

# HYDRO ASPHALT TECHNOLOGIES

THE FUTURE OF ROADS



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## HYDRO ASPHALT - "TOP TAR"

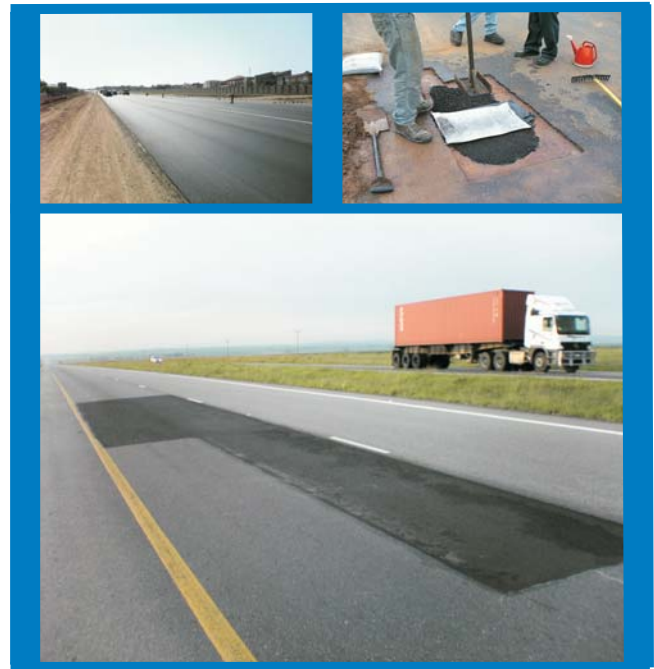
HYDRO ASPHALT TECHNOLOGIES "TOP TAR" IS A HYDRO-ASPHALT, COLD APPLICATION, QUICK SETTING, HARD WEARING, SKID RESISTANT, HEAVY-DUTY ASPHALT. TOP TAR IS USED FOR NEW ROAD BUILDING, RESURFACING EXISTING ROADS AND REPAIR / MAINTENANCE OF DILAPIDATED ROADS AND POTHOLES.

The product is a combination of stone raw materials and a secret formulation consisting mainly of bitumen emulsions. These raw materials, commonly found in most geographic locations are systematically combined to form a long lasting asphalt. The product has a superior strength making it a trafficable, hard wearing and skid resistant waterproof surface.



### TECHNICAL CHARACTERISTICS

- Does not require heat in its make-up or application.
- Can be produced and applied immediately, with no time delay.
- Does not require a conventional primer or tack coat before application. Water is used as a primer / catalyst.
- Is not sensitive to climatic conditions. Can be applied at temperatures near freezing, as well as, temperatures above 50 degrees Celsius.
- The road is open to light traffic immediately after compaction. Intersections and higher traffic flow roads open to traffic after 4 - 8 hours.
- Zero wastage of product is achieved due to cold application properties.
- There is no inherent susceptibility to lateral movement.
- Can be applied at a minimum compacted thickness of 10mm
- The product is non-hazardous and environmentally friendly.
- Ease of Manufacture, Transport and application
- Does not depend on geographic location
- Less dependant on Capital equipment
- Promotes employment and sustainable development



### APPLICATION USING LABOUR

- To a prepared base, sweep off excess debris, lightly water with a water tanker or watering-can to prime the surface
- Bags to be placed on the prepared base at 1m intervals.
- Depending on the required thickness, measured square bars are placed on either side of the lanes to ensure the thickness and width of each lane of the road.
- The bags are then opened and the product spread using rakes and spades.
- Once material is spread a T - bar is used over the material to even out the surface and ensure a smooth finish.
- Directly after completing the laying process, water is again applied until the product achieves its optimal tackyness in order to achieve the required finish.
- Compact according to the particular road specification. Pneumatic or steel rollers are highly recommended for an excellent finish. Using labour, hand-stampers are ideal.
- The wheels of the rollers should be kept wet as this aids in bringing the fines in the product to the surface, which ultimately seals and waterproofs the road surface.
- For best results, allow 4 - 8 hours before opening to traffic, depending on weather conditions or moisture content of the product.



**TECHNICAL COMPARISONS BETWEEN  
HOT ASPHALT AND HYDRO ASPHALT TECHNOLOGIES - TOP TAR**

DESCRIPTION	HOT ASPHALT	COMMENT	TOP TAR	COMMENT
Cost of Installation / Application Equipment	High	These specialized machines can run into millions of Rands.	Low	Highly mechanized installation can be used, however only rakes, shovels, watering cans, wheel-barrows, T-Bars, basic and common labour is required.
Application Methods		Machines are a prerequisite in the use of hot applications to ensure a smooth finish		Machines can be used as in a Hot application to ensure the same type of finish, however excellent finishes are obtained with hand placing methods
Cost of Maintenance of Equipment	High	Hot Asphalt requires hazardous solvents to clean equipment; this method is not only costly but shortens the life span of the equipment.	Low	Top Tar is a water-based product and only requires water to maintain and clean equipment.
Accuracy of Mix Proportions	Yes	Accurate quality requires accurate control at the plant	No	The unique design of this product can accommodate gap-graded aggregate, as well as, increased bitumen levels.
Level of Skilled Labour	High	Hot Asphalt highly specialized personnel are required	Low	Top Tar can be applied with highly specialized personnel or personnel that have only undergone a basic training course. Unskilled and female labour is ideal.
Distance to travel from the production plant	Max 300 – 400 kms	Well Covered and insulated trucks must be used.	No limit	With a tarpaulin covering the top of a truck, Top Tar can be transported anywhere and at any distance without deteriorating.
Wastage	Yes	Excess material is rejected and dumped due to heat loss creating further Environmental problems.	No	This product can be stored for long periods of time on site by covering product with either a canvas or plastic tarpaulin or bags. There is no wastage at all.
Storage	No	These products have to be applied immediately after manufacture. The window time frame is small and place pressure on contractors to utilize material before it sets.	Yes	No short time limit on the storage periods. Excellent results have been obtained after 2 years of storage in pre-packed bags. The bags must remain sealed and waterproof.
Necessity of a Prime Base Coat	Yes	Hot Asphalt cannot be applied directly onto the base course without a primer base coat being applied first.	No	Top Tar does not require a Primer Base. Being a water based product it effectively creates its own primer base when applied to a wet base course.
Temperature sensitivity at point of application.	Yes	Hot asphalt is extremely sensitive to climatic conditions and road temperature.	No	Top Tar is not at all sensitive to climatic conditions. Successful applications were carried out at near freezing point temperatures, as well as, temperatures above 50 Degree's C.
Limited Thickness Requirement for Application	Yes	Hot Asphalt is limited to a minimum thickness of 20mm for surfacing applications.	No	Top Tar can be applied at minimum thickness of 10mm, thus doubling surface coverage for rural and outlying roads with a low traffic class.
Susceptibility to Bleeding and Lateral Movement	Yes	These two problems are often an issue relating to the application of hot mix materials. These conditions result in the deterioration of the road and creation of major potholes.	No	Top Tar does not bleed and shows no inherent susceptibility to lateral movement.

## APPLICATION USING MACHINERY

- To a prepared base lightly water to settle the dust and to prime the surface
- Sweep excess water from surface.
- A conventional hot mix paving machine may be used to lay the material at the required thickness.
- Directly after completing the laying process, water is again applied until the product achieves its optimal tackyness in order to achieve the required finish.
- Compact according to the particular road specification. Pneumatic or steel rollers are highly recommended for an excellent finish.
- The wheels of the rollers should be kept wet as this aids in bringing the fines in the product to the surface, which ultimately seals and waterproofs the road surface.
- For best results, allow 4 - 8 hours before opening to traffic, depending on weather conditions or moisture content of the product.



## EMPLOYMENT, EMPOWERMENT, PRODUCTIVITY AND SUSTAINABILITY

Countries throughout the world are struggling with employment for its citizens, together with all the socio-economic problems associated to this unfortunate circumstance. The simplistic method, in both the Manufacturing and Application processes of Hydro Asphalt, has countless advantages and unlimited benefits for communities that require massive employment, social upliftment and overall improvement of general living conditions.

The intrinsic advantages of the product lends itself to improved productivity, enhanced environmental/health conditions and sustainable development. Limitless unskilled labour can be quickly trained and it is the local communities that are repairing, maintaining and building their own roads, thereby vastly improving the overall infrastructure, which in turn benefits the entire country and its citizens.

Roads are the life-line of any and every country. Unlimited funds are continuously spent on products that are inferior and are only a temporary quick-fix. Pothole repair is an ongoing problem and it is the same potholes that are being repaired all the time !! Why? Inferior 'old school' technologies ! Why repair the same pothole 4 to 20 times, with all the costs involved, but still want to compare a permanent solution with the cost of cheaper/inferior products or cumbersome hot asphalt ?

A permanent solution to this worldwide problem is now available, HYDRO ASPHALT.

## RECOMMENDED PROCEDURE FOR REPAIRING POTHOLES AND PATCHING

- Square off pothole using a pick or a spade
  - Eradicate all vegetation, remove all stones and loose debris.
  - If pothole is deeper than 30mm then fill with suitable material, leaving a maximum of 30mm in depth.
  - Use a small compactor, hand or vibrating stamper to compact the base.
  - Lightly dampen surface and edges of pothole.
  - Empty product into pothole and spread with a rake to ensure a smooth, level finish.
  - Allow for a thickness of 15-20mm above the surface of the surrounding road.
- Wet with a little water using a watering can and compact with a hand stamper or roller. Compaction brings the fines to the surface to seal and waterproof the pothole.
- Pothole may be opened to traffic immediately. If the product is applied at intersections or where vehicles are turning, allow 1 – 2 hours to set.
  - If fill material (crusher run) is not available the product may be used to fill the entire hole by applying it at a maximum of 40mm compacted to 30mm at a time. The procedure remains the same.

