refer Section 12.1 or 12.4 respectively.
- Sanded, Fibreglass and Painted surfaces do not normally need a sealer coat.
- A third coat should be applied to high wear areas, such as swim outs, shallow areas, beaches.
- Most pools are about 9 x 4 M and 1 – 2 M deep and will give an area of about 75 – 80 Sq M. HOWEVER do measure your pool and work it out correctly. Contact us if not sure. Under measuring will lead to insufficient Epotec and a shortened life.
- Porous, rough and high wear areas need more material than smooth surfaces or (low wear areas) like at the deep end.

Before starting application check Sections 10, 11 and 13.

Apply only in early mornings, from 6 am (8 – 9 am in winter) till noon, **and no later**. Dew, mist, drizzle, rain, frost, cool moist air or contaminated run off water may cause a white film (or stains) to form on the coating, before its cured. This is more so in cool climates with low ground temperatures, and shaded areas or below leaking pipes. Dark colours will make any such films more noticeable.

Set up:

Select an area where you can mix materials (On flattened carton, old sheets) away from the pool edge and traffic areas. Often the shallow end of the pool works well.

12.1. SEALER COAT (if required, for poor or very absorbent surfaces)

CONCRETE WB Epoxy Sealer comes in 4 and 10 Lire packs and is water based. (May use diluted Epotec NT as well, though not recommended –see mixing details in Section 12.3).

MIXING:

- ADD all of Sealer Part B (Hardener) into Sealer Part A, (Resin), there's plenty of room.
- Scrape out remnants of Part B into Part A.
- Mix for several minutes until uniform by hand or slow speed mechanical mixer.
- When FULLY mixed, ADD clean water to the 4 L or 10 L fill mark (About 2 – 3 cm from the top of the Part A container and remix thoroughly.
- If using smaller amounts, then the ratio is: 10:6:8 of Part A to Part B to Water all by weight or add 50% water to the already mixed A and B.
- For really porous or absorbent surfaces add up to another 10 – 15% water to the mix.

Concrete WB Epoxy Sealer Coat Coverage rates

Coverage rates	Bare Concrete	Sand blasted	Marblesheen	Pebblecrete	Quartzon type
Sq M per L mixed	8 - 12	7 - 10	6 - 8	5 - 7	5 - 8
Sq M Per 4 L pack	32 – 48	28 -40	24-32	20 -28	20 - 32

Pot Life - Working Life is 30 – 60 minutes at 20 C. Do not use after this time or when it goes stiff in the container.

(Continued on next page)

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APPLYING:

- Best to apply in morning in dry conditions with no rain forecast that day.
- Min surface (not air) temperature 10C and dry (just damp okay).
- Use brush, or Dacron roller (8 -12 mm nap or more on very rough surfaces.)
- Spread out and work into surface. Very absorbent surfaces may "suck up" the Sealer.
- Goes on milky, dries clear.
- Allow to cure overnight (Over coat within 72 hours, 24 hrs in hot weather, to prevent adhesion issues with next coat.).
- Apply second coat if still porous.
- DO NOT APPLY EPOTEC NT until dry and no milky patches visible.
- Follow general safety guidelines as per Epotec NT, but note this is water based and you may wash out rollers etc with water and a small amount of detergent.

12.2. Epotec NT Epoxy pool coating

EPOTEC NT comes a 5 Kg pack. It has the following features:

Characteristics	Temperature	Value
Pot Life (max time to use after mixing)	**15C**	**1 hour**
	25C	**45 mins**
Minimum Application Temp	**13C**	**ambient/ground.**

Cure time, 50% RH,	15C	25C
Touch Dry	4 -6 hours	3-5 hours
Recoat	minimum 16 hours	min 8 hours
Full Cure	7 days	7 days

Do not apply if surface (ground) temperature is below 13 C. Will not cure.

NOTE: There is a summer grade hardener for use in hot conditions, (30C plus)

which slows the reaction time to keep close to the above times.

Note: If recoat time is more than 72 hours the first coat will need to be lightly sanded with 60 grit paper

Coverage rates, varies depending on the surface roughness.

Sq Metres Per 5 Kg, Kit or Pack	Smooth Surface	Medium Surface	Rough Surface	Very Porous Surfaces
	• *Fibreglass* • *Painted*	• *Plaster* • *Concrete*	• *Concrete* • *Marblesheen*	• *Concrete* • *Marblesheen* • *Pebblecrete* • *Quartzon*
1st Coat	**26 -28**	**22 - 26**	**20 - 24**	**20 - 24**
2nd/3rd Coats	**28 -30**	**26 -28**	**24 - 26**	**22 - 24**

Desirable thickness (film build), per coat 160 microns dry approx. 320 microns dry in two coats (This is about 4 – 6 times thicker than ordinary house paint.) DO NOT spread out more than above rates as will be too thin and WILL NOT last the expected time frame. Where desired apply a third coat as per the second coat coverage rates.

Check colours before you start; (description on can/carton gives colour)

Light Blue = SKY, Mid Blue = BONDI, Dark Blue = TASMAN, Royal Blue = PACIFIC

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12.3. EPOTEC NT MIXING

- Check your delivery against what you need (original quote- invoice) to make sure all is there.
- We recommend masking all tile lines etc first, rather than using your eye.
- Select an area where you can mix materials (On flattened carton, old sheets) away from the pool edge and traffic areas. Often the shallow end of the pool works well.
- Pour ALL the Hardener (Small tin) into the Resin (Big tin), there's plenty of room.
- Power mix with the stirrer, max 600 rpm. Use slow steady action mixing up from the bottom and try not to get onto the upper insides of the tin.
- Do not entrain air as this will cause aeration leading to porosity of the cured coating. (see the online video for more detail **IB**)
- Mix for about 3 – 4 mins, scraping sides and bottom to get a completely homogenous mix.
- Use immediately, don't wait. No induction period.
- Pour about half into your roller tray or other vessel to apply from.
- Be careful not to add any unmixed material (upper insides of large tin) into the roller tray etc. as this will leave partly cured material on the pool surface. Will not fully cure.

(If mixing several packs at a time, write on each one the time, so as to use sequentially, and note time of pot life.

12.4. APPLYING

Surfaces to be clean, dry and 13 C or higher with no rain expected for 24 hours (or longer in cool conditions.)

Generally, start on the wall at the deep end and cut in to the top or tile line, and move around to the 2 long sides. Then coat the end wall and then coat the 2 side walls, (about a metre along) followed by a strip across the bottom. Then complete bands across the pool. For a complete details see Section 13.

- Cutting In; After mixing pour (half) the material into a roller tray (or other vessel) and use a brush or roller to cut in. Use correct nap roller for the surface profile.
- If too sticky, (you will soon know), then add Epotec Thinners. The best way is to half fill an empty hardener tin with Epotec Thinners, and then pour some of that into the tray, (about 5%) and mix in. If okay to apply, then continue. (Or add some more thinners)
- Note: A little thinner makes a big difference to the viscosity.
- Once you have figured out how much thinners the first pack needs, add the same amount for the remaining packs as used in that coat, with the empty hardener tin as a measuring device.

Sealer Coat: *If using Epotec NT as sealer coat then you may want to add about 10 – 15% thinners to the mix, so as to get good penetration into the surface. Its preferred to use the Concrete WB epoxy sealer.*

APPLICATION TECHNIQUE for all coats:

- To apply by roller, load it up evenly, and apply to the middle of about a 1 – 2 sq M area, and apply in one direction, then roll across at 90 degrees to spread out. Like an "H" pattern.
- Then "lay off" in **one direction** so as to get a uniform finish. Lay off all walls and floors in the same direction such as downwards on walls and towards you on the floor
- To get a uniform film build, apply evenly and spread out well, **but follow coverage rates** for the type of surface you are working on. See above tables for coverage rates.
- Do not go back over any "laid off" area, though slight overlapping when applying adjacent panels

Note: If you see bubbles forming in wet coating, especially when in sun, this signifies moisture from below breaking through the curing coating. If feasible stop and check substrate is really dry. Otherwise continue but you will need sand back "craters" that form, before applying second coat. Also check to see that they don't reform in second coat. A concern as water is still in substrate and may in time cause the coating to lift off. Refill pool promptly after cured, to minimise problem.
Sometimes DRY bubbles form due to air being trapped in pockets beneath the curing coating and these cause blisters as the air heats and expands, (dark colours).. When applying a second coat use a small (artist) brush loaded with Epotec to fill the open craters.

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- Epotec NT maybe used as gap filler as it will though cure to 5 mm or more. So will fill surface depressions etc, as you go along. But watch total material usage.

- The correct coverage rate is important for long term life and the Epotec flows out very easily, so you may be spreading out too thinly if not careful. Each pack will cover 22 – 28 sq M in one coat (As per table above) so use markers (Stones on top of coping) etc to figure out about how far one pack should cover. In an average pool markers about 2 – 2.5 M apart will mean an area of 12 - 18 sq M, BUT see Section 13 to be sure.

- The nominal film thickness per coat is 150 - 160 microns (wet or dry). Use the Plastic Wet Film Comb to check as you go along. By doing so you will ensure correct film build. You will get variations but aim to get at least this amount per coat, and up to 200 – 250 microns is ok in high wear areas like beaches, steps, ledges, swim outs.

- Cured material will be difficult to remove from any surface (or skin) so wipe up immediately with a cloth.

- Allow to cure overnight (16 hours or longer if very cool) before applying further coats.

- Do not walk on painted surfaces until cured.

- If more than 72 hours between coats a light sand with #60 grit paper to remove the gloss, will be required before applying the next coat.

- Wash up rollers, brushes in Epotec Thinners (Or discard correctly).

- Do not use thinners to remove paint from skin, but rags and water/ detergent. Section 15.

- Remove any spilt paint from paths, tiles, slates immediately. Once cured hard to remove.

ADDITIONAL COATS:

- Epotec is designed to require 2 coats at the correct coverage rates.

- Apply 2nd coat in the same manner at the first full coat.

- A 3rd coat needs to be applied if you have material still left over after 2nd coat, as not enough film build, (thickness), reached so far. Apply as per the 2nd coat. Focus on shallow end, steps etc.

- Shallow areas, beaches, swim outs should a get a bit more material as high wear areas, relative to the bottom at the deep end, which has less wear and tear generally.

- Any areas above the water line should also get more material (fibreglass pools especially), as these are often subject to foot traffic etc.

- Any leaves, insects etc that have fallen onto the wet Epotec should be carefully removed as soon as possible after the coating is cured and before succeeding coat(s) applied. Any well adhered organic matter in the last coat, will usually dissolve over time.

- Line markings: can be done after the last coat is cured and use masking tape to set out the areas to be painted. Apply Black or Royal Blue (White also) by brush or small roller. Apply within 72 hours of last coat being fully applied.

One heavy coat at about 20 -25 Sq M per 5 kg pack will be required. This works out at about 1/4 pack per line for 25 M pool and 1/2 pack for 50 M pool.

Ideally 2 coats should be applied for maximum life.

12.5. CURING:

- Allow the Epotec to cure for 4 – 5 days in summer and 6 – 7 days in winter before refilling with water and chemicals.

- Keep moisture, rain, drips and running water off the curing surface during this time as these may create white blooming or stains, if run off water contaminated.

- The rate of curing (and final colour) will be affected by surface temperature, humidity and overall weather conditions and may be hastened or retarded as a result.

- See the ATTACHED "Maintaining your pool water and coating for maximum life" for complete details. If you don't have please ask for a copy.

(Provide a copy to Pool Owner

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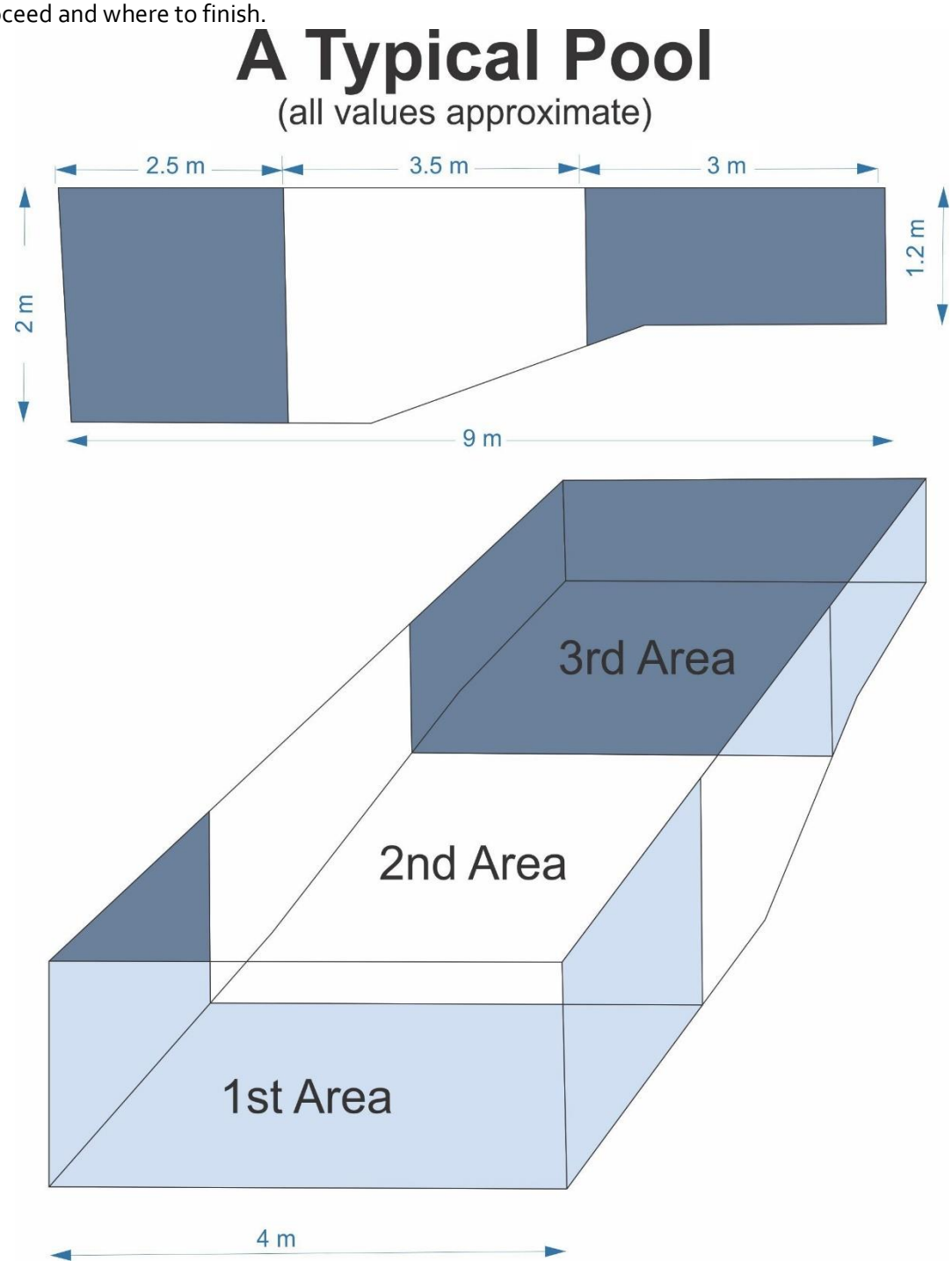
13. How much material, where to start painting and where to finish.

- Here is a general guide as to how to figure on how much material to use.
- It also sets out where to start, how to proceed and where to finish.
- Note you pool maybe a different size or shape, so adapt accordingly.



Refer to Page 19 Making out Areas, for more details

NOTE: For **more information** and **video tutorial** please refer to our website page:
www:poolpaint.com.au/info-bank/video-tutorials/

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In our example (using a smooth FG type surface, other surfaces require more EPOTEC

1st area to paint

Starting at the deep end, we find the end wall being 4 M wide and 2 M deep covers 8 sq M.

Coming along the sides of the pool until its 2.5M long and 2 M deep so covers 5 sq M, and we add the 2 sides together to get 10 Sq M.

We also need to add in the bottom area which is 2.5 M long and 4 M wide so covers 10 Sq M.

So we have 8 + 10 + 10 = 28 sq M or approx. enough surface for ONE mixed 5 kg pack/kit.

2nd area to paint

Moving along the sides 3.5 M on both sides will give a strip down the side, across the bottom and up the other side of: Bottom 3.5M long x 4M wide = 14sq M and Walls 3.5 M long x 1.8 average M deep = 6.3 sq M and we have 2 walls.

So 14 + 6.3 + 6.3 = Sq M. or 26.6 approx. enough surface for ONE mixed 5kg pack/kit.

3rd area to paint

Then we come to the last strip which includes the shallow end wall and a depth of say 1.2 M.

End wall 1.2 x 4 M = 4.8 Sq M, the bottom 3M x 4 M = 12 Sq M, plus each side wall 1.2 M x 3 M = 3.6 sq M, so total area is 4.8. + 12 + 3.6 + 3.6 = 24 Sq M. approx. enough surface for ONE mixed 5 kg pack/kit.

Here because it's shallow there is more wear and tear on the coating, so we make it thicker, (less sq M to cover with 1 pack) and thus it will last longer.

In some pools you will use say a total of 7 packs, so make it 4 packs on first coat and 3 on second coat.

To help you decide where each pack starts and stop place some markers on the side of the pool such as stones or bricks, where you need to stop pack one and start pack 2 etc. Then in the case above with 7 packs, move markers to reflect the changes for each coat. That is just move them a bit farther apart and remove one set.

If you end up with a pack left over after 2 complete coats then apply the last pack on the next day to the shallow areas, steps, swim outs etc as these get all the wear and need a thicker coating to last.

Please note this is an example, look at your own pool and determine the correct size. **It's only a guide to help you see how far each pack should go.** We just want you to have more material at the shallow end and not use it all up at the deep end!!

For other sized pools use this idea to get a good understanding of the coverage rates to be used

14. Health and Safety: read EPOTEC SDS.

- Keep away from heat and open flames
- Avoid breathing vapour or spray mist
- Dispose of heavily contaminated clothing
- In event of skin contact with the product, wash affected area thoroughly with plenty of cold soapy water containing a small amount of thinner. When clean liberally apply skin cream, or moisturising cream. Seek medical attention if warranted.
- If splashed in eyes, hold open and flush with copious quantities of water for at least 15 minutes. Seek medical attention.
- If swallowed DO NOT induce vomiting. Give 1-3 cups of milk. Seek medical attention immediately. Keep the label with you.

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15. Additional Application Notes:

- If in doubt about cleanliness of surface, clean them again. Paint failure is usually as a result of poor-quality surfaces. Fats and Oils prevent good adhesion. Have you used a detergent to clean the surface?
- Remove loose fluff from rollers (hand rub briskly) **IB** and loose bristles from brushes before you start. Otherwise they will end up in the wet coating causing a nuisance and a hard lump when cured.
- Allow about 4-5 hours to paint one coat on your pool of 70 – 80 sq M.
- Cut in around top first starting at deep end using a brush and masking tape if required.
- Paint deep end wall, then move down a side wall a metre or so, (see Section 13 above) and finally onto the bottom. Then do as bands across pool, finishing at ladder or steps at shallow end. Wear soft soled shoes.
- EPOTEC is a high build material, so do not try to spread out to save material. If you do you will end up with insufficient thickness and it will not last as long as you expect. The recommended coverage rates are designed to get you a long life, (7 -12 plus years).
- Check weather, if rain is expected within 6-8 hours after completion of painting, DON'T start.
- Ensure that minimum **surface** temp will be above 13C. Use tarp and heater to keep warm overnight. Check temp with IR Thermometer.
- You may start painting if damp, (not wet) Concrete WB Epoxy Sealer only. For Epotec NT surfaces needs to be dry.
- Finish painting before dew falls on surfaces. Ideal time frame is from 6 - 9 am (ish) am till 1 pm.
- Don't allow water/dew to form onto uncured/partially cured paint, as it will "bloom". This will require a light sand the next day to remove and a recoat (in general) or leave to be bleached out by the chlorine over a few months. The "bloom" is unsightly but does not affect the performance of the EPOTEC. (This is aesthetic only). **IB** (More detail in the attachment - after this document)
- Over coat after overnight (16 hours) curing. If more than 72 hours between coats, lightly sand before applying second coat (and / or third coat).
- Allow 5-7 days before re filling swimming pool.
- Do not allow stained or mineralised water (from tiles, grout, garden etc) to flow over Epotec as it may stain it or leave a white film, more so during cooler curing conditions.
- Take your time to plan and carry out a quality application.
- To calculate Pool Areas: (Approx. area to paint)
- Rectangular, Free form: max width (m) x max length (m) x 2.2 = area in Sq. m
- Lazy L, Oval (rounded end plus a sq end): max width (m) x max length (m) x 1.6 = area in Sq. m
- Roman (full Oval): max width (m) x max length (m) x 1.55 = area in Sq m

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APPENDIX 1

IMPORTANT INFORMATION

MAINTAINING YOUR POOL WATER AND COATING FOR MAXIMUM LIFE

Introduction

Now that you have a "new" pool coated with **EPOTEC NT** a few simple techniques will keep it looking great for years.

EPOTEC is designed to provide a long lasting, functional and protective finish, while looking good.

As with all products, a longer life will be achieved when it is looked after correctly.

Curing

EPOTEC should be allowed to cure for 5 (Summer) – 7 (Winter) days before filling the pool. This is to allow a full cure to happen before subjecting it to chemicals. After the first 6 hours (at 25C) or so of application any rain that falls on the EPOTEC will have little impact and may be left in the pool unless it's dirty water, (or rain run off over tiles/grout, pavers) in which case it may stain the new surface and should be removed.

Cold overnight conditions (dew), high humidity, rain, garden water runoff and/or frosts may cause a white blooming **on** the surface, within the first few days. Leaking pipes and valves may create the same effects. Also, water running over cement, tiles, pavers or grout may also cause lime staining on Epotec.

This is aesthetic only and will not impact on the performance of the EPOTEC. It will look unsightly and can be removed, though it will usually wear off over 3-4 months or so, once pool is in service. To remove residues, use a Scotch Brite Pad (or similar) and a mild abrasive like Ajax or Vim. It may slightly dull the surface. Diluted vinegar maybe used too. If hard to remove all residues and it's aesthetically not acceptable a reapplication of a coat of EPOTEC will be required.

Do Not enter pool until it's sufficiently cured, usually 16 – 24 hours after any application.

Before Filling

Any leaves, animals, insects should be removed as soon as possible so they don't stick or stain the curing EPOTEC. Remove by careful scraping, sanding or washing. Leaf stains usually disappear once pool is in service. Be careful when accessing pool as coating will be slippery.

Filling and Chemicals

Check that the Hydrostatic valve (if fitted) is working correctly. Fill with clean water. Allow to stand 24 - 96 hours max, then add chemicals (incl Salt) **making sure they are well diluted first. Then mix into the pool water completely.** Any chemicals that are added directly may sit on bottom and result in concentrated chemical attack or stains and reduced life expectancy to the EPOTEC.

Follow professional advice to get pool into the correct chemical balance.

Pool Water Maintenance

Please Print this off & keep with your Pool Service Papers

Whether you care for your pool yourself or use a pool service professional, you should settle for nothing less than the best, for your water (and your pool), at all times.

For maximum life of the coating, the pool water quality should be maintained continuously in accord with accepted pool water management practices and the following criteria;

- pH 7.4 -7.8, Water temperature between 5 – 35 C
- Total Alkalinity 80-120 ppm (min) to 160 -180 ppm maximum
- Chlorine levels 2 – 3 ppm (parts per million)
- Calcium Hardness should be closely monitored and kept within 270 – 330 ppm
- Langelier Saturation Index (LSI) from +0.3 t0 – 0.3
- Pool regularly cleaned in accord with generally accepted practice,
- Pool chemicals to be correctly mixed and not dumped into pool,
- Pool remains full of water
- If using a Cu/Ag system monitor & keep ion concentration low to prevent staining.
- If having your pool professionally maintained then make sure they set the testing equipment to painted surfaces, not any other. Otherwise incorrect chemical dosage may result, shortening the life of the EPOTEC.
- Also, Total Alkalinity should be carefully maintained to prevent a powdery surface developing with attendant "pick up" on hands and feet and a shorter life.

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Surface Cleaning:

The EPOTEC is resistant to surface contamination and fungal growth. However, over time the surface will tend to change with the attachment of slime and fat build up. This can be removed easily by giving the surface a "wash" with a broom or brush. The most affected areas will be at the water level, and within 300 mm of it. Body fats, suntan lotion and other matter that floats on the water surface will tend to stick to the sides of the pool. A regular scrub (monthly and more often in times of high usage) for this area should be a part of the maintenance program.

Calcium Build-up:

One of the by-products of pool chemicals is the formation of calcium deposits on walls and floors. Calcium comes from the hardness of water, Salt, or the "Chlorine 65%", in previous section. This can usually be seen as a whitish "scum". It may be noticed if you wipe the surface with your hand and you see a white "cloud" in the water. The EPOTEC will be glossy underneath. It should be removed as can act as an abrasive when pool cleaners in use and reduce the life of EPOTEC.

It can be removed by using a flocculating agent. See your pool shop for specific details.

Colour Change:

EPOTEC being a functional epoxy coating is modified by the UV radiation from the sun. It will tend to chalk and loose its colour somewhat. This will happen nearer the surface. Darker colours will change more so than lighter colours. The performance of the EPOTEC is not affected by this, however it will tend to lose some gloss and take on a slight yellow hue.

Little needs to be done to prevent this, though if you have a pool cover, use it to reduce the UV impact on the EPOTEC

Damaged Areas:

In the unlikely event your pool surfaces are damaged and the film integrity of the EPOTEC punctured, there is the prospect of water from the pool getting behind the EPOTEC. This will also allow the pool water with its corrosive salts, chlorine and other chemicals to come into intimate contact with the now unprotected concrete. Chemical attack of the concrete is possible with the result that it will fail, and there by undermine the further integrity of the EPOTEC. Any such damaged areas should be repaired promptly. We have touch up kits for this and they can be used underwater.

Summary:

To get the best performance from the EPOTEC, look after it well, cleaning it every now and then. Keep the pool water in tip top condition throughout the year.

Also note that chlorine, pool acid, and many other pool chemicals can do great damage to you and your pools health if not used correctly.

You may need to call on other professionals to assist you in obtaining the very best in pool water maintenance.

One web site you may like to visit for more information is SPASA and their Fact Sheets at: www.spasa.org.au

Contact the Applicator or us if you have any questions.

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