What to know about Rejuvenating Millings (RAP) and Preserving and Sealing Asphalt with Hawk Seale

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Millings are prone to erosion and continuous raveling. The fines track into vehicles, garages, homes and offices. Millings typically continue to ravel and deteriorate and eventually need to be replaced.

HS rejuvenates and re-bonds the millings into a smooth, durable surface that will perform and last similar to hot mix asphalt for 40 to 60% less cost depending on cost of millings.

Customers have treated millings up to 3 years after laying them to stop the continuous raveling and erosion with satisfactory results.

Rejuvenating millings is a simple process of saturating un-compacted or compacted millings with a gallon or more of the HS solution per sq/yd to soak and saturate the millings to a depth of approximately 2 or more inches.

Sprayer application requires a pump with sufficient volume to saturate or soak the millings to the point of the solution puddling fairly quickly applied in 3 coats, with total application of approximately 1 +/- gallon per sq/yd.

The simplest sprayer system - is a **12-volt 5.5 GPM "RV or Washout" diaphragm pump with "Auto Pressure Shut Off"** and a 25' to 50' non-kinking garden hose with a single "lever- controlled wand" from any local hardware. The 5.5 GPM pump can also power a small 3-foot boom setup with 4 – 2-GPM spray tips to cover a 4' width.

***The larger 7.0 GPM "RV"pump** **can be used with a single wand and/or a 5' boom with 6 - 2-GPM spray tips to cover a 6' width.**
***The larger 7- GPM pump can also be used to transfer HS concentrate into your mixing container or tank.**
(The smaller 5.5 GPM pump will not pump the thicker concentrate without being diluted.)
*** Two small booms can be connected or ran in tandem to spray a 8 to 12 foot width***

* **12-Volt RV Pumps can be found online as little as $46 to $65 at Home Depot, Amazon, or other local suppliers.**

* **5.5 and 7 GPM 12-Volt pumps and boom kits are available with free shipping.**
(See Pump Kit information and prices in the attached PDF or on our website)

* Any large container such as a garbage can or larger tank can be used to hold the mixed solution.
* Used 275-gallon caged totes work well for larger quantities and at times can be found at Ag centers for no cost.
* **Note- HS will leave a film inside tanks and hoses.**

* FOR LARGER PROJECTS –**1-or-2-inch water trash pumps or diaphragm pumps** used with larger tanks or totes as well as commercial sealer systems with larger boom setups can be used.
(See the attached Sprayer and Tool Guide for more information for pumps and booms, and sprayer tips-)

* **Garden pump up sprayers and Lawn Sprayer setups typically "DO-NOT" deliver enough volume** for efficient application.

* **Garden Sprinkle Cans** be used for very small projects by drilling 1/8th inch holes vertically in the diffuser to provide more volume and a fan like application for small projects.
Sprinkle cans will get heavy and require too much time and labor refilling to saturate the millings efficiently for most projects.

"UNCOMPACTED or COMPACTED MILLINGS" require a "total of "1 gallon +/-" per sq/yd of HS solution applied in "3 coats" to fully saturate the millings.
The goal is to saturate and soak the millings with the HS solution to rejuvenate the bitumen in the millings.

Note-*Very fine double ground millings (Pea size aggregate) will require more solution.*

* **Typical new construction depths are typically 3 to 4 inches; depths may vary from 2 to 5 inches in areas.**

* **Each coat of HS Solution is applied to the point of puddling or standing;** the first coat typically puddles or stands at a "half gallon" per sq/yd.

* **Each successive coat can be applied "as soon as the prior coat has been absorbed" and will require less solution to puddle or stand.**

* If HS Solution does NOT puddle or stand on **"un-compacted** millings", the millings may need to be lightly compacted to prevent the HS solution from going too deep. **Ideal depth for saturation is 2 to 3 inches.**

* **Incorporating** the HS solution on uncompacted millings can provide a more uniform depth.

* Areas that need more solution will absorb more; very poor-quality millings may need more solution to rejuvenate them satisfactorily.

* "AFTER" the millings have been saturated, compact or re-compact the treated millings immediately or within 2 to 4 hours.

* *Plate compactors will require more surface preparation to achieve a level surface.*

* *Saturated millings will move easier than dry millings when leveling and shaping them.*

* Compaction is very important to the re-bonding process.

* Expect approximately 30% compaction for saturated millings after compaction and about a quarter inch for previously compacted millings using a plate compactor or 5000# roller or heavier roller.

* We recommend using a vibrating plate compactor or #5,000-pound or heavier 4' ride on roller.

* The 4' and Wider Ride-on steel rollers will provide a smoother, more level finish.

* Water may be needed for steel rollers to prevent treated millings from sticking to steel rollers as the adhesives become tacky when exposed to air.

RIDE ON ROLLERS WITH VIBRATION - Vibration can be used for the initial 2 or 4 passes, then followed with non-vibration for 2 or 3 passes.

* DO NOT OVER COMPACT -**Once the compactor leaves no seams or ridges --stop compacting** and allow the treated millings to cure into a hard durable surface. **Excessive heavy vibration can cause the surface to loosen up.**

* **Millings will feel "carpet-like" when walking on them after compaction-**

* **Allow the treated millings time to** cure into a hard smooth hard durable surface - similar to concrete curing into a hard durable surface, typically in 2 to 10 days depending on temperature and humidity.

* **"DO NOT" use "heavy vibrating ride on ride compactors after initial compaction, as the vibration will damage the adhesion process.**

* **For New Projects with depths of 6 to 8 inches constructed for very heavy vehicle traffic.** We recommend construction be done in 2 layers or lifts of 3 or 4 inches with and each lift being saturated with HS and compacted

* **Extreme heat (90-plus degrees) and humidity can extend the full curing up 30 days for heavy equipment such as forklifts, skid loaders and overnight parking of heavy trucks.**

* *In very dry climates it may be necessary to wet the millings down prior to application and use a 1 gallon HS to 10 gallons water ratio to offset the rapid evaporation and dryness.*

* NOTE- Lawn rollers "ARE NOT" heavy enough for adequate compaction.

* Rubber-tired roller compactors work well on steep inclines where steel roller are unable to be used.

* Single drum skid steer rollers are not heavy enough for adequate compaction.

* Light duty trucks "ARE NOT" heavy enough for satisfactory compaction. If necessary- a loaded one-ton or larger heavy truck could be used.

* Do not add or mix other paints or additives as it can disrupt the chemistry.

* Millings are a recycled material and can contain various amounts of foreign material, quality and size of aggregate which can affect the finished appearance

* Millings have no lateral strength and the edges can "push out" under heavy load without lateral support.

* Edges should be beveled or lateral support provided by "digging in" the project, backfilling with dirt or rock, landscape blocks or timbers.

OLDER MILLINGS PROJECTS- We recommend application of HS at time of construction; However, Customers have used HS on 2- and 3-year-old compacted millings with satisfactory results to stop ongoing raveling, tracking of fines, erosion and preventing weeds and grass from growing in the millings.

* **TEMPERATURES--Ground temperature should be above 50 degrees and no chance of freezing for a minimum of 72 hours.**

Cooler Temperatures below 60 degrees can extend the "full curing" time up to 2 to 4 weeks for vehicles with differential lock, forklifts, ag tires, tandem trucks turning, and overnight parking of heavy trucks.

*** RAIN -** Millings are porous and rain water will drain down through them within a couple hours. Millings can be moist at time of application, but should not be soggy.

Avoid application prior to heavy rains expected within 4 to 6 hours after application to allow HS solution to set up enough to repel the rain.

PRESERVING & SEALING EXISTING ASPHALT- with a "ONE TIME" application of HS.
Asphalt is like a sponge, it contains 5% to 8% air voids and fissures, and needs traffic to keep the asphalt compressed. Air and moisture are the "two main" causes of asphalt deterioration- Air enters the asphalt drying it out, this allows moisture to enter the asphalt from rain, moisture also perks up into the asphalt from the ground beneath the asphalt as well.
High temperatures then steam the asphalt binders out of the asphalt in an ongoing cycle of deterioration.

HS's thin viscosity penetrates and fills the fissures and voids in the asphalt preventing air and moisture from entering the asphalt from both the top as rain and snow and also prevents moisture from the ground below from perking up into the asphalt topping further deterioration with a "one-time" application.
The first HS treated streets are now 26 years old and still in good condition.

SEALER APPLICATION--Asphalt pavement will typically absorb a total of .34 to .42 gallon of HS Solution per sq/yd depending on how porous the pavement is to fill the fissures and voids in the asphalt.

*Apply HS solution to existing Asphalt with 3 coats of solution to the point of puddling.
*Each successive coat takes less solution to puddle as the pavement is filled from the bottom up.
*Some very porous pavements may require 4 coats to fill the fissures and voids in the pavement.
*HS solution can be applied with a heavy nap roller or with a sprayer.
*Traffic can begin as soon as HS has dried enough to prevent tracking.
*Expect normal sun fading.
(Please see the attached Application Guide.)

POT HOLE PATCHING-

HS can also be used for repairing large cracks and potholes using millings or pothole patch for long lasting repair; it is easy to use and NO HEATING is required.

*Clean out the pot-hole, then apply a coat of HS Solution to the hole and 6 to 8 inches around the hole.

*Place the millings or commercial Pot-hole patch material in the hole to approximately an inch higher than the surrounding surface.

*Saturate the millings or patch with the HS solution and compact again 6 to 8 inches larger that the patch.

*Traffic can begin immediately.

FORMING CURBS AND DRAINS by creating a stiff slurry of millings and HS solution similar to mixing concrete.

(Please see the attached Application Guide.)

Clean UP -Immediately flush equipment with water, the longer it sets the harder it is to remove.
Use WD-40, Diesel fuel, or similar product to remove. HS will leave a residue.
Dawn Dish soap or Hair conditioner can also be used to remove HS.

Spills- Flush and dilute with water immediately, once diluted it will not harm shrubs or grass.
Hawk Seale will not harm pets or fish.

Shelf life- We recommend use within 6 to 9 months.
Store in shade or under cover to avoid exposure to high temperatures above 100+ degrees.

**Keep from freezing.

Visit our website for more tutorials and information at- http://hawkseale.com

Contact us at- 515-517-2288 or email us at- info@hawkseale.com

****DISCLAIMER- While we provide a proven product that has performed as represented for thousands of satisfied customers for over 16+ years, we cannot and do not offer or imply any warranty or guarantee, return, or refund due to variables beyond our control, including the quality or condition of the millings or surfaces applied to, the mixing, handling, storage, the application process, compaction, rain or moisture content, temperatures, and other factors beyond our control.**