

QMS
QUALITY MARKING SERVICES LTD

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HyperLine™

the way to a brighter future



QMS HyperLine™

The common component used for the maintenance of longitudinal road markings throughout the United Kingdom since the late 1960's has predominantly been molten thermoplastic which is spray applied under pressure.

In 2001, following the introduction of BSEN 1436, Quality Marking Services started developing an alternative, truly sustainable line marking system using a cold applied, solvent free, acrylic resin containing no plastic to produce high performance road markings with a low carbon footprint.

The development and successful trials resulted in a new road marking maintenance product achieving outstanding performance, fast application and extremely environmentally friendly. Cold applied, with minimal material build-up, the solution is **QMS HyperLine™**.

The unique formulation comprises of solvent free acrylic resin, containing no plastic, plus a double application of glass beads, manufactured from recycled glass and otherwise destined for landfill. This combination makes **QMS HyperLine™** an extremely environmentally sustainable solution significantly reducing harmful greenhouse gas emissions and waterborne pollutants.

The glass beads are formulated with a unique coating specifically designed to work in tandem with the acrylic resin to guarantee perfect adhesion. This solid bead embedment results in road markings with extremely high levels of retro-reflectivity.

The sustainable longevity delivers instant improvements to night-time visibility of the line marking increasing safety for the road user.

Fast application speeds of 10km/hr produce exceptionally high shift outputs reducing costly traffic management and cutting disruption for the motorist.

In addition, the problem of surface damage and ensuing highways maintenance works, caused by the removal of existing markings due to the thickness of traditional thermoplastic replacement, is eliminated as line renewal utilizing **QMS HyperLine™** causes minimal material build-up.

QMS HyperLine™ is cold applied completely removing the risk of operatives being burnt by hot product, equipment or plant.

Atmospheric pollution, produced by waste gases from plant exhaust emissions during the heating process to make thermoplastics molten and also due to the release of vaporized plastic, is entirely eliminated.

Specialist plant developed for the application of **QMS HyperLine™** is electronically controlled to ensure speed consistency and installs at an average 10km/hr.





Achieving outputs of 30,000lm per shift this speed of application results in up to 75% reduction in traffic management costs, increased safety by less time spent on the network and benefiting motorists by cutting delays due to maintenance.

Retro-reflectivity results achieved in excess of 500 mcd/m²/lux on application and over 200 mcd/m²/lux after 24 months. This is an increase in performance of around 200% in comparison to conventional line maintenance systems and guarantees to exceed TD26/17 minimum requirements of 150 mcd/m²/lux after two years.

With literally millions of metres applied since its introduction in 2006 to the UK and Irish highway networks there have been no reported performance failures.

The high level of sustainable retro-reflectivity provides a safer road for the motorist in dark conditions whilst the speed of application and increased output reduces time spent on the highway carrying out maintenance work by over 70%. This minimises disruption to the road user and reduces the risk of accidents during essential works.

QMS HyperLine™ has successfully been installed throughout the United Kingdom on many DBFO contracts, by local authorities and throughout the Highways England network as a subcontractor to Tier Ones. The system has also been extensively utilised throughout the Republic of Ireland with impressive results.

As a business, our goal when developing an alternative road marking maintenance system, was to consider total life environmental impact and sustainability.

The base component of **QMS HyperLine™** is solvent free acrylic resin, which produces zero VOC's and contains no plastic. The two sizes of glass beads used in the system are sourced from recycled glass otherwise destined for landfill.

Installation plant utilizes the latest technology to minimise diesel emissions and of course there is no need to burn fossil fuel to heat the product as with thermoplastic.

With the continual development of the manufacture of materials and delivery of the system, further reductions in CO₂ have been possible. By collaborating with our supply chain partners, we are now able to advise on various environmental impacts through the use of **QMS HyperLine™**.

These vital components result in a system that now delivers 741g of CO₂ per m² of road marking - a further reduction to the previously advertised 76% and we are confident in offering savings in the region of 81% compared to sprayed thermoplastic.

The following calculations are based on a “functional unit” and “per m²” of road marking applied.

A “functional unit” is calculated on a 1km section of three-lane motorway. This calculation is based on two continuous edge-lines at 200mm width and two-lanes of broken lane-lines using line module 1005.1 (2m line with 7m gap) at 150mm line width. This provides a total area of 467m² per functional unit.

During the environmental evaluation, a total of 19 environmental impact indicators were used. To provide greater clarity, and to make the results easier to read, the top 6 indicators were selected.

This choice was based on:

- The magnitude of the product's contribution to environmental impacts
- Current environmental concerns

“ With literally millions of metres applied since the introduction of **QMS HyperLine™** to the UK and Irish highway networks in 2006 there have been no reported performance failures. ”





The 6 indicators selected were:

■ Greenhouse gas emissions – CO₂

The green house effect is when the earth's atmosphere becomes thick with gases and substances, trapping the sun's radiation. The proportion of harmful gases due to human activity, especially CO₂ emissions, is on the increase. Climate change is the direct consequence of this phenomenon.

■ Volatile organic compound emissions

These chemical substances are partly responsible for the production of ozone in the lower atmosphere where it adversely affects human health. The solvent free acrylic resin contains no plastic and miniscule amounts of VOC's harmful to health and the environment.

■ Eutrophication of the aquatic environment (Asphyxia of aquatic fauna)

Eutrophication is a phenomenon resulting from the accumulation of nutrients, especially nitrates and phosphates in the aquatic environment.

■ Energy consumption

The figures detailed in the following table represent the sum of various energy sources available in nature that are used such as oil, coal, uranium and renewable energies (e.g. wood). Raw material production is the most energy intensive stage.

■ Potential toxicity

This indicates the theoretical capacity of humans and animals to absorb substances released into the environment during the various stages of the production and installation process. Most of the pollutants are emitted during material transportation, packaging and application.

■ Generation of waste

For the most part, this figure relates to industrial waste generated during the packaging stage and consists of steel drums soiled by residue paint.



Safer, fast application, environmentally sustainable with durable, high performance and total lifetime cost savings



marks *the way to a brighter & greener future in road markings.*



CRITERIA FOR WHITE ROAD MARKINGS ISO BS EN 1436:2018			
Retro-reflection (dry)		Retro-reflection (wet)	
Class	RI Value	Class	Rw Value
RO	Nil	Rw0	Nil
R2	100 mcd	Rw1	25 mcd
R3	150 mcd	Rw2	35 mcd
R4	200 mcd	Rw3	50 mcd
R5	300 mcd	Rw4	75 mcd
TD26/17 specification for unlit roads in dry conditions		TD26/17 specification for unlit roads in wet conditions (where required)	





The environmental impact indicators detailed below allow for the manufacture of the material, delivery and installation using the current available methods.

	Per Functional Unit	Per m ²
Greenhouse Gas Emissions – CO ₂	31.382kg	0.0672kg
Volatile Organic Compounds – VOC's	7.470kg	0.016kg
Eutrophication of the Aquatic Environment	0.014kg	0.00003kg
Energy Consumption	9.34GJ	0.02GJ
Potential Toxicity	0.7kg	0.0015kg
Generation of Waste	116.75kg	0.250kg

QMS HyperLine™ utilises glass beads within the finished product which are manufactured from recycled glass otherwise destined for landfill. The CO₂ calculation for the production of the glass beads includes the collection of waste glass, manufacture and delivery of the product. No additional CO₂ is produced during the installation process as this is carried out in conjunction with the resin application.

	Per Functional Unit	Per m ²
Glass Beads	314.758kg	0.674kg

Combining both the resin and glass beads, we calculate the following CO₂ impact by using **QMS HyperLine™** compared to sprayed thermoplastic.

	Per Functional Unit	Per m ²
QMS HyperLine™	346.14kg	0.741kg
Sprayed Thermoplastic	1,830.65kg	3.920kg

This brochure has been printed on recycled paper, using environmentally friendly inks.

81% Reduction in CO₂ emissions



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