

**Section**

Name	Product Application Notes – NMP 1300 Series.
Last Updated	08/04.
Aim	Document a thorough application procedure for the NMP 1300 series.
Scope	Covers surface preparation and application, as well as other issues concerning the NMP 1300 series.
References	

NMP 1300 Series - NMP 1310/15/30/35/40/41/45

The NMP 1300 series of flooring products are based on pure liquid epoxy polymers and amine curing agents. Pigmentation, where applicable (NMP 1310/15), is selected for hardness and durability in order to obtain the best possible properties in the cured film, however the 1300 series also contains some of the clearest epoxy resins available (NMP 1340/45).

The NMP 1300 series of coatings are moisture tolerant and have excellent chemical resistance, which make them ideal for use as industrial flooring products for concrete, brick, asphalt, wood, fibreglass, vinyl tile etc. The cured films are hard, smooth, glossy and immensely tough.

Application is easily made by brush, roller or spray.

1 Surface Preparation

As always, thorough and complete surface preparation is the key ingredient to problem-free coating solutions. For detailed preparation notes on every surface, consult the Surface Preparation section of NMP's application manual. The following is a generic procedure that will be effective in most applications: degrease to remove oils, fats etc., grind or blast to remove damaged substrate and establish a good mechanical profile, rinse clean and leave dust-free.

Surface preparation varies according to the substrate to be coated as follows:

1. New concrete – allow to age under proper curing conditions for at least 28 days. Remove surface laitance by thorough acid etching, abrasive blasting or other appropriate methods to expose firm and clean substrate. A simple layer of surface dust can negate bonding and result in a peeling coat.
2. Old concrete – proper surface cleaning/preparation cannot be overly stressed. Shot blasting, high-pressure water jetting (5,000psi), detergents etc. are recommended. Surface appearances can be deceiving – don't just assume a clean, highly bondable surface as a single layer of dust can eventually cause delamination.
3. Coated concrete – carefully examine the condition of the existing coating. If the coating is intact and tightly adherent, it may be prepared for coating by detergent/water scrubbing using standard janitorial equipment. Rinse thoroughly, dry, and then proceed with the regular surface preparation and application. Note: The NMP 1300 series are extremely strong coatings and will transmit tearing stress to a weaker under layer that may then fail. The NMP 1300 resins contain no solvents that may weaken any existing coatings. If the existing coating shows poor adhesion to the substrate it must be removed by abrasive blasting. If the underlying surface is contaminated it must be cleaned using the above procedures.
4. Tile – the NMP 1300 range is ideal for coating existing vinyl asbestos tiles (VAT). Prepare the surface by thoroughly stripping to remove all wax, dirt and salt residues. Note: when preparing VAT, follow OSHA guidelines regarding selection of scrubber disks to avoid releasing asbestos fibres.

Apply the product directly to the cleaned tiles. Minor damages and missing tiles can be treated by trowelling in a "mortar" made from NMP 1335 and EM agg to create an epoxy mortar (see NMP 1335 data sheet).

5. Concrete Repair – the NMP line of epoxies include several concrete patching products and concrete resurfacing mortars. For small areas, contractors often mix EM agg into NMP 1335 to create an epoxy mortar (see NMP 1335 data sheet). Users will find that non-epoxy concrete patching kits and products will work under our epoxy coating system



and can be purchased locally. However, these products often require long periods before they can be coated, whereas NMP epoxy mortars can be coated within several hours.

The methods of surface preparation shown below are arranged in order of increasing efficiency. It must be noted that although abrasive blasting is the preferred method of surface preparation it is often not possible to do this in small applications.

- Wire brushing – is not recommended except in the smallest areas where vigorous brushing can be made to remove most contamination. The NMP 1500 series is compatible with most types of existing coatings and may be applied to sound old coatings that have been cleaned and roughened by vigorous wire brushing.
- Grinding – can work well in small areas provided sufficient attention can be afforded to all areas receiving the NMP coating. Grinding is especially useful in localised repairs above or below water.
- Needle gunning – has been used successfully above and below water provided the area is small enough to receive complete attention.
- High-pressure water blasting – is effective provided the water pressure is high enough to remove all contamination. Pressures in excess of 5,000psi will be required to remove tight contamination such as marine growth on steel and concrete. The nozzle must be held close in to ensure effectiveness since its efficiency falls off rapidly as it leaves the surface.

2 Coverage

The premium range of flooring products (NMP 1310/30/40/41) are available in 8L kits, whereas the mid-range line (NMP 1315/35/45) have two size options – 4 or 14L kits. Each kit consists of a pre-measured container of epoxy base and a pre-measured container of curing agent. The two components are added in the supplied ratio and mixed thoroughly.

Coverage rates can be affected by the condition of the surface being coated, eg porosity. The recommended film thicknesses of the products, together with the theoretical coverage rates they correspond to, are presented below:

NMP 1310 – 250 microns @ 4sq.m/L.
NMP 1315 – 250 microns @ 4sq.m/L.
NMP 1330 – 200 microns @ 5sq.m/L.
NMP 1335 – 200 microns @ 5sq.m/L.
NMP 1340 – 200 microns @ 5sq.m/L.
NMP 1341 – 200 microns @ 5sq.m/L.
NMP 1345 – 200 microns @ 5sq.m/L.

Practical coverage rates will be marginally less depending on the losses that occur during application, eg localised excess film thicknesses, losses in rollers, brushes, roller trays, hoses etc.

3 Temperature

Temperature will exert a considerable influence on the rate of curing of chemically cured coatings such as the NMP epoxy coatings. In broad terms, curing 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 NMP 1300 series products at 25°C.

Product	Pot Life	Set - Touch	Set - Hard	Full Cure
NMP 1310	25 mins	4 hrs	8 hrs	4 days
NMP 1315	30 mins	4 hrs	10 hrs	5 days
NMP 1330	50 mins	8 hrs	20 hrs	8 days



NMP 1335	50 mins	8 hrs	20 hrs	8 days
NMP 1340	55 mins	8 hrs	20 hrs	8 days
NMP 1341	50 mins	8 hrs	20 hrs	8 days
NMP 1345	55 mins	8 hrs	20 hrs	8 days

4 Application

Read the MSDS before use and wear the appropriate protective clothing.

4.1 Spraying

The product can be sprayed using either of two alternatives. These options are an airless plural spray or a single component airless 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 spraying (recommended), the following configuration is suggested:

Ratio -	Base/Cure (see product data sheets for ratios).
Fluid Temperature -	55°C.
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.
Hose Size -	3/8 inch.

4.2 Rolling

Temporarily mark off the area to be covered by one kit (eg 4L of NMP 1315 @ 250 microns will cover 16m² – see section 2) into rectangles with masking tape. This marking is important to ensure an even application and proper budgeting of materials – it is not advisable to simply spread the material over an estimation of the area with no control of consumption.

Have all tools and area ready before mixing. If completing a larger area (that needs to be divided up into several rectangles), plan out how to best progress across the area. Use expansion joint edges to help finish at an edge (never coat over expansion joints).

For 4 or 8L kits, thoroughly pre-mix base (and pigment pot if applicable) and then mix in the entire curing agent. Mixing should be done using a ½ inch (1.3cm) electric drill stirrer and a 'Jiffy' type mixer, ensuring that the edges are also well mixed. Mixing will take only a couple of minutes, but must be done completely.

Pour the mixed epoxy directly onto the floor or into a separate bucket (this keeps poorly mixed side/bottom areas in their original containers and avoid poorly cured sections in the floor), and pour as evenly as possible over the rectangle described above. Pouring directly onto the floor is encouraged as this will also extend the pot life of the product as it will eliminate the heat build-up experienced when the product is left in the can.

It is possible to spread this material out and to backroll smooth using rollers on extension poles. Use 10mm nap commercial rollers or squeegees to achieve a relatively even surface, then backroll smooth. It is recommended that 2-3 minutes be given for self-levelling before proceeding with the back roll. It is important when rolling to work in the same direction to ensure no holidays (areas with insufficient coating) and an even appearance.

Timing is critical and uniform spreading is important. The epoxy will begin to react as soon as it is mixed, so endeavours to spread all the epoxy well within the pot life should be made to ensure easier manageability.

Uneven coating thickness due to floor unevenness, old vs. new batch of epoxy, sloppy spreading/rolling can result in pronounced "hills and ridges". Always try to work with fresh epoxy, evenly rolled out (it will be necessary to lean/push into roller as the epoxy is significantly thicker than interior wall paint).



The NMP 1300 series are low-viscosity, solvent-free products and are generally used without the addition of any solvents. However, the addition of a small amount of solvent can be beneficial in climates that are particularly cold or hot. In hot conditions, the addition of a solvent will add several minutes to the epoxy pot life, whereas in cool conditions, it will make spreading/rolling easier and increase coverage. Generally it is not required, but if it is deemed necessary then add only about 2-3% of solvent. The solvent should be added to the base product or the combined base/curing agent mixture.

After the product has been applied and back rolled, the masking strips delineating the area should then be removed. If these are left on too long, the product can harden and stick to the tape, which could result in “tearing” of the film if belatedly removed. The removal of the tape should expose clean, sharp edges around the coated area.

If applying subsequent coats of product, wait until product has reached its specified “re-coat” window (see section 3). At this point, the surface should be hard enough not to be marked (by a fingernail for example). It is possible to walk over the existing coat using soft soled shoes or socks covered in plastic bags.