



MeltMark[®]

Preformed thermoplastic road marking

APPLICATION INSTRUCTIONS

(Standard application on asphalt)



PRODUCTION AND SALES OF ROAD MARKING PRODUCTS

This product has been manufactured under the controls established by a Bureau Veritas Certification approved management system that conforms with ISO 9001:2015 and ISO 14001:2015. Bureau Veritas Certification Certificate Number EST84616A and EST84616B

MeltMark[®] MeltLine[™] MeltPaint[™] AcryRoad[™]

PRODUCT DESCRIPTION

MeltMark® is a preformed thermoplastic road marking material for outdoor use. Easy to apply, durable and cost effective for markings on roads, parking lots, harbors, industry areas etc. To apply the product you need following equipment: Power blower or broom, LPG bottle/ propane torch and chalk line. MeltMark® is delivered as ready cut lines, rolls, arrows, shark teeth, bicycles, pictograms, numbers, logos etc. Thicknesses 2.3 or 3 mm including drop-on glass beads (+0,4/-0,3 mm). Colors: White and more than 20 standard colors. Material is delivered with a surface treatment of drop-on glass beads and friction aggregate. Standard version of MeltMark® is designed for Nordic climate conditions with both hot summer and cold winter. Standard MeltMark® is formulated with special elastomers to withstand studded tires and snow clearing. For all year hot climate with little rain we recommend MeltMark® "Tropical".

APPLICATION

MeltMark® should be applied on quality asphalt. Application time period is during "normal road marking season" and when weather and road conditions are appropriate. Under all conditions surfaces must be dry and cleaned from dirt, grease, oil, sand, salt and dust particles. Never apply on surfaces that hold moisture or when 24 h average temperature is below +5°C. Normal ambient temperature during application is 10-30°C. New asphalt: Delay application until approx. 3 weeks after asphalt was freshly put down. Aged asphalt: Poor bonding may be an issue with aged and worn asphalt surfaces. Apply one-component MeltMark® PRIMER. Loose thermoplastic and other non-thermoplastic marking materials needs to be removed completely with a scarifier. Old thermoplastic: Always remove the oxidized (powdery) layer with a scarifier! **General application instructions on asphalt:** 1) Clean the surface with a power blower or broom 2) Dry and activate the surface with a propane torch if needed also apply one component MeltMark® PRIMER and let dry completely before next step (drying time normally 10-20 minutes).



3) Position the MeltMark® with beaded side up. 4) MeltMark® is melted on to the surface using a heavy duty propane torch and minimum 20 kg LPG bottle. Keep the propane torch moving at a distance of 10 to 30 cm. Distribute heat evenly until the MeltMark® material boils and reaches ~200°C. Make sure the material completely melts and anchor itself to the asphalt surface structure. Colored material may melt and flow slower compared to white material and needs more time in combination with less intense heating to fully bond. All areas of the marking must receive equal amount of heat 5) Apply extra drop on beads and friction aggregate in melted state 6) Let the material cool to ambient temperature before exposure to traffic.



7) Inspect bonding with chisel and hammer. If correctly applied parts of the asphalt surface will break off together with the MeltMark®. If not proper bonding repeat heating process or consider if surface preparation has to be improved.



HEAT MUST BE DISTRIBUTED EVENLY. MELTMARK MUST MELT AND HEAT MUST ALSO REACH THE UNDERLYING SURFACE.

FAILED APPLICATION
NB! NOTICE MOISTURE TRAPPED UNDER THE MARKING.

GOOD APPLICATION.
ASPHALT AGGREGATE BONDED TO THE UNDERSIDE.

NB! Concrete and granite stone: Two Component Primer is a must to obtain a bond to concrete and stone surfaces. Position MeltMark® in the epoxy primer before it has cured and heat gently. We recommend "Grundering NM560" or similar. This system "glues" the MeltMark to the concrete and is not to be confused with standard application on asphalt. The reaction process is sensitive to temperature. Curing of NM560 will take long time at lower temperature! See separate instructions and MSDS for NM560.

GLASS BEADS & RETRO REFLECTION

To obtain initial retro reflection extra drop-on beads must be applied. Apply the drop-on beads immediately during heating process when the material is being melted and hot. For optimal results the beads should be embedded ~60%. Embedding is firstly depending on how fast they are applied after the MeltMark has been fully heated. Timing is critical! Add some extra heat afterwards to adjust embedding. Glass bead type, coating, bead temperature, particle size etc. plays a role in result. Follow guidance from major suppliers of glass beads. Extra Skid resistance with values higher than 45 SRT is obtained by applying a mix of glass beads and high friction granulates. Selection of glass beads: We recommend particle size distribution 150-850 my.



EXAMPLES OF INCORRECT APPLICATION...

1) Surface needs more cleaning. Small dust articles are present between the thermoplastic material and surface 2) Surface was not dried before positioning MeltMark® 3) Product has been applied on old or low quality asphalt rich in stone particles or low levels of binder and without using MeltMark PRIMER 4) Propane torch or LPG bottle is too small. During application propane bottle has frozen causing power loss. Use one or several units depending on application area. 5) MeltMark® was applied on concrete or granite without using two component primer correctly (Primer NM560) 6) Adhesion control with chisel and hammer was not made before leaving the job site 7) MeltMark was applied on residues of striping paint or cold plastic

8) Old remains of worn thermoplastic markings were not prepared or removed correctly 9) Material was applied outside normal season in wet or cold climate conditions 10) Marking was placed in a position where car tires or heavy objects are repeatedly parked/ positioned in stationary contact (causes undesired imprints).

COMPOSITION

Binder minimum 18 percent by weight. Binders consist of thermoplastic resins, modified rosin ester, such as penta- or glycerol ester (alkyd), thermoplastic elastomers, olefin polymers and plasticizer oil. Glass beads, pigment and fillers constitute ~80 percent by weight. White material contains titanium dioxide. Pigment system contains organic and inorganic pigments with high heat- and UV resistance. Fillers consist of calcium carbonate, dolomites etc.

TRANSPORT AND STORAGE

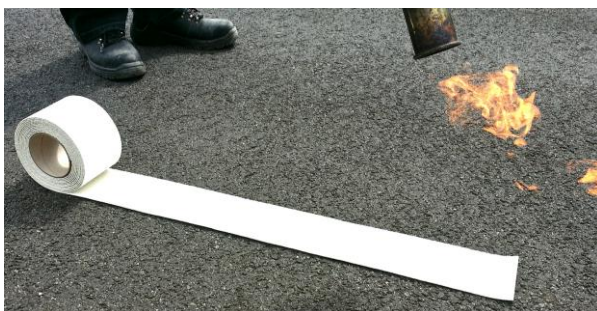
Never tilt a box or transport vertically at any time of transport or handling! Transport boxes flat horizontally only. Handle boxes with care! Extra caution at lower temperatures since material becomes more brittle. Store boxes in a cool and dry place away from direct sun light. Do not stack more than 30 boxes for longer periods. Storage time 12-24 months.

DELIVERY FORM

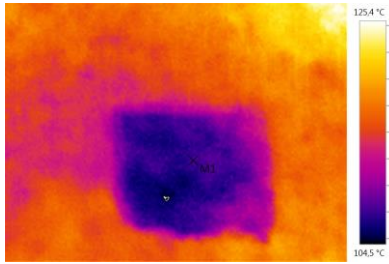
Pictograms, arrows, lines above 10 cm width are packed in card board box with dimensions 60x100 cm. Rolls, lines, small numbers, shark teeth etc. are packed in special protective boxes.

SAFETY

Read and understand instructions and Material Safety Datasheet before using our products. Follow local rules and regulations when working with high temperature and open fire. Use protective clothing and leather work shoes. Avoid all contact with molten MeltMark® and the heat flame. If there is accidental skin contact with molten MeltMark® sprinkle with plenty of cold water and seek medical attention. If using one component primer also use protective gloves and read separate instructions and Material Safety Datasheet (outdoor use only). One component primer: MeltMark PRIMER contains organic solvents and is flammable before drying is complete! Two component primer on concrete and stone surfaces: Follow separate instructions from material producer of primer (NM560). Work in accordance to local regulations.



MATERIAL PERFORMANCE



Two pictures from left shows correctly applied MeltMark. Pictures taken after some seconds of cooling. MeltMark has fully anchored to underlying surface and enough heat has reached the underlying surface. This test method destroys the marking and is only used here for clarifying importance of correct heating.

Picture to right shown an incorrect application. MeltMark has not anchored itself to underlying surface due to incorrect heating process.

- Best performance can only be achieved when product is applied correctly with regard to equipment, surface preparation, heating etc.
- MeltMark should be applied in "normal season" i.e. when local weather and road conditions are appropriate.
- Asphalt quality standards are different. The preformed thermoplastic material can't compensate for low quality surfaces or poorly prepared surfaces.
- Adhesion failure due to not using a primer typically occurs right after freezing temperature starts
- Adverse effects on the material or damage can occur in places with high shear forces or in crossings/exits with heavy traffic.
- Application on high speed roads with urban traffic loads in combination with studded tires limits the product life time significantly.



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Above given information is based on trials and experience of the producer. The information is only valid for the product itself - not if blended with any other product or used for any other application other than that described in the text. The purpose is to guide to the best working methods and results. Information is not necessarily complete for all situations, this is why it is in your own interest to make clear that this information is sufficient before and during use of the product.