



KADCAM ENTERPRISES LIMITED

Together with F.WYSSBROD AG
Present
:

**AN OUTSTANDING IMPROVMENT IN TRAFFIC
SAEFTY ON WET ROADS BY NIGHT
THANKS TO STRUCTURE ROAD-MARKINGS**



Patent No. 678 955 and No. 681 904-7

FUTURE PROOF ROAD MARKING SYSTEMS

The increased accident rate at night, coupled with growing traffic movements and the current environmental limitations of existing road marking systems, give rise to the need to analyze the situation and to look for solutions.

From this analysis it can be seen that the current situation at night, especially with rain and the existing road markings systems, can lead to accidents.

Any betterment in this situation must surely rely on proven environmentally friendly, Future Proof Road Marking Systems.

1 “MAINTENANCE TYPE” ROAD MARKINGS

A large proportion of road markings are still applied using solvent-based road marking paints. Those products release hydro carbons into the environment. In certain countries there is already a hydro carbon tax on solvents to discourage its usage (Kyoto agreement).

An added disadvantage of solvent-based paint is the short life span of these products on the road. This requires additional remarking and restrictions on traffic flow, and can lead to more road accidents. Even with the use of water-based road-marking paints, there is still the use of solvents and many of the roads have to still be remarked frequently because of the loss of the retro reflectivity.

Often visibility in rain is almost nonexistent by day or night.

2. “LONGLIFE” ROAD MARKINGS

Long-life markings in thermo plastic have the disadvantage of losing their skid resistance very quickly, and have very low SRT factors.

(There is also the need for heating with the creation of carbon monoxide and carbon dioxide). The visibility by night is also sometimes very limited, while yellow lines can appear to be white. On wet nights, markings can become barely visible.



The Structure Road Marking stops in the middle of the picture at the State-border. The indistinguishable continuing lines are applied with paint.

ADVANTAGES OF STRUCTURE ROADMARKINGS

1. SUPERB NIGHT VISIBILITY IN RAIN



Water drains freely from the top of the Structure Road-Marking System and the glass beads embedded in the structured material are clear to reflect the lights of the approaching vehicle.

This overcomes the main disadvantage of flat applied road marking products. At night when there is a fine water-film over flat applied road markings, the line delineation can disappear causing the drivers to lose their guide lines with drastically increased possibilities of accidents.

When centerlines, edge-lines and yellow road markings are applied in the Structure Road-Marking System, visibility to the human eye is increased dramatically.

2. PERMANENT NIGHT VISIBILITY FOR YEARS

Thanks to the 3D effect of the Structure Road-Marking, the glass-beads are protected from wear, thus they keep their high retro-reflectivity for many years.

3. GOOD AND PERMANENT SKID RESISTANCE OF THE MARKING

Unlike flat road-markings which may have a high skid-resistance when new but have a reasonable short live span due to wear of the crushed quartz, Structure Road-Markings keep their high skid resistance, even in wet conditions. Water also runs freely off the markings, further reducing the risk of aqua planning.

The Structure Road-Marking is also capable of withstanding snow-clearing and deicing chemicals with minimal damage.

IMPORTANT FACTS ABOUT STRUCTURE ROAD MARKINGS

- The Structure Road-Marking is applied in a unique process, which creates the structured effect.
- Patents No. 678 955 and No. 681 904-7 are held by F. Wyssbrod AG
- The 2 pot cold plastic marking material is extremely hardwearing and stable.
- **For the first time in the road-marking history there is now a material and application system which fills the previously mutually exclusive requirements of traffic safety, economy and environmental requirements.**
- Structure Road-Markings have been proven in laboratory and field tests, and also on roads. This has shown some of the markings to still be performing after 10 years. Ongoing tests and applications are indicating that this material and the application system will replace thermoplastics as a preferred road-marking material.

ECONOMY

- **Compared to conventional road-markings structure markings last three to four times as long**
- **Savings of material**
Structure markings save up to 60% in material usage, compared with a solid line, due to the unique application system.
- **Economical refreshing of the lines**
Structure Road-Markings can double the life of an existing 2 pot permanent road-marking (if applied within the appropriate time frame). The structure marking can also be refreshed (if necessary) with conventional road-marking paints (excluding thermoplastic).

ENVIROMENTLY FRIENDLY

- Long life markings reduce the obstruction of traffic flow due to road-markings closures, and consequentially reducing accident risks to road-marking crews.
- Structure cold-plastic is applied without the need for heating (reducing cost of energy, reducing CO2 output, and eliminating accidental burns and fires).
Less processing means reduced noise for nighttime operations

- A most compelling argument is the ZERO solvent emission of the 2 pot material that will become an economic saving should the introduction of solvent levies come in the future (Kyoto agreement).

After Years of research and development F.Wyssbroad is now able to offer a road-marking system meeting the following criteria:

- Lifetime of about five years
- Night reflectivity around five years
- Excellent night-visibility in rain
- High skid-resistance
- Environmentally friendly product without solvents
- Low noise emission application
- Resistant against snow ploughs and deicing chemicals
- Consistent color grades (will not fade)
- Materials applicable in low temperatures
- Short drying times
- Economical cost factor
- Applicable on grade 3 Asphalt
- Applicable to porous self-draining asphalt
- No water collection along the lines (reduces aquaplaning)
- The marking can easy be refreshed with conventional road marking paints (solvent, or water based paint except thermoplastic materials)
- The success in Switzerland of the 2- component acrylic resin, together with our patented application system, has proven the value of this technology. Tests have also shown that the Structure Road-Marking System, is the only system which measures up to the stringent European demands for “Night Visibility In Rain” without problem. Countries such as Germany and England, who have previously been large users of thermoplastic, have now started to change to our Structure Road-Marking System.



This picture shows an application-rate of 2 kg/m²

APPLICATION AREAS FOR STRUCTURE ROAD-MARKINGS

- **Center and edge lines**
Better night-visibility in rain (can replace the use of RRPM's). Fewer traffic obstructions through remarking and RRPM maintenance. Increases road-safety. (Long-life product means extended lifecycle)
- **Bus and Cycle Lanes**
Better night visibility of bus and cycle lanes in rain, with higher skid resistance
- **Pedestrian crossings**
Higher slip resistance, better day, night and wet visibility. Easily renovate existing pedestrian crossings which are worn and slippery (improved night pedestrian safety with high retro-reflectivity) .Long life product means no remarking for years.
- **Open-graded asphalt**
Water can flow through the Structure Road-Marking. Reduces aquaplaning and skidding, with added economical application.
- **Marginal surfaces and Cobble Stones**
Structure Road-Marking can also be applied to uneven and rough surfaces. In conjunction with primer the material gets a reasonable lifespan even on coble stones (still, with economical application)
- **Markings in Tunnels**
The Structure Road-Marking will protrude out of the usual dust and dirt blankets and keep reflecting the driving lights.
- **Guide lines for visibility impaired and blind people**
People can feel the structure with their feet.
- **Airfield markings**
Improved day and night visibility in rain. Long life material reduces remarking costs and disturbances of air-traffic
- **Application over Thermoplastics**
The structure marking may or may not stick to thermoplastic materials. Binding tests may be required (removal of thermoplastic beforehand is recommended).



Close-up of Structure Marking

RECOMMENDATION FOR OPTIMAL TRAFFIC SAEFTY ENVIROMENT AND LONG TERM COST BENEFITS

All the lifetimes are approximates. They may vary depending on proper application.

Center and edge-lines on motorways and open roads

New Seals	Wyssbrod-Structure-marking Lifetime: 5-8 Years	2.0 kg/m²
Reactivating Of the Structure-marking	2 pot cold spray plastic water-based paint Lifetime: 2-3 Years	0.7 kg/m² 0.5 kg/m ²
Maintenance markings:	Wyssbrod-Structure-marking Lifetime: 5-8 Years	1.5 kg/m²
Reactivating Of the Structure-marking	2 pot cold spray plastic water-based paint Lifetime: 2-3 Years	0.7 kg/m² 0.5 kg/m ²

Center and edge-lines in Cities or Towns

New Seals	Conventional 2 pot cold spray plastic Lifetime: 5 –10 Years	4.0 kg/m²
Reactivating	2 pot cold spray plastic water based paint Lifetime: 1-2 Years	0.7 kg/m² 0.5 kg/m ²

Pedestrian crossings

New Seals	Wyssbrod structure marking Lifetime: 5 –8 Years	3.5 kg/m²
Reactivating Of the structure marking	2 pot cold spray plastic water-based paint Lifetime: 1-2 Years	0.8 kg/m² 0.5 kg/m ²

Other City markings (parking lots arrows etc)

New Seals	Conventional 2 pot cold spray plastic Lifetime: 5 –10 Years	4.0 kg/m²
Reactivating Of the structure marking	2 pot cold spray plastic Lifetime: 1-2 Years	0.7 kg/m²

Technical Information

- • **Material:**
Methacrylath-resin combination 2-pot cold plastic
- • **Properties:**
The Structure marking stays elastic, is form-stable light-, UV-and wetter-resistant. Stable against alkaloids on concrete roads and deicing chemicals. Hard wearing, slip-resistant and high adhesion to surfaces. Extremely good night-visibility in rain due to the embedded glass beads.
- • **Application:**
The material is applied by way of purpose built machines from F.WYSSBROD AG, or machines under license by KADCAM ENTERPRISES LIMITED. After mixing the 2-pot components, the material it is applied as the characteristic structure on to the roads.
The application system does not need preparation time and no heat energy for heating of the material is required.
Drying time at 20 deg C is approximately 15 minutes.
- • **Consumption:**
Depending on application requirements 1 to 3 kg/m²
- • **Application speed:**
2 to 4 km/h
- • **References:**
F.Wyssbrod Ag has had experience with 2-pot cold-plastics for road-marking for over 30 years, and experience with Structure Road-Marking for more the 17 years.





Manufacturer of the best road marking equipment

When only the best will do!

Mail Address
18 Phillip Avenue

Titirangi
Auckland 1007

Workshop
Unit L 4
Culperry Rd
Glendene
Auckland 1008

NEW ZEALAND

Phone: +64 (09) 813 6603
Phone mob: +64 (021) 977 898
Fax: +64 (09) 818 2859
Email: kadcam@xtra.co.nz

www.kadcamenterprises.com