



INSTALLATION GUIDELINE | AMERICAS

Asphalt overlays using Petromat paving interlayers

Petromat Enviro, MPV, MPG & MPM



Contents

1. Ordering of Petromat paving interlayers	3
2. Storage and handling of Petromat paving interlayers	3
3. Surface preparation	4
4. Asphalt binder installation	4
5. Petromat paving interlayer installation	5
6. Asphalt paving on the installed Petromat paving interlayer	6
7. Key factors to ensure a successful installation	7
8. What to include in your bids	10

This information is provided for reference purposes only and is not intended as a warranty or guarantee. Solmax assumes no liability in connection with the use of this information. Please check the revision date and refer to our website for the latest updates.

The following steps are provided to help with the installation of our **Petromat**® interlayers on both asphaltic or concrete surfaces. Please contact Solmax for assistance with the installation on subgrade, aggregate layers, or treated aggregate layers.

1. ORDERING OF PETROMAT PAVING INTERLAYERS

- Review the plans in conjunction with the staging of the paving to determine what the lane widths and lengths are for a roadway application, or what total width and total lengths are required for a parking lot or airport apron to be covered with the paving interlayer. This will help define what width of product and the number of rolls will be required for the project. For example, if the roadway lane widths are 12 ft, then a 12.5 ft wide roll should be ordered. For example, if a pickleball court is only 28 ft by 50 ft, then the roll width should be 10 ft (so, 3 roll widths wide to cover the width).
- The standard roll widths are typically 10 ft and 12.5 ft suitable for most lane widths. However, it might be necessary to order half roll widths, non-standard widths, or to order full size rolls and cut them to fit. There is a longer lead time for non-standard widths, and a slitting charge. Individual rolls can be cut on site to address localized nonstandard dimensions (e.g. turning lanes).
- When ordering rolls, always consider the required or minimum overlap widths, and also keep overlap widths to less than 18 inches to minimize overlap and asphalt binder waste.
- Allow for 5% overlap waste when ordering the quantity of material ordered for a project. If there are many curves on a project, the waste could be higher.
- A reciprocating blade should be used to cut rolls. A circular saw is not recommended.

2. STORAGE AND HANDLING OF PETROMAT PAVING INTERLAYERS

- Although the rolls are typically wrapped with plastic, the ends of the rolls, including the cores, are exposed. Therefore, during transportation on any open vehicle, or if stored on site, the material should be completely covered with a tarp.
- The rolls should be moved around site carefully so to prevent damaging the roll perimeter, or the ends cores. Damage to the roll will require the damaged material to be cut before the roll can be installed.
- The tarp covered rolls must also be kept off the ground, on 4x4 or 6x6 timber beams, or other materials. Avoid storage locations that are likely to flood after a rainfall event.
- Rolls that are saturated, and/or have wet cores should be transported or moved with a steel core inserted in the core, otherwise the core could break, and the roll will have to be discarded.
- Saturated material, or material that has mold should not be installed.



3. SURFACE PREPARATION

- Power broom and then use power blowers, or mechanical sweep and then use power blowers, or vacuum and then use power blowers before installing **Petromat** paving interlayers. The pavement surface should be dry, free of dirt, oil and loose stones prior to installation. Additional effort may be necessary on a milled surface to ensure it is free of dirt, debris, and free standing water.
- If no new leveling course is installed prior to the interlayer, fill all cracks $\frac{1}{4}$ in (6 mm) or greater with an approved crack fill or seal material.
- If the milling operation exposes the aggregate base, then these areas should be patched with asphalt prior to installing the **Petromat** paving interlayers. If large areas of aggregate are exposed, then it is recommended that the aggregate be scarified, primed and re-compacted prior to installing the **Petromat** paving interlayers (a heavy prime coat or leveling course can also be installed over these areas).
- If the existing pavement surface exhibits extensive faulting at joints or cracks, a thin leveling course should be placed prior to placing the fabric. If a leveling course is used, crack sealing is not necessary.
- Repair structurally failed pavement areas prior to installing **Petromat** paving interlayers.
- Surface must be dry prior to the asphalt binder placement. (Delamination between the asphalt binder and existing surface may occur if installed over free standing water or over wet surface conditions).



4. ASPHALT BINDER INSTALLATION

- Always use neat or polymerized asphalt cement (PG asphalt binder). Emulsions or cutbacks are not recommended.
- The asphalt binder should provide uniform coverage. If gaps are visible, then the nozzles should be cleaned before continuing.
- Asphalt binder temperature in the distributor truck should be between 300 and 350°F (149–177°C) and should be adjusted according to the asphalt binder selected for the installation.
- Any of the binder types in Table 1 can be used for the installation of the **Petromat** paving interlayer.
- A PG70-XX asphalt binder should be used when ambient temperatures are expected to exceed 80°F, and a PG76-XX or PG82-XX asphalt binder should be used when ambient temperatures are to exceed 100°F. In cases where rapid installation is required or the installation has to take place over a levelling course that is still cooling, then a PG76-XX or PG82-XX asphalt binder should be considered for installation.
- Asphalt binder application rates are based on the specific **Petromat** paving interlayer used. Table 2 provides the recommended optimum rate of asphalt binder to be used based on material type and surface conditions. The asphalt binder application rate must be adjusted according to the existing surface condition.
- The width of the asphalt binder shall be sprayed sufficiently to include the mat width, plus a minimum of 4 in (100 mm) longitudinally and transversely on the overlap side(s). Therefore, if the roll is 12.5 ft wide, then the asphalt binder should be applied 13 ft wide.

- The asphalt binder should be installed in short (approximately 20 to 50 ft) straight runs to fit curves. It is not recommended that the distributor attempt to apply the asphalt binder following the curved radius. This will cause wrinkles to form if the laydown tractor tries to follow the curve.
- The asphalt distributor driver should attempt to spray in straight lines at all times, and these straight line pulls of asphalt binder will allow the **Petromat** paving interlayer to be installed with minimal wrinkles on curved roads.

5. PETROMAT PAVING INTERLAYER INSTALLATION

- **Petromat** MPG and MPM fabrics must be installed with the grid-side facing down into the underlying asphalt binder.
- Any wrinkle(s) that occur during installation 1 in (25 mm) and larger, shall be slit and lapped in the direction of paving and pressed down into the asphalt binder. The wrinkle(s) should be addressed before proceeding with the installation of the next roll, as the asphalt binder will still be hot and help the overlap remain stable under construction traffic.
- To install on curves, it is necessary to place shortened lengths of the **Petromat** paving interlayer. The asphalt binder distributor operator should also be applying shorter straight pulls of asphalt binder to fit the curve.
- To alleviate the pickup of fabric by vehicle tires caused by the exposure to high ambient temperatures or overspray of asphalt binder causing bleed-through, clean blotting sand or HMAC may be spread over the affected area. Excess blotting sand shall be removed prior to paving.
- If loaded asphalt trucks are forced to wait on the installed **Petromat** paving interlayers for extended periods, then sanding should be performed uniformly over the fabric ahead of the paver. Sand can be distributed using a salt spreader or similar equipment. The sand should not completely conceal the **Petromat** paving interlayer, and an application rate of 3 lb/y² should be sufficient. When the temperatures exceed 90°F, then sanding might be required more than once.
- Regular traffic should not be allowed on the installed fabric. If emergency traffic needs to cross the installed **Petromat** paving interlayers, then the exposed asphalt binder should be covered with blotting sand or loose HMAC before traffic can cross.



- **Petromat** paving interlayers can be installed using a tractor, truck-mounted frame or by hand. In all cases brooms should be used to seat the **Petromat** paving interlayer into the asphalt binder and remove air bubbles.
- Pneumatic Tire Rollers should be considered to “seat” the **Petromat** paving interlayers in cooler or windy weather or where there is pending rain. Furthermore, in windy or cool conditions it would be recommended that the asphalt binder be applied in shorter sections to help ensure that the asphalt binder remains soft enough to promote the proper adhesion with the **Petromat** paving interlayer.
- Typical longitudinal paving interlayer overlaps may range from a minimum of 1 to 4 in (25 to 100 mm).
- Transverse overlaps should follow one of the following approved overlap approaches, according to staging, installation speed, or to mitigate concerns with thinner or sensitive asphalt mixes:
 - Transverse overlaps should be shingled in the direction of paving and have asphalt binder applied under the overlapping interlayer prior to paving, or
 - Transverse overlaps can be shingled in the opposite direction to paving, but the asphalt binder is now applied over the end of the previously applied and receiving installed interlayer. To prevent pickup, the new overlap needs to be broomed flat and sanded adequately, or
 - Transverse overlaps can be placed in the direction of paving with no additional asphalt binder at the overlap and the overlapping interlayer should be trimmed down to a 1 to 1.5 in (25 to 38 mm) overlap. No additional asphalt binder is applied at the overlap.
- Overlaps on curves will have varying overlaps, that will likely exceed the typical longitudinal and transverse overlaps.
- Care must be taken when handling **Petromat** paving interlayers. Do not drop or bend rolls as this may damage the core and material.
- Hand cutting of the roll is recommended where necessary.

6. ASPHALT PAVING ON THE INSTALLED PETROMAT PAVING INTERLAYER

- **Petromat** paving interlayers that have been installed a day or more before paving must be clean and there should be no free-standing water from unanticipated or overnight rain on or within the installed material prior to asphalt paving, otherwise delamination may occur between the fabric and new overlay. The paving interlayer can be wet to the touch, but no free water should be displaced when walking on the installed interlayer. All low lying areas should be checked for free standing water displacement from within the installed interlayer. The rainwater can be easily displaced using stiff bristle brooms or a mechanical broom using a slow speed-rotating broom.
- If the rainfall is light to moderate, then paving can continue until the remaining asphalt trucks are emptied. Once water starts ponding, or water is displaced while walking on the paving interlayer, the asphalt paving should be suspended immediately.
- When warm mix asphalt is placed at temperatures below 260°F, then only pave on the installed interlayer when it is dry.
- The recommended minimum final compacted hot mix asphalt overlay thickness for **Petromat** paving interlayers is 1.5 in (40 mm).
- During, or prior to paving, do not allow asphalt delivery vehicles to park on **Petromat** paving interlayers for extended periods of time. This could cause damage to the fabric and cause bleed through of the asphalt binder caused by warm truck tires.

- Turning of the paving equipment, trucks or other vehicles on **Petromat** paving interlayers should be avoided or kept to a minimum to avoid damage to the fabric. If the paving equipment is required to do sharp turns on the paving interlayer, a thin light application of loose asphalt mix should be spread on the **Petromat** paving interlayers and turning should be slow and gradual to avoid damage.
- Track pavers should be considered in place of wheel pavers when paving on an interlayer if the vertical alignment grade is 5% or greater.
- A peel and stick product should be considered for use in case there is any unexpected damage on the surface of the installed paving interlayer and should be applied prior to paving over it.
- Asphalt compaction should proceed as per convention.



7. KEY FACTORS TO ENSURE A SUCCESSFUL INSTALLATION

- The milled or existing pavement surface must be cleaned (to remove as much dust as possible, not just coarse particulate) using a blowing device (e.g. leaf blower, Billy goat blower, or cyclone blower) in addition to a mechanical broom device or a vacuum truck.
- The asphalt binder application rate should meet or exceed the application rate for the interlayer product as provided in the product technical datasheet. The asphalt binder should be sprayed without gaps, and clogged nozzles should be treated immediately as they occur.
- All overlaps should have two layers of asphalt binder applied, to ensure that there are no loose flaps of interlayer.
- The appropriate asphalt binder type should be selected at bid time based on the anticipated high ambient temperature anticipated during installation/paving. If the project start date is unknown at the bid time, then it would be better to bid the project using a PG76-XX asphalt binder to account for the slightly higher cost.
- In the case of regions with a low risk of high ambient installation temperatures, and/or staging has been modified to reduce the risks associated with high ambient temperatures, then the project can still be bid using a PG64-XX, or locally available asphalt binder, even if the ambient conditions are unknown during bid preparation.
- Sanding should also be included in the bid estimate, either by the interlayer installer, or by the paving contractor,, to allow for a light broadcast of clean dry sand (e.g. Playsand), so that construction traffic, or even local traffic can travel over the fabric without being influenced by bleed through, or even to address areas of exposed asphalt binder on the edge of the overlaps.



	Penetrating grade					AC grades	AR grades	PG grades	Polymer modified
	40								
						AC 40	AR 16000		
Asphalts for Petromat paving interlayers	50							PG 70-22 ■	SBS PG 76-22 ◆ ●
		60				AC 20	AR 8000	PG 67-22 ■	SBS PG 70-22 ◆ ●
								PG 64-22 ■	
		70	85			AC 10	AR 4000	PG 58-10 ■	
			100					PG 58-28 ■	
				120		AC 5	AR 2000		HPSPG76-10 ◆ ●
				150				PG 52-28 ■	
					200	AC 2.5	AR 1000		
					300				

Note: Please consult with Solmax if you need help in selecting the appropriate, or to confirm which asphalt binder to select.

- Polymer modified binders, in addition to the improved installation performance at higher temperatures, it will also improve the bond strength, moisture barrier, reflective crack and traffic improvement performance.

- ◆ The high temperature PG grade component (e.g. 52, 58, 64, 67, or 70) should be selected according to the likely high ambient temperatures during placement and paving. The low temperature PG grade component (e.g. -10, -22, or -28), does not impact the installation in any way.
- The use of polymer modified asphalt binders to install **Petromat** interlayers also serves as a performance enhancer in addition to the installation benefits.

Table 1: Recommended asphalt binder types for Petromat paving interlayers

Table 1 serves as a guide for liquid asphalt binders to be used when installing **Petromat** paving interlayers and is not intended to be an exact comparison of liquid asphalt rate, specific properties of individual grades for use in specific applications. The region of the country, PG binder availability, and ambient temperatures at the project can influence asphalt binder preference and selection.

The amount (gallons/square yard) of asphalt binder placed should be sufficient to:

1. Bond the fabric to the old pavement (or leveling course)
2. Saturate the fabric
3. Provide enough residual to bond the new overlay to the fabric.

Too light of an application of asphalt binder could preclude any of the above. Too heavy a asphalt binder could result in slippage problems at higher temperatures. Therefore, it is very important that the proper amount of, and temperature appropriate, asphalt binder be applied. The condition of the existing pavement, and likely paving ambient temperatures are the determining factors for the proper application rate.



Example of too light of asphalt binder

The pavement surface condition and likely installation ambient temperature:	Add to the TDS absorption value [gal/sy]
New asphalt, uncracked surface, < 90°F daily ambient temperatures)	
Gallons/Square Yard	+0.03
Liters/Square Meter	+0.14
New asphalt, uncracked surface, > 90°F daily ambient temperatures)	
Gallons/Square Yard	+0.02
Liters/Square Meter	+0.09
Milled, and/or heavily oxidized, and/or badly cracked surface, < 90°F daily ambient temperatures)	
Gallons/Square Yard	+0.05
Liters/Square Meter	+0.23
Milled, and/or heavily oxidized, and/or badly cracked surface, > 90°F daily ambient temperatures)	
Gallons/Square Yard	+0.04
Liters/Square Meter	+0.18

Example: The MPM50E has an absorption value of 0.16 gal/sy as shown on the Technical Datasheet (TDS). If it is to be installed in summer (e.g. daily afternoon temperatures will exceed 90°F in TX), for installation on a milled asphalt surface that is 15 years old, and badly cracked, the additional binder that should be added to the 0.16 gal/sy is 0.04 gal/sy, so the application rate should be 0.20gal/sy.

Note: These “Add to the Absorption Value” rates are subject to change based on the large number or influencing factors. So, these numbers can be adjusted to address any specific mitigating factor/s. Consult with Solmax for further guidance or clarification.

Table 2: Recommended additional asphalt application rates to be added to the Petromat paving interlayer absorption value based on the pavement surface condition and maximum daily temperatures during installation.

Application rates should be adjusted based on pavement conditions, (milled, irregular or porous and oxidized surfaces and cracked-distressed) pavement conditions.

8. WHAT TO INCLUDE IN YOUR BIDS

- If you are going to use a specialist installer as a sub on your project, then you only need to provide traffic accommodation, prepare the milled or existing asphalt surface, and clean the surface. Cleaning of the surface with blowing equipment is recommended in addition to mechanical sweepers or vacuum trucks. Please confirm this when you receive a quote from your installer.
- If you meet Solmax's requirements to self install, then you should consider when submitting your bid, to budget for the following:
 - Clean sand for overlaps and general broadcasting over product in warm conditions (Quantity of sand will depend on your binder selection).
 - Interlayer product cost (Area coverage, and extra for overlaps and waste – up to 5%).
 - Interlayer installation laydown equipment with clean and/or fabric wrapped brooms.
 - Asphalt binder distributor truck that can heat asphalt binder to 350°F, and can spray modified PG binders.
 - Recommended PG Asphalt binder cost based on product absorption and adjusted rate (See Table 1 and 2).
 - Blow the surface clean – Billy goat blowers, leaf blowers or cyclone blowers.
 - Knives for cutting the product.
 - A vehicle to carry the rolls on site to follow the installation device.
 - Typically a crew of 5.
 - Pneumatic tire roller for thin overlays or surface treatments.

About Solmax

Solmax is a world leader in sustainable construction solutions, for civil and environmental infrastructure. Its pioneering products separate, contain, filter, drain and reinforce essential applications in a more sustainable way – making the world a better place. The company was founded in 1981, and has grown through the acquisition of GSE, TenCate Geosynthetics and Propex. It is now the largest geosynthetics company in the world, empowered by more than 2,000 talented people. Solmax is headquartered in the province of Quebec, Canada, with subsidiaries and operations across the globe.

Uncompromised quality

Our products are manufactured to strict international quality standards. All our products are tested and verified at our dedicated and comprehensive laboratories which maintain numerous accreditations. We offer our partners a wide scope of testing according to published standards to ensure products delivered to sites meet specified quality requirements.

Let's build infrastructure better



Solmax is not a design or engineering professional and has not performed any such design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation, or specification.

Products mentioned are registered trademarks of Solmax in many countries of the world.

SOLMAX.COM