

Section**Name** Application – Jaxxon 1500 Series.**Last Updated** 11/14**Aim** Document application methods for the Jaxxon 1500 series.**Scope** Covers all aspects of application.**References** Surface Preparation Notes.

Application – Jaxxon 1500 Series

The Jaxxon 1500 series of industrial protective coatings are based on pure liquid epoxy polymers and amine curing agents. Filler loadings are used for the best possible properties in the cured film, with some Jaxxon coatings reinforced with Kevlar® fibres to enhance film strength and impact resistance.

They are formulated with no solvents and have excellent moisture tolerance, surface tolerance and chemical resistance. These properties make them ideal for use as protective coatings on concrete and steel, as well as industrial non-slip flooring when combined with appropriate aggregate.

The cured films are extremely hard and strong. Application is easily made by brush, roller or spray.

1 Coverage

The 1500 series products are tintable formulations that come in pre-measured 6.5 litre kits (including a 320mL pigment pot). Jaxxon 1545 is available in mid-grey only.

The recommended film thicknesses of the products and theoretical coverage rates are presented below –

1505: 200 microns @ 5m²/L
1515: 250 microns @ 4m²/L
1525: 250 microns @ 4m²/L
1535: 250 microns @ 4m²/L
1545: 300 microns @ 3.33m²/L

Practical coverage rates will vary depending on application factors such as substrate condition, film thickness consistency, losses in rollers/brushes/trays/buckets/hoses etc.

2 Cure Times

Temperature will have a considerable influence on the cure rate of two-pack epoxy coatings. In broad terms, times will double for a 10°C decrease in temperature and half for a 10°C increase. The table below contains the curing schedules for the Jaxxon 1500 series products at 25°C. Higher application temperatures will also affect viscosity and hence the maximum vertical application thickness achievable with the 1500 series products.

Product	Pot Life	Set - Touch	Set - Hard	Full Cure
1505	45 mins	6 hrs	15 hrs	7 days
1515	45 mins	6 hrs	15 hrs	7 days
1525	45 mins	6 hrs	15 hrs	7 days
1535	45 mins	6 hrs	15 hrs	7 days
1545	40 mins	6 hrs	15 hrs	7 days

3 Application

3.1 Roller and Trowel Application

3.1.1 Planning

Before application begins, the surface must be prepared thoroughly. Read Surface Preparation Notes for recommended procedures.

Spending some time planning out day-by-day how a job will get done has many benefits – it allows for more accurate budgeting; it helps avoid mistakes and overcome any unexpected hurdles; it makes a job run more smoothly overall, reducing stress and wasted energy.

If completing a large area, plan how to progress across the area. Product properties, accessibility, equipment, shutdown restraints etc. may all impact upon the decision making at this point. Consider how and where a kit will finish. Using joints as boundaries and keeping edges fresh so the next kit can be seamlessly worked into the previous one are important considerations.

Until confidence is gained with coverage, it might be a good idea to mark off rectangles as application progresses. This marking will ensure an even application and proper budgeting of materials. Simply spreading the coating over an area with no understanding of consumption nearly always results in too much or too little material for the final few square metres.

Make sure the SDS is read before use, wear the appropriate protective clothing and have all tools and the mix area ready before mixing. The mix area shouldn't be too far away, cordoned off if possible and with product laid out for the next coat only to avoid confusion. Make sure it's big enough to allow plenty of room to move and work cleanly. Use drop sheets to protect from splashes/spills/drips, and have plenty of lint-free cotton rags and solvent for clean-up. It should also contain a separate clean

area and a waste bin for discarded items.

A crucial part of the planning process is also taking a moment to think about what hurdles might arise, which makes them easier to overcome if and when they do.

Plan how to deal with matters such as –

- Availability of power, lighting, access etc.
- Restricting access through signage or cordoning off to protect floor from accidental damage.
- Change of access or entry points during the project.
- Sensitivity of surrounding areas to noise, odour, dust etc.
- Unexpected conditions during application, e.g. extreme temperatures or condensation.
- Coating defects such as holidays, pinholes, crawling, colour separation and soft spots.
- Dust migration or insect contamination on wet films and how to prevent it.

3.1.2 Mixing

- When mixing the 1500 series products, thoroughly mix Part A and B separately first, then combine using an electric drill and a “jiffy” type mixing blade. Mixing each part separately is done to reverse the settling that can occur if left in storage for long periods. Make sure separate mixing blades are used for each component or clean the one blade thoroughly in between to avoid cross-contamination.
- Ensure the sides of the container are mixed well via thorough scraping. A major source of soft spots in two-pack epoxies comes from using product sitting on the sides of the bucket that isn’t mixed properly. Either scrape while mixing to ensure the product on the sides is fully mixed or don’t use it, i.e. only pour from the mix bucket until it starts dripping and don’t scrape to remove every last drop.
- Mixing will take only a couple of minutes, but must be done completely. Try to limit the amount of air trapped by holding the mixer below the surface as much as possible.
- If splitting kits, pre-mix both components beforehand and always use measuring devices for correct volumes or weights. Rough estimations aren’t advisable as soft floors resulting from incorrect ratios are painful to remove and very costly.

3.1.3 Rolling

- Pouring mixed epoxy directly onto the floor will extend the working time of the product by avoiding the heat build-up that occurs in a bucket or roller tray. Start approximately 50cm/20” from a wall and work towards the exit point pouring in an “S” shaped pattern. The “S” has to be big enough to stand and work comfortably between the horizontal sections (if spiked shoes aren’t

being worn – see tip below).

- When pouring, leave enough to cut in around tight areas. Try not to cut in too far, just enough to protect the vertical surfaces. If cutting in with a clear product, use brushes with white bristles as they are harder to detect on the floor. If the area is large, it may be best to only mix this portion first so there's no danger of thickening. A small polypropylene measuring jug (2 litres/0.5 gallons) is ideal for this task because it allows easy volume measurement and cured product can be peeled from the bottom for re-use.
- Perform a rough spread using a squeegee to achieve a relatively even film, allow product to level for 2-3 minutes then backroll smooth. When backrolling, the aim is to roll in long, even, overlapping strokes to get the product feeling and sounding the same. Solventless films less than 300 microns/12 mils will often make a soft tearing sound when rolled evenly. Thicker films over 400 microns/16 mils will give a slopping sound and the roller will feel as though it's gliding.
- Wearing spiked shoes and walking back onto the wet film accelerates this process because larger areas can be applied with a squeegee before backrolling rather than working within the "S" shaped pour lines. Spiked shoes aren't suitable for solvent-borne coatings as the solvent can flash off too quickly and leave spike marks in the film.
- If using budget rollers, de-lint first by wrapping the roller in masking tape and removing. Repeat this process, fluffing the roller in between until there are no fibres visible on the back of the tape. Roller covers can also be washed in a washing machine instead (with no detergent) or, preferably, higher quality rollers with greater fibre retention used.
- To work a fresh batch into a seam, pour the material approximately 15cm/6" from the edge and overlap with the roller by about 30cm/12". Try to minimise the number of seams and keep them as fresh as possible. If left for too long, pigments can settle and lead to a visible colour difference.

3.1.4 General

- The hardening process for two-pack, solventless epoxies will begin as soon as it's mixed, with the working time determined by speed of product, volume and ambient temperature.
- Uneven coating thickness due to floor unevenness and/or sloppy rolling can result in hills and valleys. Always try to work with fresh epoxy and apply as evenly as possible.
- Allow a floor to cure overnight or until it's hard enough to walk on before beginning the next coat. Spiked shoes should only be worn at this stage when the floor is hard enough. If in doubt, test on an inconspicuous area first. If the floor isn't hard enough, only walk back on with booties or plastic bags wrapped around boots to avoid contamination and apply with the "S" shaped pattern instead.
- With larger, open areas especially, think about how to protect the floor while it's hardening. Bugs, dust and foot traffic are the biggest concerns here. Sealing off all openings and turning off lights will help prevent this type of damage from occurring.

NOTES –

- Film thickness – It may be tempting to "stretch" the coating further by applying at less than specified film thicknesses. It's recommended this practice is avoided as it can compromise the

quality of the film. The Kevlar[®]-reinforced coatings, in particular, will suffer if rolled out too thin as the fibres tend to clump, especially if too much solvent is used (see below).

- Use of solvent thinners – Jaxxon 1500 series products are solvent free, however the addition of a small amount of solvent can be beneficial in cool conditions. The solvent should be added to the epoxy base or the combined base/curing agent mixture. Most contractors add only about 100-200mL of solvent per 6.5 litre kit, which results in a product 97% or more free of solvents.

Alternatively, gradually warming the base prior to mixing will also reduce viscosity. Use a larger bucket containing warm water and allow the base to sit, occasionally stirring, until the viscosity drops sufficiently. Care should be taken not to get the product too hot (e.g. over 35°C) as this will affect product properties, including the reduction of working time.

3.2 Spraying

Before application begins, the surface must be prepared thoroughly. Read Surface Preparation Notes for recommended procedures. As with rolling, it's beneficial to spending time planning out day-by-day how a project will proceed and all the appropriate documentation for the product in question should be read.

Thought also needs to be given to the execution of stripe coats prior to application, i.e. are there awkward/difficult areas such as welds, joints or protrusions that need to be brushed beforehand? Stripe coats will have to be over-coated within re-coat times, so familiarity with product cure times etc. should be gained via data sheets before commencement.

The product can be sprayed using either of two alternatives: an airless plural spray or a single-component conventional spray.

When spraying, it is possible to add some thinner to make the spraying easier. Typically 2-3% can be added to the epoxy. If using airless, plural spray unit (recommended), the following configuration is suggested –

Ratio:	See product data sheets for ratios.
Fluid Temperature:	55°C/131°F.
Fluid Pressure:	2,250psi.
Tip:	30thou – fan size to suit application.
Cleaning Solvent:	MEK or standard epoxy thinner (used to flush system every 20 minutes).
Hose Length:	Not to exceed 15m/50ft.
Hose Size:	9.5mm/0.375".

Airless spray application is preferred for high-build coatings on large, open areas where power/compressed air and labour of suitable standard is available. The advantages of this method include the cost benefit pertaining to speed of work, over-spray reduction (material loss estimated at 20-30%), and ability to produce a much higher wet film thickness for certain coatings.

As the name suggests, airless spray doesn't utilise atomising air to disperse the coating, rather it employs the use of a specially configured system that pumps a very high speed stream (using hydraulic pressure) through the nozzle, which releases the pressure and causes atomisation.

The special configuration consists of air-activated pumps that operate at 25-50x traditional air-operated pressure and push the coating through pressure-resistant hose lines to the application gun. This equipment can achieve a 25-30% increase in production per hour when compared to brushing and rolling.

As no atomising air is used, there is considerably more control and consequently considerably less over-spray and more even application. Also, the high-pressure system can process higher viscosity material, which results in savings on thinners.

The spray gun is typically held at a distance of about 20-30cm/8"-12" from the surface and applied in a parallel line fashion as opposed to circular/fan pattern. The material will be thicker in the centre of the spray, therefore it's essential to correct this by overlapping successive sprays by about 50%. A criss-cross pattern is suggested for higher film thickness. Using this method, material loss will approach 30-40% and higher for surfaces in open areas.

Conventional spraying is also a popular and proven method that applies coatings quickly, however isn't as effective as the airless alternative in high-build coating applications. Equipment is easier to maintain, however probably more complicated to correctly operate. The lower pressure in the system also necessitates thinning, which can create problems with dry film thicknesses.

The process starts with the material contained in a pot being forced through a hose to the spray gun with air pressure. At the gun, another hose containing pressurised air interacts with the material at the nozzle to atomise the coating. Other air outlets are used at this point to shape the distribution.

Essentially, control of this method depends on a few key variables –

- Viscosity – must be low enough to permit proper atomisation, yet high enough for build on the surface to occur without sag (if desired).
- Material pressure – this directly controls the rate of coating flowing through the nozzle. A needle that opens and closes on the trigger regulates this.
- Atomising pressure – excessive atomising pressure will result in over-spray. Correct pressure will produce a uniform wet film.

Adjustment of pressure in the system can be performed in two ways –

1. Adjust material pressure so that a stream of coating will fall about one metre horizontally from the end of the gun. This will correspond to approximately 400-650mL/13.5-22fl.oz of material.
2. Adjust atomising pressure until it is high enough to provide a uniform wet film.

4 Records/Quality Control

Records can be extremely useful in a number of ways, particularly as references for future jobs of a similar nature. Being able to look back on what was done will make tasks such as material calculation, planning and even troubleshooting a lot easier. Indeed, records are also of tremendous legal benefit in disputes.

The following pieces of information should always be recorded on all jobs –

- Important! Photos – take photos of absolutely everything – before commencement, after all stages (preparation, basecoat, topcoat, completion etc.), any problem areas, after fit out, during service (to understand wear patterns for maintenance). Photos are much more effective at conveying information than text.
- Date of application – date of start and date of completion.
- Client details – name, address, contact details.
- Approximate area – adding a rough sketch on grid paper is a great idea.
- Condition of surface – contamination, defects, repairs needed, age, condition of existing coating etc.
- Service conditions – the temperature, chemical exposure and physical demands should be listed and product choice explained. If working to a specification, include a copy.
- Site conditions.
- Division of labour/personnel employed.
- Type of preparation – equipment used, checks made etc.
- Flooring system – batch numbers, number of coats applied, planned v actual consumption.
- Method of mixing and application – equipment and procedures used.
- Completion details – start and finish time of each stage, total number hours to complete, client acceptance and official handover.
- Defects or other notes – product behaviour, miscellaneous observations, insects, contamination etc.