

Asphalt Care

New asphalt surfaces - domestic and light use



What is asphalt?

Asphalt is a generic term for all types of coated material, including Macadams, Hot Rolled Asphalt, Stone Mastic Asphalt, and Proprietary Surfacing. They are manufactured using temperature sensitive bitumen as the binding agent. The materials containing hard or modified bitumen are manufactured at a temperature as high as 190°C (374°F). This temperature enables the aggregate to be thoroughly coated in bitumen allowing the material to be spread and properly compacted on site. The bitumen serves two purposes in the asphalt: Firstly it acts as a lubricating agent to assist compaction when the material is hot; and secondly when cold, it binds and holds the aggregate particles together. The stiffer or harder the bitumen used, the better the ultimate performance of the mixture, however it is more difficult to lay in adverse weather conditions.

Normal appearance

When asphalt is first laid the surface will have a shiny black appearance. After some weeks, and depending on use, the glossiness will reduce as the surface weathers. Within 6 months to a year the colour will lighten to a dark grey as the binder at the surface, when exposed to the sunlight, oxidises and wears. On roads this is a desirable effect as the rougher texture of the aggregate is exposed by the binder being worn away by vehicle tyres, leading to improved resistance to skidding at the surface. This wearing/weathering effect

will also be noticeable in other applications where areas are subject to regular traffic movement, for example the wheel-tracks leading to a garage, or within a regularly used turning area. The eventual colour of the surface will be significantly affected by the colour of the aggregate used in the manufacture of the material. The majority of aggregates range in colour from light to very dark grey, with others being dark green/grey, pink or even brown. For coloured asphalts the aggregate will be selected to be sympathetic to the desired colour of the material.



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Staining

Freshly laid areas may appear to be stained with brown marks when rolling has been completed. This is the result of the water used to prevent the asphalt sticking to the roller, drying out on the surface. This superficial effect will generally disappear within a few days. Drives and paths which have been laid adjacent to some types of trees or bushes may exhibit some brown staining in wet weather. This effect usually disappears in drier weather conditions and is not detrimental to the performance of the surface. In particularly shaded/damp areas, moss growth may be a problem, and should be treated with a suitable moss killer before it takes hold.

Staining from hardened cement mortar may be removed from the surface through the use of a weak proprietary acid solution. Extreme care is needed when handling this type of material, to prevent splashes to the skin and to surrounding areas. If the acid solution is allowed to remain in contact with concrete slabs, forming edges or brickwork, it may cause permanent damage. Prolonged saturation of a weathered asphalt surface with an acid solution may cause some breakdown of the aggregate in the surfacing.

How to avoid or remedy potential problems

Damage

There is a greater risk of damage to the surface of the asphalt in its early life before the surface strengthens through age hardening of the binder. The risk of disruption to the surface is increased significantly in the summer months when ambient temperatures are at their highest, and the temperature of the surfacing is likely to be even higher through solar absorption.

This damage is generally of two forms, the first may occur as a result of standing/point loads from ladders, waste skips, caravans, motor bicycle stands etc. Indentations in the surface can generally only be removed by patching the surfacing, but this in itself may be less attractive than the original damage due to the difference in appearance between the new material in the patch and the original material which may also be weathered.

The second type of damage may result from the scrubbing action of vehicle tyres. The risk of damage from tyres is greatest when using power steering in combination with either attempting to steer a stationary vehicle, or manoeuvring in a restricted area at very slow speed.

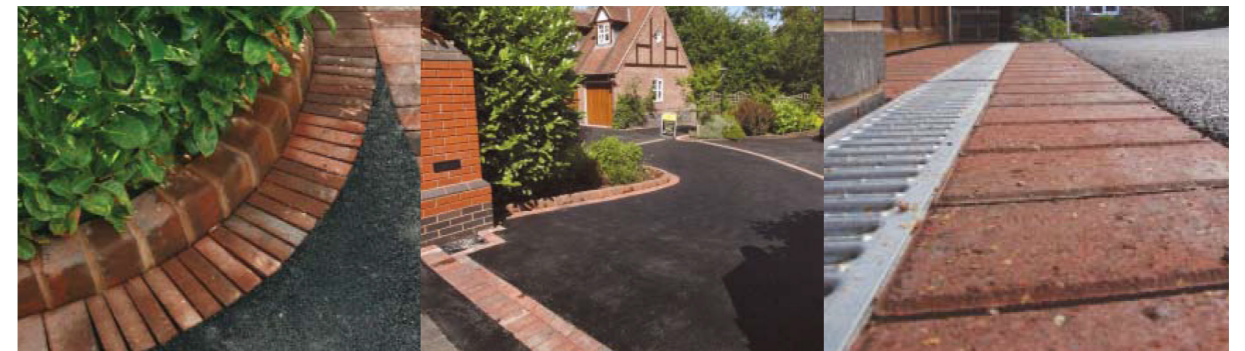
Where surface scouring has occurred, the area should be immediately trodden in to reconsolidate the loose aggregate particles that have been disrupted. However this may only be effective if the surfacing is relatively new, and the compression of the surface is carried out immediately the damage has occurred and when the surface is warm to the touch.

Contamination

The majority of asphalts, when contaminated with oil or oil derivatives, will be subject to softening. The extent of the softening and the damage to the surfacing will be dependent on a number of factors including: the type of asphalt used in the surfacing, quantity of contaminant, and more importantly the length of time the contaminant has been in contact with the bitumen.

The principle contaminants that can soften the surfacing are: Petrol, lubricating oil, gas/diesel oil, paraffin, creosote, oil based paints, turpentine and some other proprietary cleansing agents/solvents. If a spillage occurs, immediately soak up the liquid with sawdust, dry sand or absorbent paper, and remove the saturated absorbent from the surface and discard in an appropriate and safe manner. Accumulated oil droppings from a car can create soft spots in the asphalt, which if not treated, will result in the asphalt structure eventually breaking down. Brushing the area with a soft broom using a soap solution or a proprietary nonsolvent based cleaning agent will remove some of the oil from the surface, however the staining will remain.

Another type of contamination that can ruin the appearance of the surface occurs when aggregates and particularly concrete or building mortar have been in contact the surfacing. In the case of concrete or mortar, the surface should be jetted with water to flush the cement paste from the surface voids before it begins to set. In hot weather this may be only 3 hours from when the cement was mixed with water. Even after rigorous washing, a light grey area may re-appear after the surface dries due to small quantities of mortar being retained in the surface voids.



Weeds

At the edges of the surfacing, and particularly in close proximity to lawns and flower beds, weeds may grow in the dirt accumulated at the surface or push their way through from underneath. If the roots do not penetrate the surfacing, the weeds should be carefully removed and discarded. However if the roots have penetrated the surface, or the weeds are coming up from underneath, a proprietary water based total weedkiller should be used. When the weeds have died off remove the foliage, and when the surface is warm, re-consolidate the raised patch of asphalt through foot pressure. Only remove the roots if they can be extracted without disturbing the surfacing.

After Care

As in all situations prevention is better than the cure. Treat all asphalt surfaces with respect, particularly when they are new and the surface is warm.

Be aware of the damage that may be caused to the surface and take the appropriate preventive measures.

The most frequent causes of damage to newly laid surfaces are:

- 1 Tyre damage from stationary or slow moving vehicles. When pulling away, apply the steering when the vehicle is moving and not when stationary. Take care when making slow tight turns.
- 2 Point loading from heavy objects. Protect the surface with boards when ladders, skips, jacks, motor cycle or caravan props or other standing loads are in contact with the surface.
- 3 Soiling from other construction materials. Place aggregates, concrete and any other dirty/heavy items on boarding and/or impermeable sheeting to protect the surface.
- 4 Contamination by lubricating or fuel oils.

Due to the dark black colouration and shiny appearance of a newly laid surface, oil contamination may not be so immediately noticeable and if left untreated will damage the surface. If carrying out vehicle maintenance ensure the

surface is protected using boards and impermeable sheeting removing any spillages as described under the section titled Contamination.

Remember footpaths, house drives and domestic car parking areas have usually been designed to take the weight of cars and may suffer from structural as well as surface damage if trafficked by heavy vehicles.

In extremely hot sunny weather, surface temperatures of newly laid material can readily exceed 50°C (122°F), and particular care is required to reduce the risk of surface marking and damage.

If surfaces become sticky and soften, dousing with cold water or the use of boarding will reduce the risk of damage from standing loads or the scrubbing action of tyres.

The contractor

As with any project involving construction materials, expertise is required to ensure the final surfacing is durable, looks good and performs well under use. It is therefore essential that asphalt mixtures are laid by professionals using appropriate equipment that is designed for the job. For large areas a paving machine will be used, however for the smaller areas, asphalt can be successfully laid by hand. In both cases the key to performance is for the contractor to use an appropriately heavy roller on both the underlayer and the laid asphalt and to achieve full compaction before the asphalt cools and becomes unworkable. It is therefore recommended that a suitable contractor should be selected on the basis of either proven success on previous contracts and/or that the contractor is well known and possibly the contracting arm of a major asphalt/aggregates supply company.

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