Road Surface Treatments Association

Manufacture of Geosynthetics & Steel Meshes

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Products Types

- Textiles (Fabrics)
- Grids
- Composites
- Mesh

Constituent Materials

- Glass (basalt)
- Polypropylene
- Polyester
- Resin & Bitumen
- Galvanised Steel

Products Types

- Textiles (Fabrics)
- Grids
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- Mesh

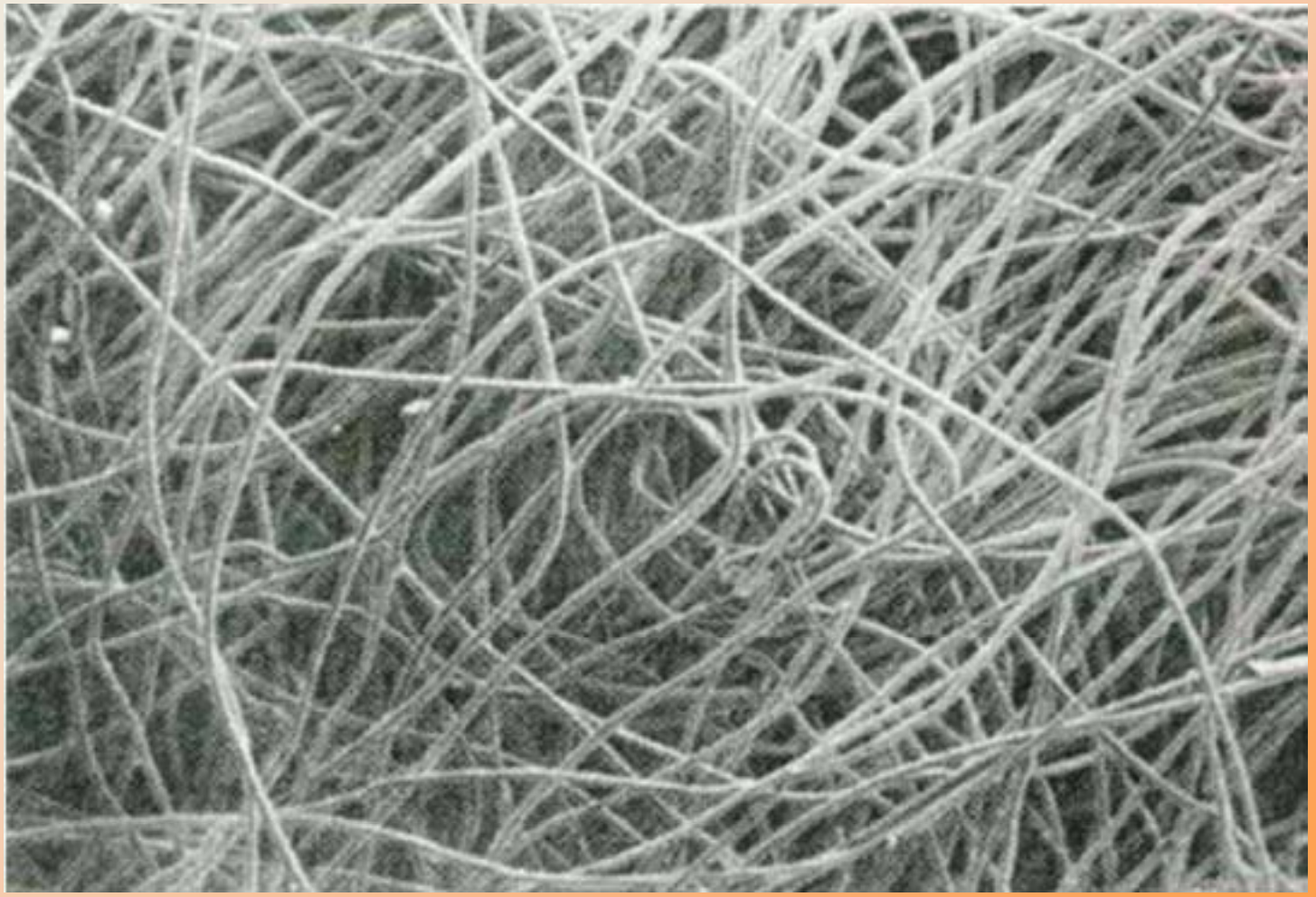
Textiles (Fabrics)

- Can be utilised on their own or form part of a composite product
- Generally composed of needle punched polypropylene or polyester fibres but can include other materials e.g. glass.
- Polymer textiles may be continuous filament or staple fibre
- Production process may be needle punching or include resin and/or heat bonding or treatment

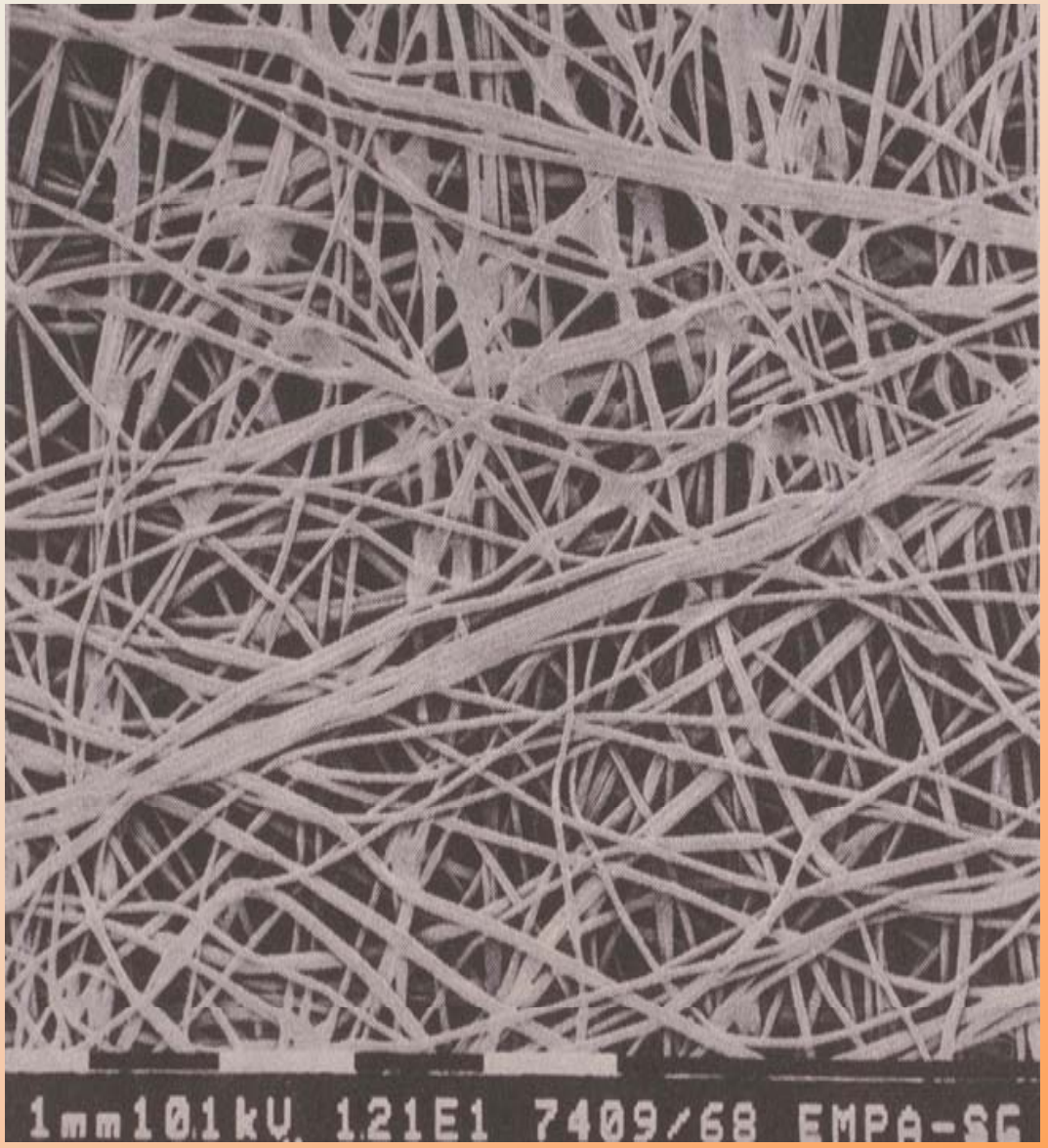
Non-Woven Textiles (Fabrics)

Non-Woven Textiles (Fabrics)

Mechanically Bonded - Needle Punched



Non-Woven Textiles (Fabrics)



Thermally Bonded

Non-Woven Textiles (Fabrics)

On their own or as part of a composite

Non-Woven Textiles - installation

Woven Textiles - not normally used in isolation

Products Types

- Textiles (Fabrics)
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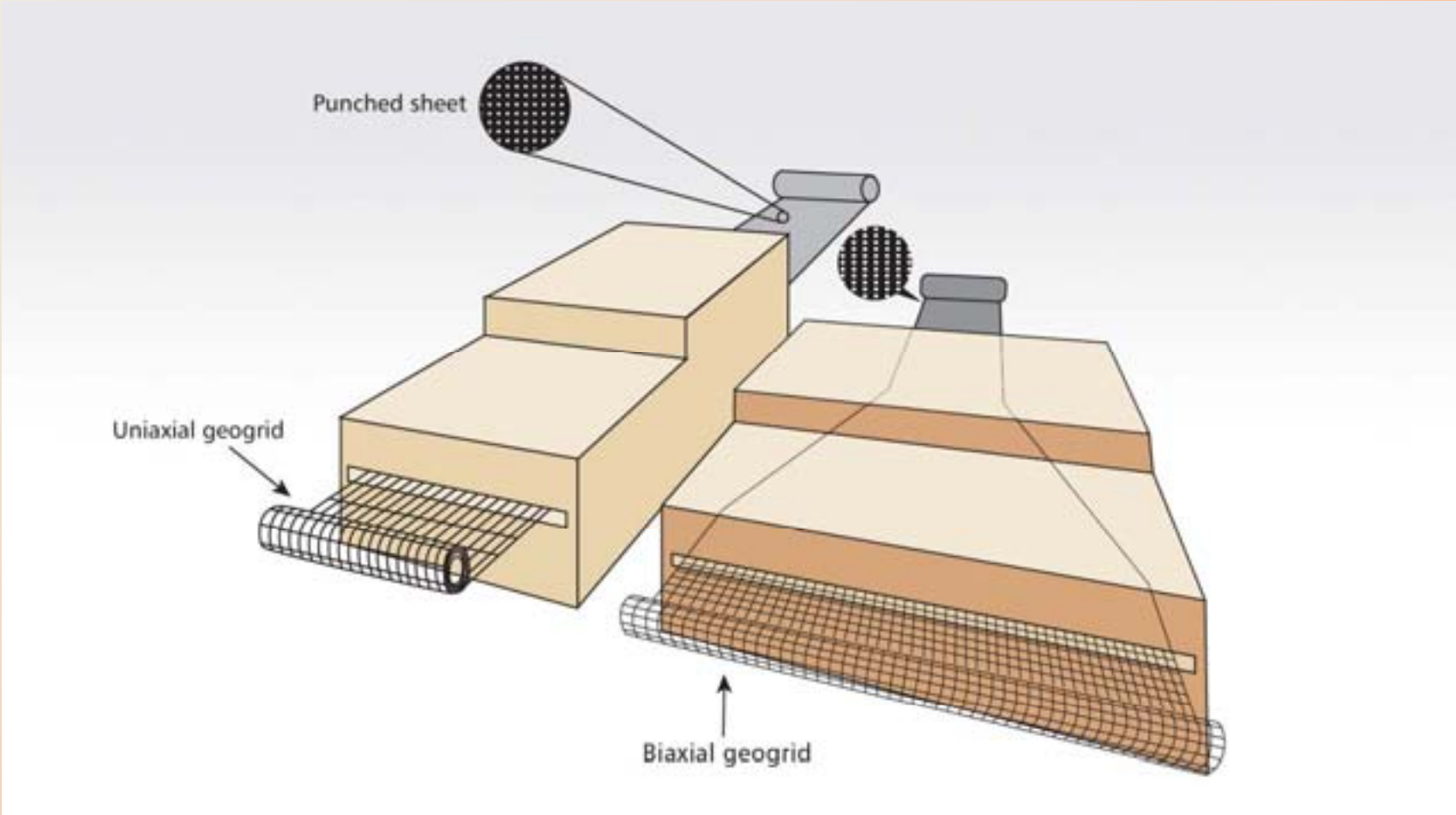
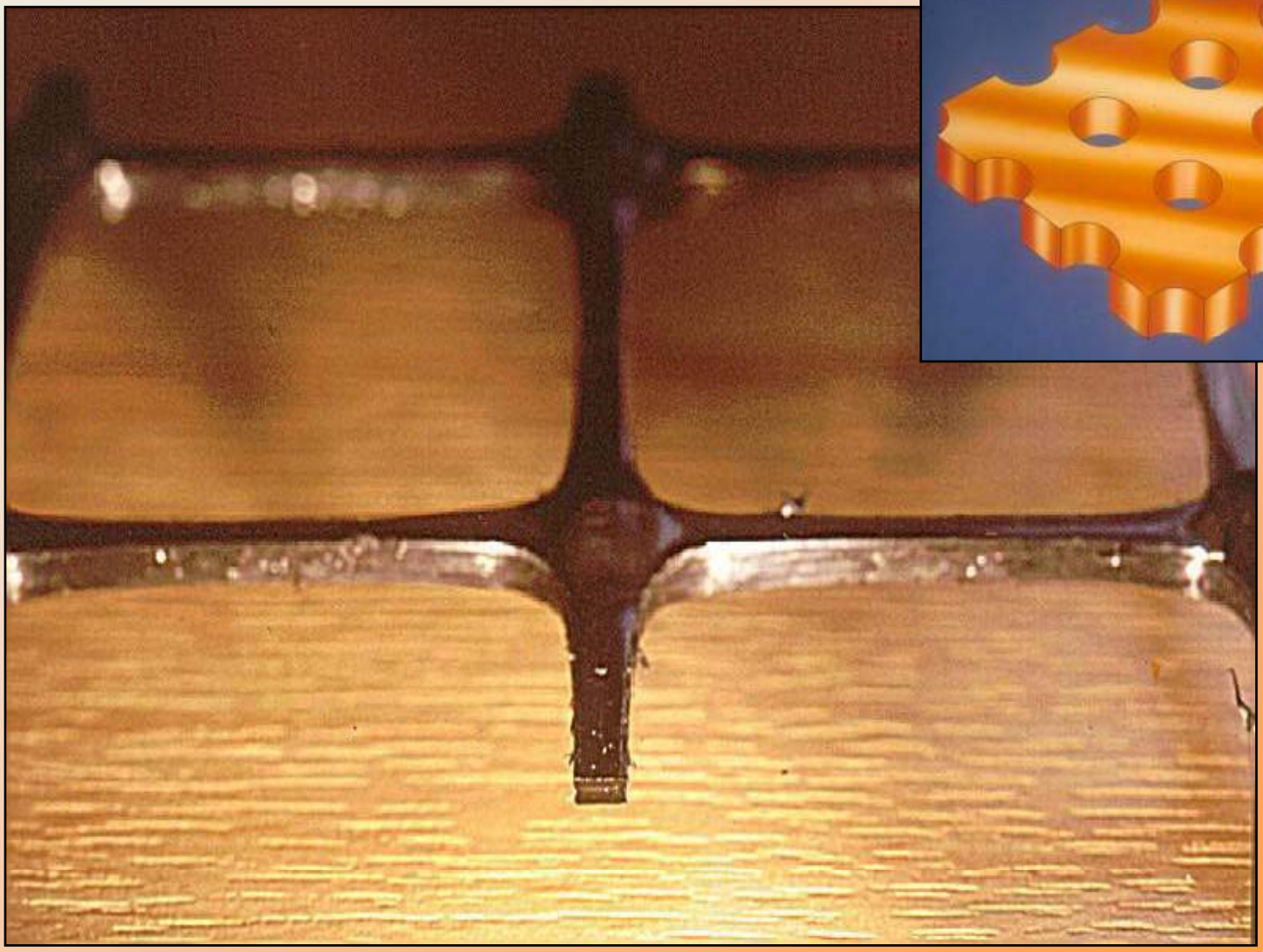
Grids

- Can be utilised on their own or form part of a composite product
- Polymer or glass
- Manufacturing methods:
  - Punched & stretched
  - Knitted or Woven

Grids - Punched & Stretched Polypropylene



Grids – Punched and Stretched Polypropylene

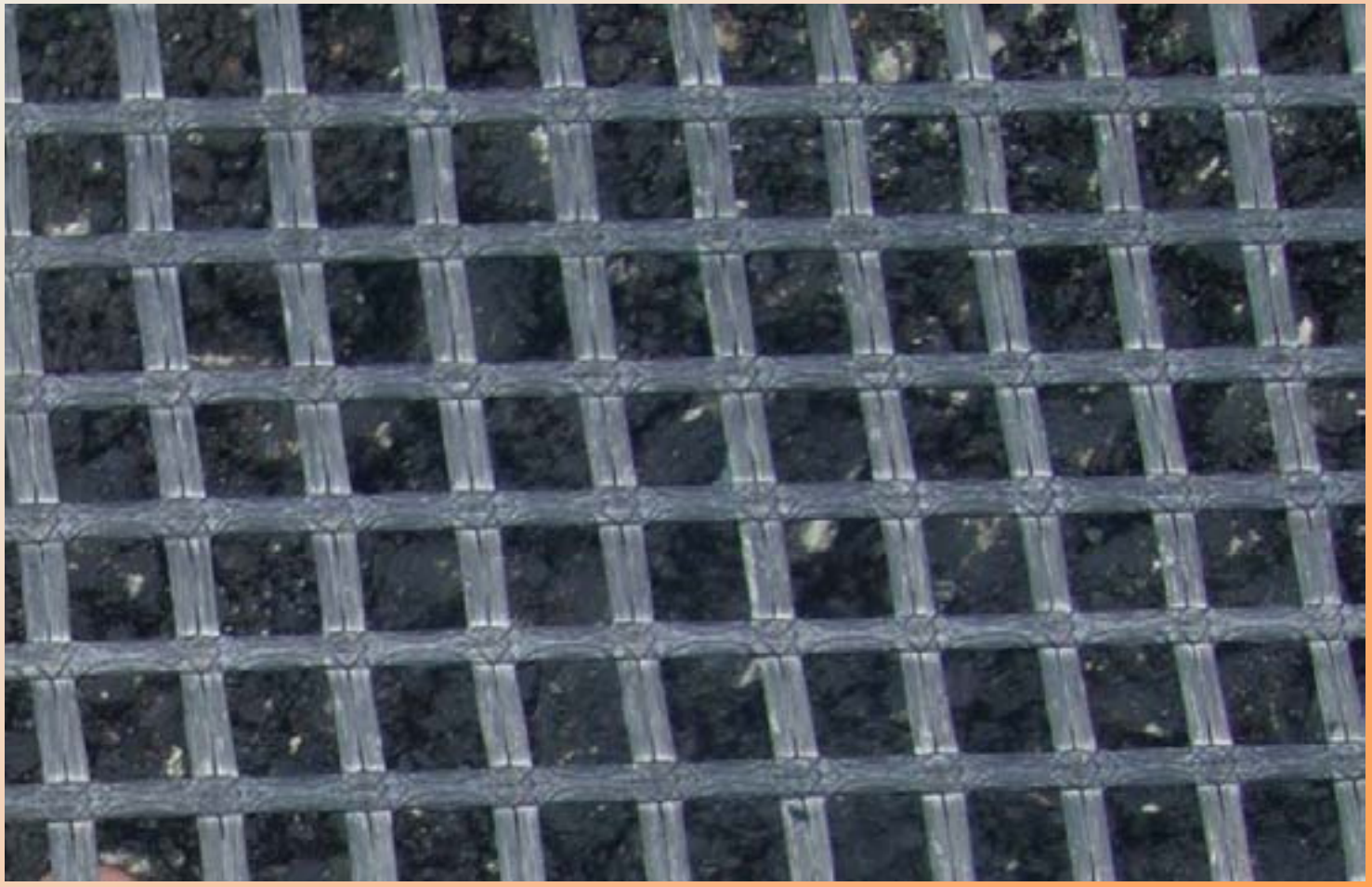


Grids – Punched and stretched

Grids – Knitted Glass Grids

- Composed of glass fibre yarns knitted into an open mesh grid with a modified bitumen or polymer coating.
- Some products have one side coated with pressure sensitive adhesive

Grids – Knitted Glass Grids



Grids – Knitted Glass Grids

Products Types

- Textiles (Fabrics)
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Composites

- Wide variety of products but usually some type of grid joined to a textile (fabric)
  - Polymer knitted/woven grids stitched to a textile
  - Polymer stretched grids laminated to a textile
  - Glass knitted/woven stitched to a textile
  - Glass knitted/woven bonded to a textile

Composites

- Why a composite?
- Why add a textile to a grid?

1) To provide a SAMI (Stress Absorbing Membrane Interlayer) effect.
2) To facilitate installation
3) Both

For SAMI fabric usually heavier (~140g/m2)

Stress Absorbing Membrane Interlayer

•Stress absorbing interlayers, or SAMIs, are thin asphalt layers capable of dissipating the stresses developing in a layer above a cracked substrate.

•Example: HRA sand asphalt mix

•An added advantage of most SAMI's is the provision of an even distribution of bitumen within a thin layer, thereby providing a sealing effect and inhibiting water ingress.

Polymer knitted/woven grids + textile

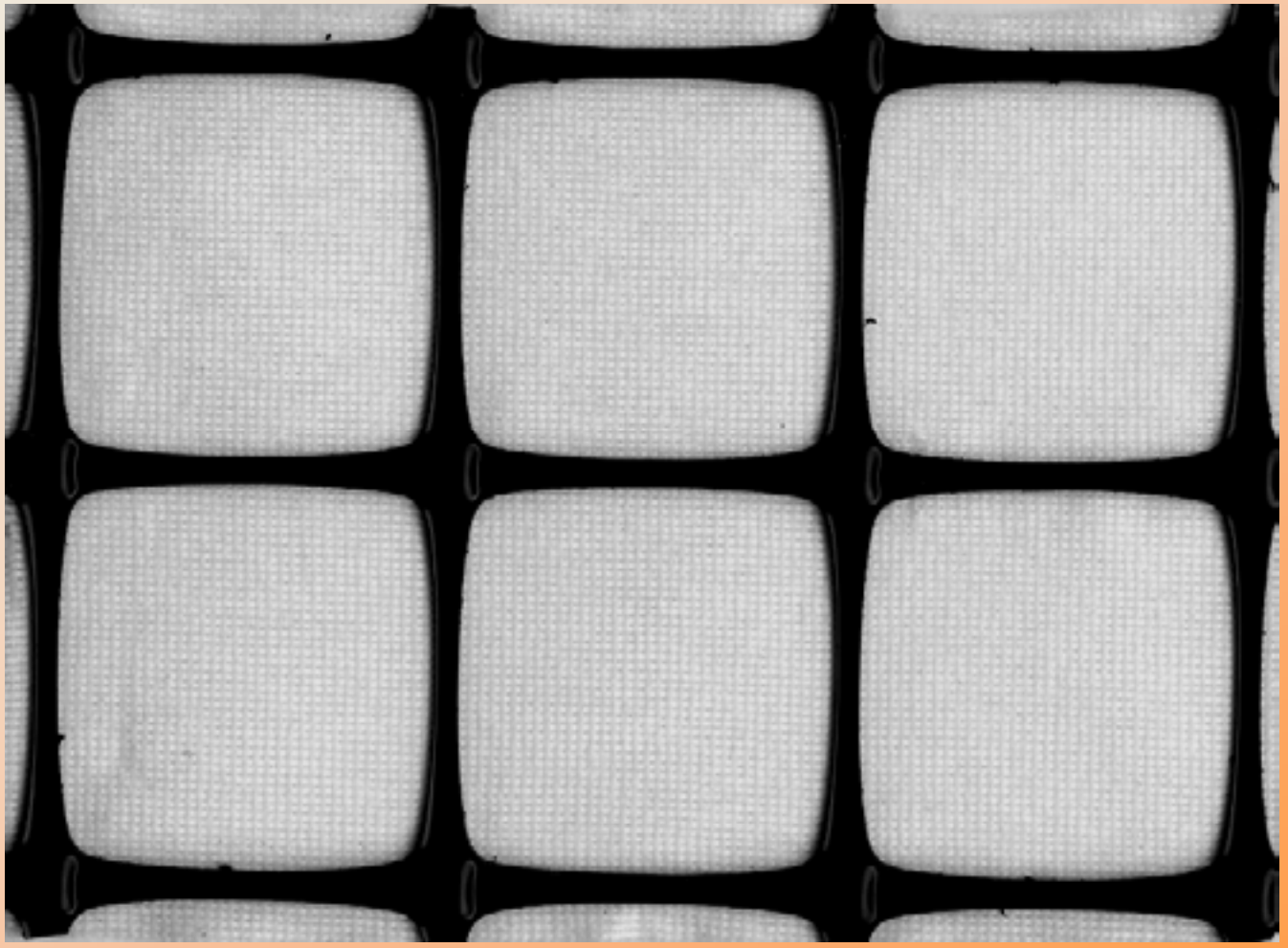
Polyester yarns knitted/woven on a lightweight textile backing

Polymer knitted/woven grids + textile

Polyester yarns knitted/woven on a lightweight textile backing

Polymer stretched grids + textile

Polypropylene monolithic grid on a heavier textile backing

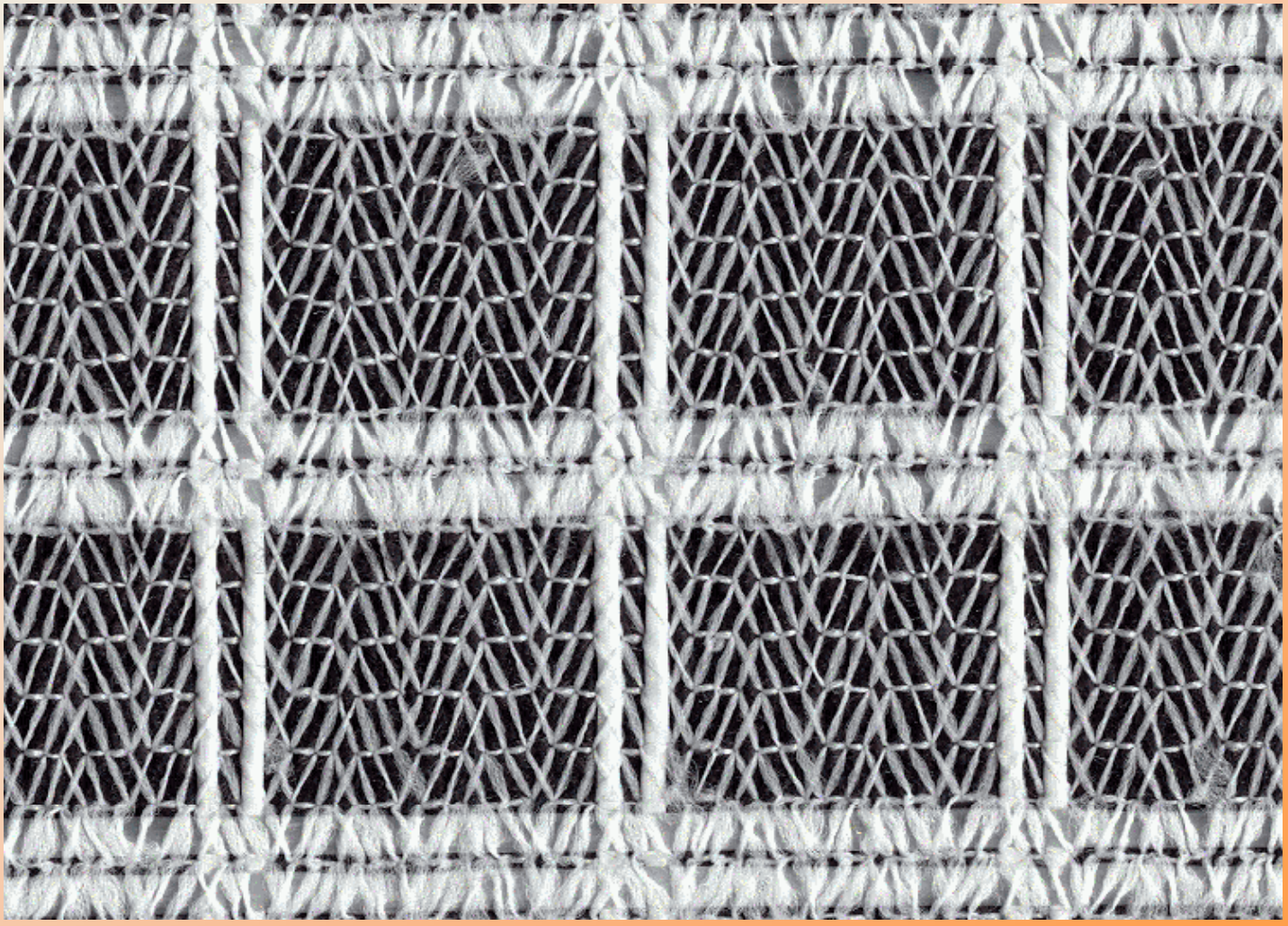


Polymer stretched grids + textile

Polypropylene monolithic grid on a medium weight textile backing

Glass grid + textile

Glass fibre yarn grid stitched to Polypropylene non woven fabric

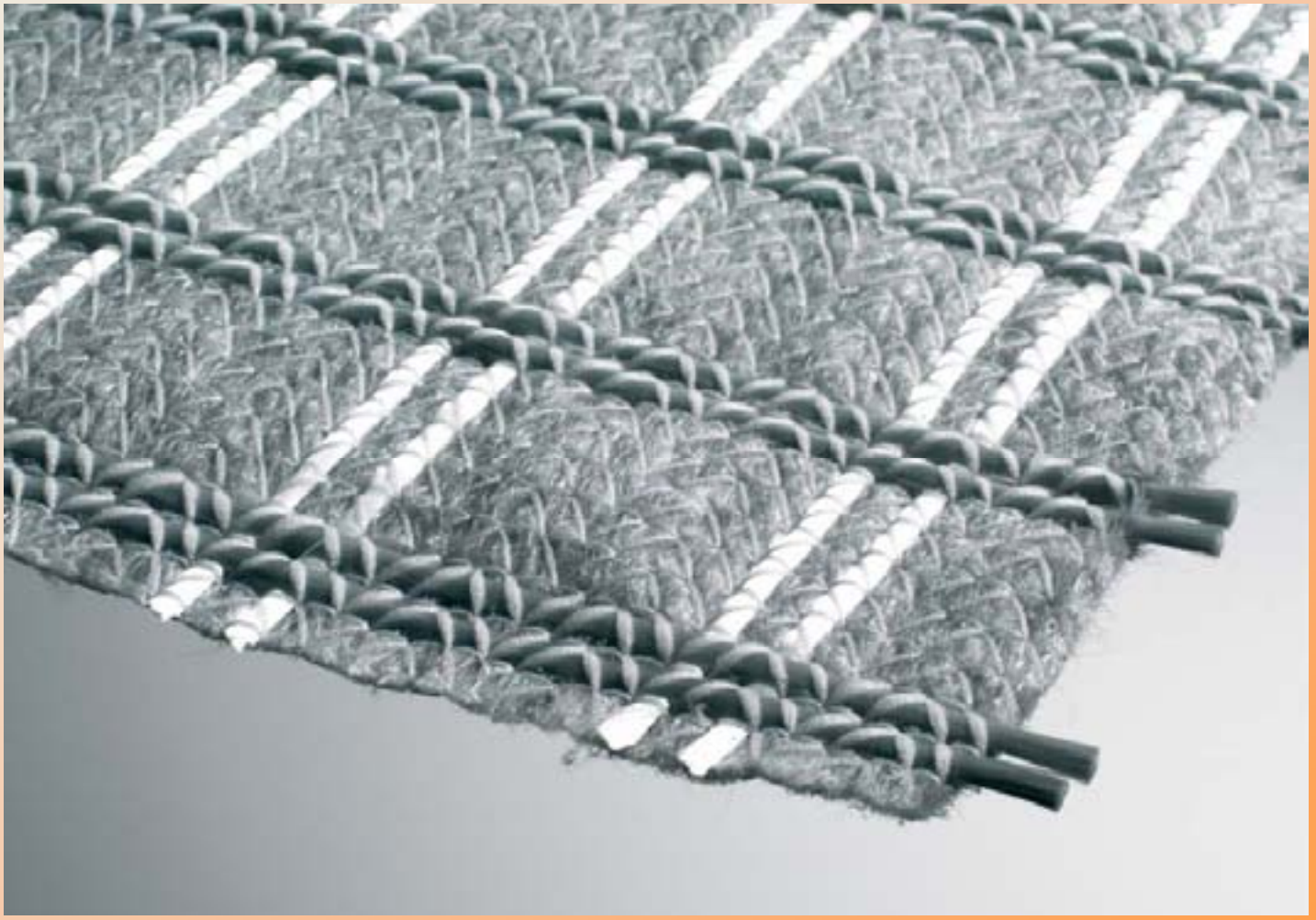


Glass grid + textile

Glass fibre yarn grid stitched to Polypropylene non woven fabric

Glass grid + textile

Glass fibre yarn grid stitched to Polypropylene non woven fabric



Glass grid + textile

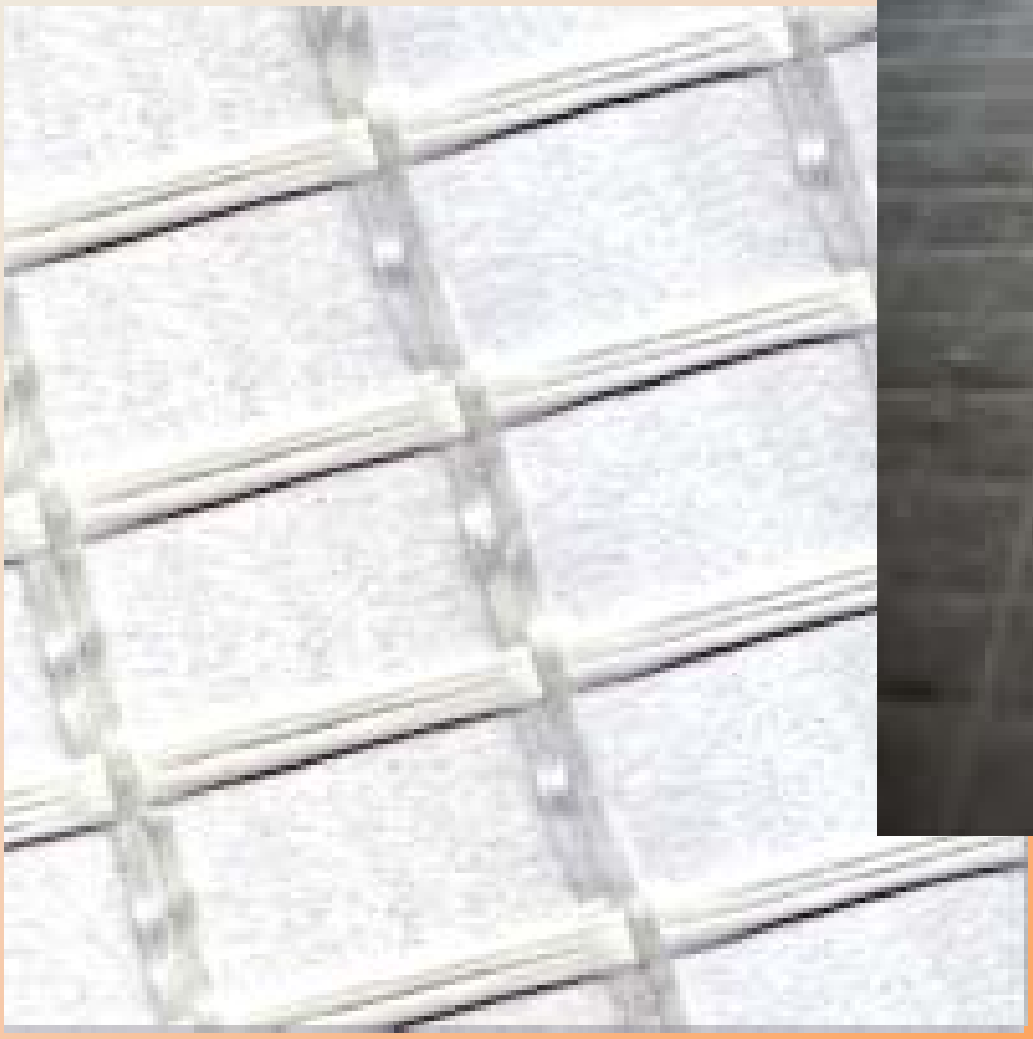
Glass fibre yarn grid stitched to Polypropylene non woven fabric

Glass grid + textile

Glass fibre yarn grid fixed to non woven fabric

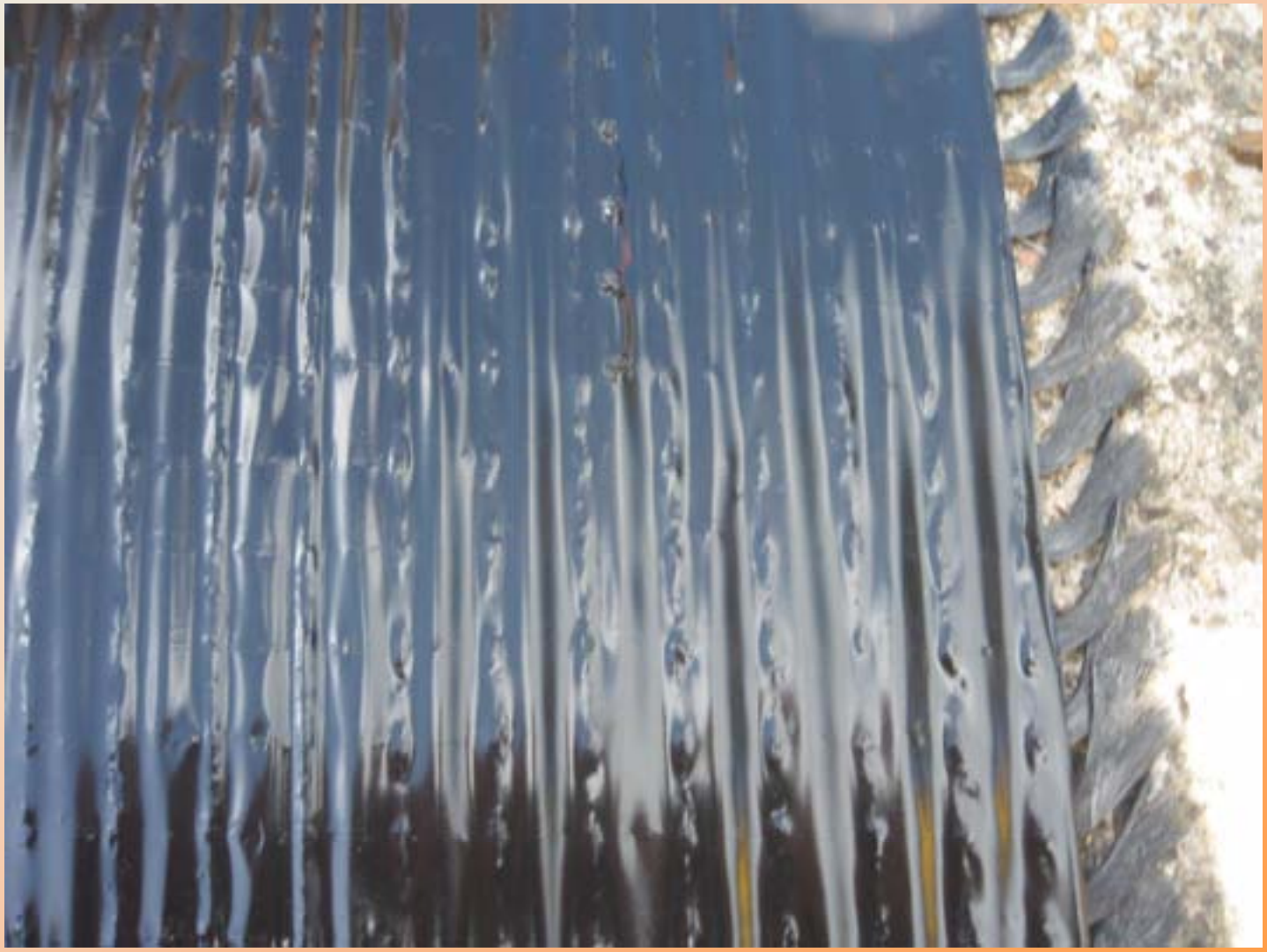
Glass grid + textile

Glass fibre yarn grid fixed to non woven fabric



Key Product Types

Glass Grid + Tack Film



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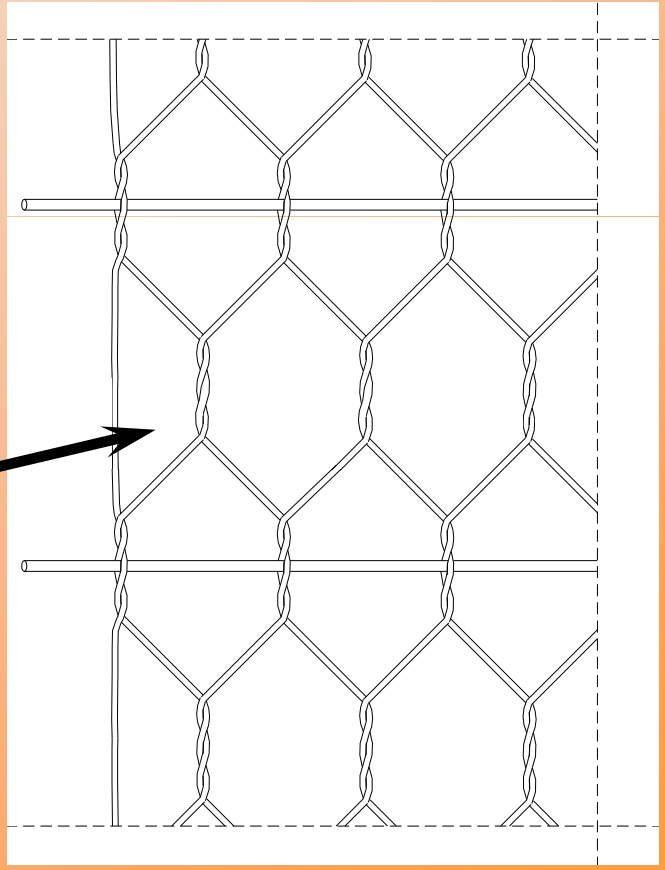
Steel mesh manufacture

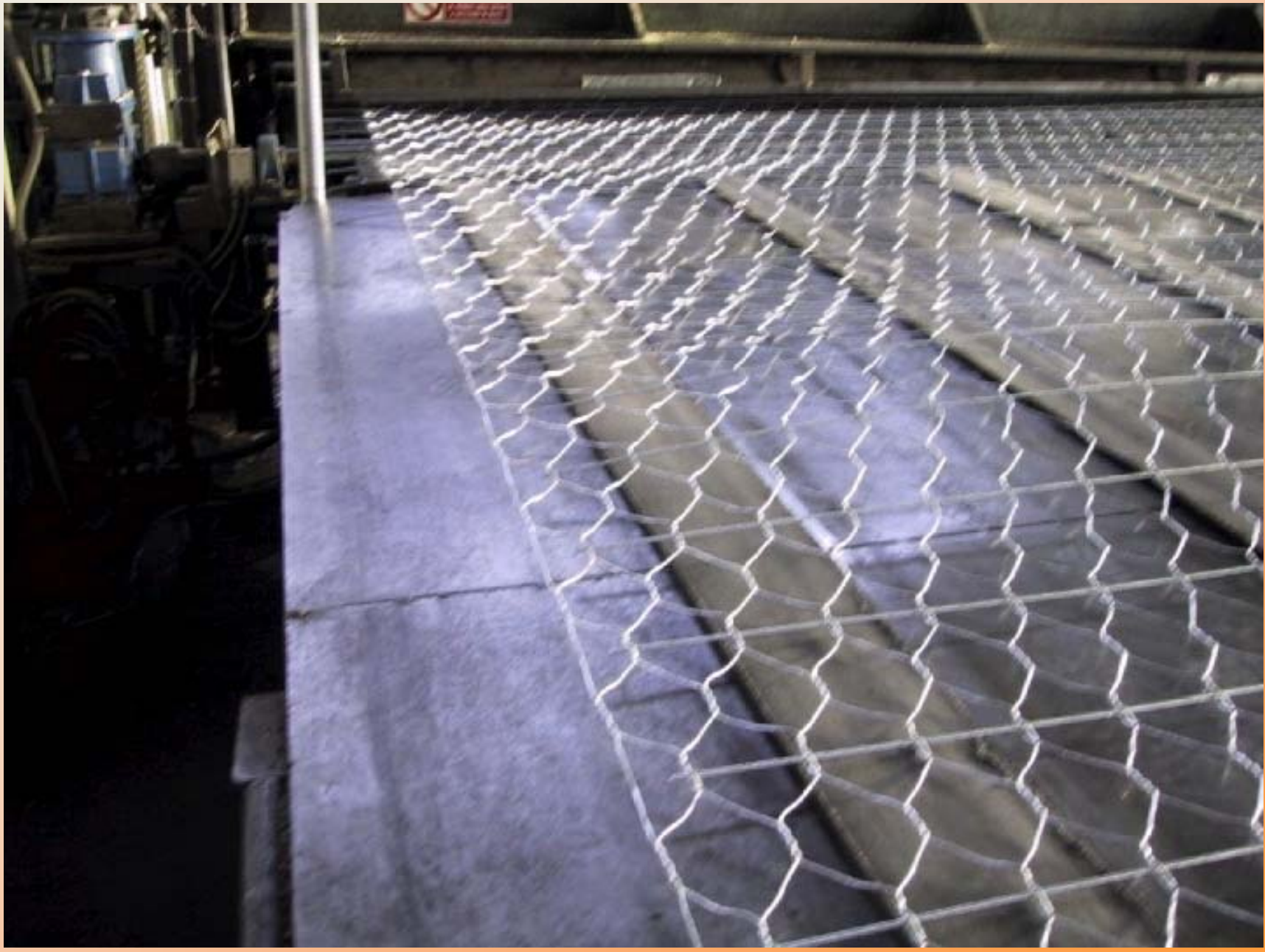
- Galvanised wire mesh
  - Double twisted
    - Alternate wire strands on bobbin
  - Transverse bar threaded through alternate middle twist

Steelmesh

Transverse reinforcing bar

Double twisted wire mesh





Steel Mesh

Galvanised steel mesh, usually nailed in place during installation

Dispelling some myths

- **Stiffness** – all the products shown have similar stiffness when loaded at appropriate strain rate
- **Melting** – none of the products shown will melt under the normal temperature of asphalt overlay
- **Tensile strength** – the author has seen no evidence to suggest a relationship between tensile strength & performance

ROAD SURFACE TREATMENTS ASSOCIATION

Thank you for your attention

Links on the website below to all members of the geosynthetics sector

www.rsta-uk.org