



Road Safety & Allied Division



The Mark of Excellence!

YOUR SAFETY, OUR PRIORITY!



INTRODUCTION

Road marking may be defined as markings embedded in, or applied to, or attached to the road surface. Road markings must regulate, warn or guide the traffic and delineate the limits of the roadway or portions of the traveled way. Road marking is one of the most important factors in maintaining a high level of safety for road users. Road marking are low cost engineering improvements that create a safer environment and assist in achieving the road engineers desire for "A Forgiving Highway". Centre lines and edge lines improve road safety by reducing single vehicle accidents and head on collision. Road markings must supply information without diverting the existing attention. In order to fulfill its task.



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The purpose of road markings is to improve road safety. Road markings are necessary to guide the road user, and this guidance becomes more important during night driving in unfavourable conditions, such as heavy rain and fog. American studies by Jackson (1981) show that a reflective edge line reduces collisions by more than 10% and a reflective centre line reduce the collisions by another 10%. These two important lines resulted in a total reduction of 20% in collisions. The lowest reduction in collisions was recorded in Kansas (14%) and the highest in California (64%). A reduction in fatalities between 39% in Kansas and 78% in Michigan was reported. Research by Jackson (1981) shows a 18 to 20% reduction in collisions where effective edge lines were painted on roads with existing centre lines. An even greater reduction in collisions was observed during night time. The reductions in collisions were between 37% and 42%. Although no figure for reduction of collisions due to effective road marking was found in Pakistan, the American figure for mentioned above give some indication of the importance of the lines



THERMOPLASTIC ROAD MARKING MATERIAL COMPLYING TO BS 3262 : PART 1 : 1989

GENERAL DESCRIPTION

Hot applied road marking paint consists of a light colored aggregate, pigment, extender, and glass beads, bound together with a thermoplastic resin, plasticized as necessary. When in molten state after heating, it is applied hot to the road surfaces, using screed, extrusion, or sprayed application. The material is **ENVIROMENTLY FRIENDLY** consisting of 100% solids and no solvents.

COMPOSITION

The proportions of constituents of the road marking material are:

Binder (Hydrocarbon resin)	20 ± 2 % by mass
Solid glass beads	20 % by mass min.
Aggregate, pigment, extender, & glass beads	80 ± 2 % by mass

AGGREGATE

The aggregate consists of light colored silica sand, calcite, quartz, calcined flint or other approved aggregate.

PIGMENT

The white pigment is TITANIUM DIOXIDE (anatase or rutile) complying with BS 1851 and its content is such that to give a minimum luminance factor of 70%.

Sufficiently heat stable ORGANIC PIGMENT is the yellow pigment used. Its content depends on the color required and not to exceed 5% by mass.



EXTENDER

The extender is calcium carbonate prepared from natural chalk.

BINDER

The binder is plasticized synthetic resin, plasticized natural resins or rosins. The viscosity and wetting properties of the binder at the application temperature give a composition that can be applied satisfactorily.

PERFORMANCE

<u>Properties</u>	<u>White</u>	<u>Yellow</u>
Softening point (°C)	≥ 95	≥ 95
Luminance factor	≥ 70	≥ 60
Heat stability	> 65	> 65
Flow resistance	≤ 25	≤ 25
Skid resistance	≥ 50 SRT units	≥ 45 SRT units
Flash point (°C)	260	260
Density	2.0±0.1	2.0±0.1

APPLICATION

SURFACE PREPERATION

The road surface must be dry and free from dust, dirt, mud, grease, salt and any other contaminants.

The temperature of the road surface must be below 60°C and above 5°C.

Road markings applied to new or abnormally hot bituminous surfaces can become discolored or obliterated by the transfer of bitumen by vehicle tires.



Material must be applied at least 7 days after newly applied Asphalt surfaces and may vary depending on bitumen content in Asphalt.

The material can be laid over existing thermoplastic markings if the original markings are sound. If not, old thermoplastic has to be removed before applying new material.

On badly worn bituminous and concrete, road surface must be treated with primer or other approved material prior to application of thermoplastic.

MATERIAL APPLICATION

Material has to be placed into a pre-heater fitted with mechanical stirrer and thermometer.

When the material has been heated to its application temperature, around 200°C, carefully transfer to the application equipment and proceed with use.

Maximum safe heating temperature of 220°C should not be exceeded.

Material may be applied by screed, extrusion and spray methods using either machine or hand screed equipment to the following thicknesses:

Screed lines	1.5 - 5.0 mm
Sprayed lines (Other than yellow)	≥ 1.5 mm
Sprayed yellow edge lines	≥ 0.8 mm
Extruded lines	1.5 - 3.5 mm
Coverage	3 kg/m ² at 1.5 mm



Drop on glass beads, confirming to BS 6088 Class B, may be applied to improve road marking visibility at a rate of $450 \pm 50 \text{ g/m}^2$.

Material may be re-heated gradually, to avoid scorching, and used after solidifying providing the total time in molten state has not exceeded 6 hours.

Newly applied road markings must be coned, or blocked by any other means of traffic safety, and should not be subject to any traffic for minimum of 12 hours to achieve best results.

AFTERCARE

Under normal traffic conditions with temperature within normal range and periodic rainfall, thermoplastic road marking material is self-cleaned and requires no ongoing maintenance.

PACKING

The material is supplied in powder/granule form packed in approximately 25kg plastic sacks.

STORAGE

Material should be stored under cover in dry conditions. Under normal circumstances, the material has shelf life of at least 1 year.



TECHNICAL DATA SHEET

HAPPILAC CR ROAD LINER PAINT

Description

A blend of modified alkyd and chlorinated rubber resin based paint with a higher level of durability than alkyd roadmarking paints. Applied by spray. Available: 20 Litre, 3.64 Litre.

Typical Uses

- For application to road surfaces with a relatively high vehicle traffic count.
- For road marking where good glass bead holding is required.

Properties

Resin System	Modified alkyd / Chlorinated rubber mixture
Pigmentation	Titanium Dioxide, Chrome Yellow, Iron Oxide
Finish	Matt
Colour	White, Yellow and Black
Dilution Rate	Use as supplied Can be thinned up to 5 % with Happilac Road Liner Thinners(fast dry)
Weight Solids	72% ± 2.0%
Resin Solids	42% ± 2.0%
Pigment Solids	50% ± 2.0%
Theoretical Coverage	3.0 – 4.0m ² /litre @ 100 - 150 µm DFT
Dry Time @ 25°C	< 5 Minutes Rapid Dry
Number of Coats	1 (spray)
Clean Up	Happilac Road Liner Thinner

Performance / Limitations

- Excellent bleed resistance on bituminous surfaces.
- Excellent adhesion to concrete surfaces.
- NOT recommended for use over damp/wet surfaces. Ensure temperature is 10°C or over.



HAPPILAC CR ROAD LINER PAINT

Preparation

- Surfaces must be clean, dry, free from oil, grease, lichen, etc before application.
- Can be applied directly to bare, unprimed or unsealed surfaces.

Application

- Stir thoroughly before use.
- Can be applied by brush, or spray.
- Because of the fast drying nature of the standard Chlorinated Rubber road marking paint it is recommended to be spray applied.
- For ease of application the product can be thinned up to 5% v/v Happilac Road Liner Thinner when spraying.

General

Health & Safety

- For detailed information refer to the Material Safety Data Sheet and label for this product.
- Provide adequate ventilation during use.
- Avoid breathing the vapour.
- Wear eye protection when handling as splashes to the eye may cause irritation.
- If swallowed or eyes become contaminated, seek immediate medical attention.

- Product is FLAMMABLE.
- DO NOT smoke in work area.
- Handle with care.

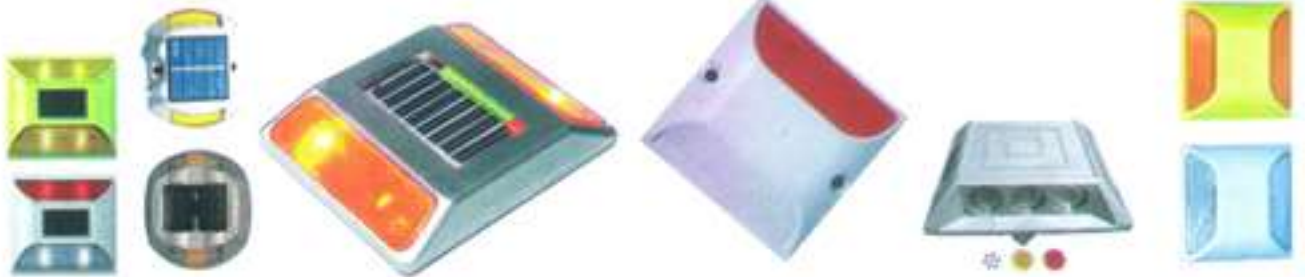


GANTRIES

SAFETY SIGNS



ROAD STUDS & CAT EYES



TRAFFIC CONES & BARRIERS

