Hot Applied Thermoplastic

Moisture Proof Reflective Screed/Extrusion

TECHNICAL DATA SHEET

PRODUCT

Thermoplastic Road Markings – Moisture Proof Reflective Screed/Extrusion Grades

APPLICATION CONDITIONS

- Road surfaces (or existing road markings which are to be overlaid) shall be free from defects.
- Existing road markings that are going to be overlaid shall be removed if they are in poor condition.
- Surfaces shall be clean, dry, and free from defects, oil, scale, dirt, or any other soiling that many affect adhesion or performance. Moisture proof grades can be applied to damp asphalt surfaces. Ensure there is no visible surface water present. Wet surfaces shall be swept and blown with compressed air to remove surface water. Markings shall not be applied in areas with standing water.
- If overlaying existing road marking, the surface needs to be heated with a heat lance prior to application.
- Dirty or contaminated road surfaces shall be thoroughly cleaned prior to the application of road markings to ensure the formation of a strong bond between the new road marking and the road surface.
- An allowance for extra material should be considered when applying road markings to surfaces with a coarse or negative texture such as surface dressing, porous asphalt, SMA or high friction surfacing.
- An air/ground temperature of 5°C or above is required when applying road markings to ensure proper adhesion between the road marking material and the road surface.
- In cool weather and conditions with a significant wind chill factor, a high velocity drier shall be used to warm the surface prior to the application of road markings to ensure that before the road marking material solidifies, a physical bond is formed between the molten material and the asphalt surface.

HEATING

- Ensure the pre-heater is empty prior to loading material or changing material grades, as any contamination from the residue of previously heated material may have a detrimental effect on the performance of the selected grade.
- Place entire bags (contents and Meltpack bag) into the pre-heater. Initially load bags until the preheater is approximately 30% full. Heat and stir the material to a fully molten state, then progressively add bags until the required amount is reached.

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- Allow the content of the pre-heater to fully melt and reach application temperature, ensuring that all the components including sachet of aggregate have been homogenously mixed and dispersed, and there are no visible clusters of dry powder in the mixture. Avoid 'feeding' the pre-heater during use to prevent the contamination of homogenous material with dry non-mixed material.
- Ensure the material is within the correct application temperature range:
    - White materials: Machine applied 190°C to 200°C. Screed applied 190°C to 200°C.
    - Yellow materials: Machine applied 190°C to 200°C. Screed applied to 190°C to 200°C.
- Use a calibrated hand-held thermometer with probe immersed in the material to obtain temperature readings as pre-heater gauges may not always give a reliable or accurate temperature reading.
- Do not overheat the material:
    - Maximum safe heating temperature for materials is 230°C.
- **IMPORTANT:** Prolonged heating time and repeated heat cycles may result in the degradation and discolouration of the product. For best performance, maximum heating time is six hours for one heat cycle.

APPLICATION PROCESS

The material is applied using a hand mould, various self-propelled equipment or a purpose-built vehicle equipped with a thermoplastic extrusion system for applying extruded flat road markings.

- For letter, arrows, symbols, etc. and longitudinal markings where it is not practical to use a purpose-built vehicle, a pre-heated hand mould or self-propelled equipment is used for the application of the road marking. The material is screeded to the required width with a typical line thickness of 3mm.
- For major longitudinal marking works, a purpose-built vehicle fitted with a thermoplastic extrusion system is generally used. Maintain a vehicle speed of 4-6 km/hr. Extrude the material to the required width with a typical line thickness of 3mm. Higher speeds are not advisable as this will reduce the width of the road marking and introduce voids into the material. Poor application will reduce performance.

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GLASS BEAD APPLICATION

Ensure glass beads are completely dry and apply immediately after the application of the thermoplastic. For optimum durability and retroreflectivity a glass bead embedment of 55-60% is required. Adjust the material temperature and the drop-on glass bead rate to achieve this optimum embedment across the width of the road markings.

- For hand mould work and self-propelled equipment without pressurized bead applicators, quickly apply drop-on glass beads over the molten material before it solidifies, using hand-held, or push along bead dispensers at a rate of approximately 400g/m^2.
- For pressurized bead applicators, check the flow rate of the bead gun/guns and adjust to achieve an output of 300-400g/m^2 appropriate to the width of the road marking and vehicle speed.

TROUBLE SHOOTING GUIDE

Thermoplastic	Reason	Corrective Action
Poorly defined edge	Blocked applicator shoe Material temperature too low Application speed too fast	Clean out shoe Increase temperature Decrease application speed
Holes or tears in lines	Contaminated material Blocked filter Application speed too fast	Replace material Clean or replace filter Decrease application speed
Material too thin	Material temperature too high Insufficient output rate Application speed too fast	Decrease temperature Increase auger speed Decrease application speed
Debonding	Unclean road surface Low temperatures Moisture in road surface	Clean and dry surface Monitor ambient/material temps Dry road surfaces
Bubbles in line	Moisture in road surface	Dry road surface
Greenish yellow appearance	Material overheated Material reheated too often Pre-heaters need cleaning, traces of yellow thermoplastic	Monitor material temperatures Only heat enough material for current works Clean pre-heaters before loading material
Dull white appearance	Material overheated Material reheated too often Pre-heaters need cleaning, traces of yellow thermoplastic	Monitor material temperatures Only heat enough material for current works Clean pre-heaters before loading material

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Glass Beads	Reason	Corrective Action
Beads on one side of line	Blocked bead gun Bead gun misaligned	Unlock bead gun Realign bead gun
Beads in middle of line	Low bead pressure Bead gun misaligned	Increase bead tank pressure Realign bead gun
Excessive bead usage	Worn bead gun High bead tank pressure	Replace or repair bead gun Decrease bead tank pressure
Beads are buried in material	Height/angle of bead gun incorrect Material temperature too high	Adjust as necessary Decrease material temperature
Beads not sufficiently embedded	Height/angle of bead gun incorrect Material temperature too low	Adjust as necessary Increase material temperature
Low reflectivity	Insufficient beads Line too hot (beads sinking) Beads not hitting the line Beads not applied in timely manner	Increase bead rate Decrease material temperature Adjust bead guns Apply beads quicker

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