



PARKING LOT
MAINTENANCE

A PLM WHITE PAPER

HOT RUBBERIZED CRACK SEALING THE PLM PROCESS

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Introduction

CRACKS HAPPEN

Where there is a parking lot, most likely there is asphalt paving and cracks are inevitable. They result from various factors including freeze / thaw cycles, differential settlement, etc. Let them get away from you and they will cause more and more damage to the point that finally your parking lot cannot be repaired; it must be replaced. Stay ahead of them and you can help to extend the life of your parking lot.

Some cracks are manageable and others are not. The ones that are not are those that are caused by structural fatigue in the pavement – fatigue or “alligator” cracking. And, the other manageable cracks – if not managed – will likely cause accelerated structural fatigue. So, it makes good sense to properly maintain / seal the ones that you can. Otherwise, due to normal expansion and contraction of the parking lot, cracks will be created, water will seep in, water will turn to ice, and the ice will expand to 9% more than the volume of what it was in its liquid state, creating an even bigger opening for more water infiltration.

And all that water, combined with load stress, chemicals, and oxidation from the sun’s ultraviolet rays further accelerate the path to alligator cracking – a sign of a parking lot’s structural failure.

KEEP THEM SEALED

Obviously then, a key component to a good parking lot maintenance program is keeping water out of the base layers of asphalt where it is likely to cause the most damage. An effective crack sealing procedure is the key to keeping the water out and Parking Lot Maintenance, LLC (PLM) offers that well-tested effective procedure.

Initial Assessment

TYPES OF CRACKS AND OPTIONS

Since crack sealing is a preventative maintenance measure, the type of cracks is the main determining factor as to how, or even if, a crack or cracks can, or should, be properly sealed. Of course, most should be sealed, but again, as previously mentioned, if the cracks are due to structural failure, another repair / replacement method would prove most beneficial.

A lot of the crack assessment has to do with depth, width, pattern, frequency, etc. Those factors will help the PLM project manager determine the most appropriate material and methods to utilize.

One of the most effective methods, and therefore most frequently used, is Hot Rubberized Cracksealing. Compared to a cold applied sealer that typically lasts only 1–2 years, a hot rubberized cracksealer has a life cycle of 3-5 years. PLM's proven process of applying hot rubberized cracksealer is described below.

The Process

Step 1: Cleaning and Drying

To help ensure the sealant properly adheres to the surface, cracks must be clean and dry – free of dirt, dust, asphalt fragments, oils, and moisture. That is achieved by either routing and / or hot-air-lancing.

In most cases, PLM recommends routing – or cutting through - the crack, and most beneficially to a depth equal to the width of the crack. A 1:1 width to depth ratio is optimum prior to sealing. Routing helps to provide a clean and uniform surface for the sealant to adhere. In fact, studies have shown that routing combined with using a hot air lance is the most beneficial method for cleaning and drying a crack prior to sealing.

However, at minimum and actually at the best cost / benefit ratio, a hot air lance alone is utilized. With heat and compressed air, a hot air lance will deliver a jet-streamed high pressure blast of hot air that will both clean and dry the crack and nearly with the same effectiveness as if combined with routing. Heat combined with high pressure air are obviously the key ingredients.

Step 2: Sizing it Up

Routing and hot-air-lancing not only clean and dry the crack, but they also help to achieve the optimum width to depth ratio. A 1” to 1” ratio is optimum. In many cases, cracks will exceed one inch and as you can guess, since one inch is optimal, sealant performance starts to decrease as the cracks get larger. For that reason, a solid flexible filler called backer rod is pressed into large cracks to take up space and to help keep the sealant material from settling too far into the crack.

Step 3: Heating the Sealer

Since different brands of sealers will be used depending on the unique characteristics of different projects, the PLM team will apply the hot rubberized cracksealer according to the manufacturer’s installation guidelines. A manufacturer’s installation guidelines will advise application requirements on temperature, mixing, and rate of application. Heating is performed by using a double-walled heater so that the material is heated more evenly and not scorched. When applied, the properly heated rubberized sealer will likely be, depending on manufacturer, between 350-375 degrees Fahrenheit.

Step 4: Applying the Sealer

Now heated, the hot rubberized cracksealer material should be applied immediately after the cracks are cleaned and dried. To not do so would require cleaning and drying be performed again. So, the PLM team will perform cleaning, drying, applying in a just-in-time manner to ensure the crack does not sit too long and collect more dirt and moisture.

When applying, the hot rubberized cracksealer is dispensed by pump through a hose with a proper application nozzle. The nozzle enables the material to be applied inside the crack. Any excess material is removed with a squeegee type tool before the material starts to setup. This helps to prevent a surface “edge” from forming, keeping the sealant flush or just below the asphalt surface. The presence of an edge presents the risk of the sealant being chipped-up or pulled-out away from the crack such as by a snowplow.

Most hot rubberized cracksealing material will adequately cure in about 15 to 30 minutes when applied in accordance with manufacturer’s recommendations – material temperature and outside temperature. The PLM team will protect the area until the cracksealer is properly cured.

What's Next?

CONSIDER A LONG-TERM PARKING LOT MANAGEMENT PLAN (PLMP)

Now that you have a newly sealed and protected parking lot, it is time to consider a long-term Parking Lot Management Plan (PLMP). After all, just by completing the sealcoating process, the life of the parking lot has been substantially lengthened. And that life can be extended even longer.

As with any piece of equipment, structure, roof, etc. a well-thought and properly executed maintenance plan for a parking lot will continue to add life and at the same time minimize the chances of inconvenient and costly repairs.

The team at Parking Lot Maintenance has the expertise and experience to develop a cost-effective and convenient PLMP specifically tailored to fit your needs.