Colouring Asphalt

Procter Johnson has a wide experience using our pigments to create coloured asphalts and macadams. Red is the most popular followed by green, whereas other colours require a clear binder system. Using pigments in conjunction with a clear binder such as Shell Mexphalte C, a wide spectrum of shades become possible.

Red macadam outside Buckingham Palace, London

ASPHALT AND COATED MACADAM

Dosage rates vary from 2– 7% on the total weight of coated macadam, with typical levels for most applications lying between 2.5% and 5%. Manufacturers in the UK generally offer coloured wearing courses in two grades, standard and premium.

The pigment should be introduced into the mixer during or immediately after the bitumen has been added. If the pigment is added before the bitumen, it can be absorbed by the aggregate and filler, which can result in poor colour generation.

There are several factors that affect the colour and consistency of the asphalt.

PIGMENT TYPE

Procter Johnson pigments are especially suitable as they are lightfast and weather stable. Many other pigments don't have the tint strength or heat stability required for colouring asphalts.

BITUMEN TYPE

Bitumen is manufactured from crude oils, which can have many different physical and chemical properties. Physically they vary from viscous black liquids to free-flowing straw coloured liquids. Chemically they may be predominantly paraffinic, naphthenic or aromatic, with combinations of the first two being common. The shade of the bitumen will be affected depending on the source and type of crude oil, which will ultimately affect the colour of the asphalt.

AGGREGATE GRADING

The aggregate size and filler content affects the colour because this can alter the surface area that the pigment is required to wet out. Generally, the smaller the surface area, the better the colour intensity.

MIXING TIME

To achieve a consistent colour, the minimum mixing time should be 45 seconds. When using polymer encapsulated pigments (PEP) such as Colorfalt®, mixing times may need to be increased.

MIXING TEMPERATURE

In general, powder pigments, are very forgiving and can be mixed at temperatures ranging from 130 - 180°c depending on the product being made. However, when using PEP, it is recommended that a minimum mixing temperature of 160°c is used.

CLEAR BINDER ASPHALT

Dosage rates for use in clear binder are much lower than that of conventional bitumen. Pigments are usually added at 1-3% by weight of total mix design. The pigment should be introduced into the mixer with the binder or just afterwards for the same reasons given above.

Pigments can be complemented with a wide range of naturally occurring aggregates, from browns and buffs of gravels, through to the whites and creams of limestones and spas, to the darker greys of some basalts and the pinks, reds and greens of some granites.

It should be borne in mind that any lightly-coloured surface finish can be disfigured by stains, such as those caused by the occasional oil droppings of parked vehicles.

The majority of our asphalt grades are sold in pre-weighed low melting PE bags which allow the pigment to be added directly into the mixer. Big Bags are often used when automated dosing equipment is installed.

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