VENTRACO Chemie B.V.

STADSBADER

Low Temperature- Mastic Asphalt

GAMA

STADSBADER

Kris Mallefroy

Why LT Mastic Asphalt ?

- **Market Demand :**

  Improving working conditions / Reduction in emissions / **CO_2** reduction
- **Involved parties :**

  Gama / Stadsbader / Ventraco
- **Objective** :

  Reduction of working temperature 230°C → < 200°C

  Same or better workability of low temperature mix than hot mix

GAMA STADSBADER

Kris Mallefroy

Why LT Mastic Asphalt ?

- **Pilot project LT- mastic asphalt**

  Current MA hot mixes without additifs

  Good workability at working temperature of 230°C

  Objective :

  -> Low Temperature mix with same properties and same or better workability

GAMA STADSBADER

Kris Mallefroy

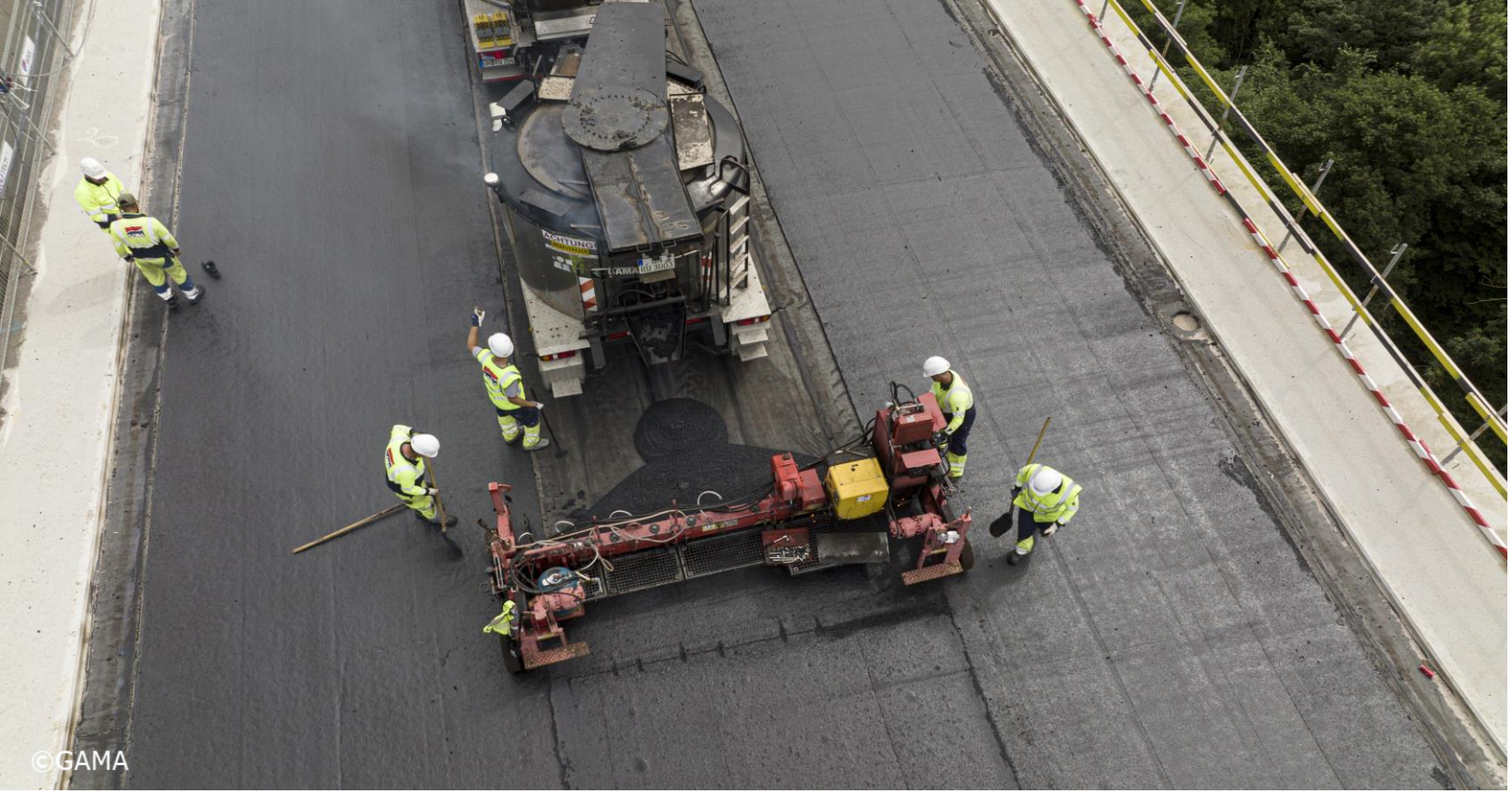
Why LT Mastic Asphalt ?

- **<u>Pilot project LT- mastic asphalt</u>**

  Tests on labatory scale with additive GALT EX 1 (Ventraco)

  Test sections LTMA succesfull in lowering temperature and workability !

  Standard application in practice at working temperatures of 170 - 180°C



GAMA STADSBADER

Kris Mallefroy

Why LT Mastic Asphalt ?

- **<u>Pilot project LT- mastic asphalt – Protective layer on bridge deck</u>**

  Current hot mix : hard bitumen + % PMB

  Poor workability (only machine application possible)

  Working temperature of 230°C

  Very challenging mastic asphalt mix due to high requirements !

GAMA STADSBADER

Kris Mallefroy

Why LT Mastic Asphalt ?

- **<u>Pilot project LT- mastic asphalt – Protective layer on bridge deck</u>**

  Tests on labatory scale with additives WKR2 + GALT EX 1 (Ventraco) succesfull !

  WKR 2 = substitute PMB and compatible with GALT EX 1

  Test section LTMA protective layer succesfull in lowering temperature and workability !

  -> official test are ongoing to have a certified LT mixture.

VENTRACO

Ton Eijkenboom

Coloured (Mastic) Asphalt

- Introduction Ventraco

  Specialised in coloured asphalt since 1991
- Technical support
- Product development through Ventraco Innovation Centre
- Market-driven development (colours and additives)
- GALT EX1

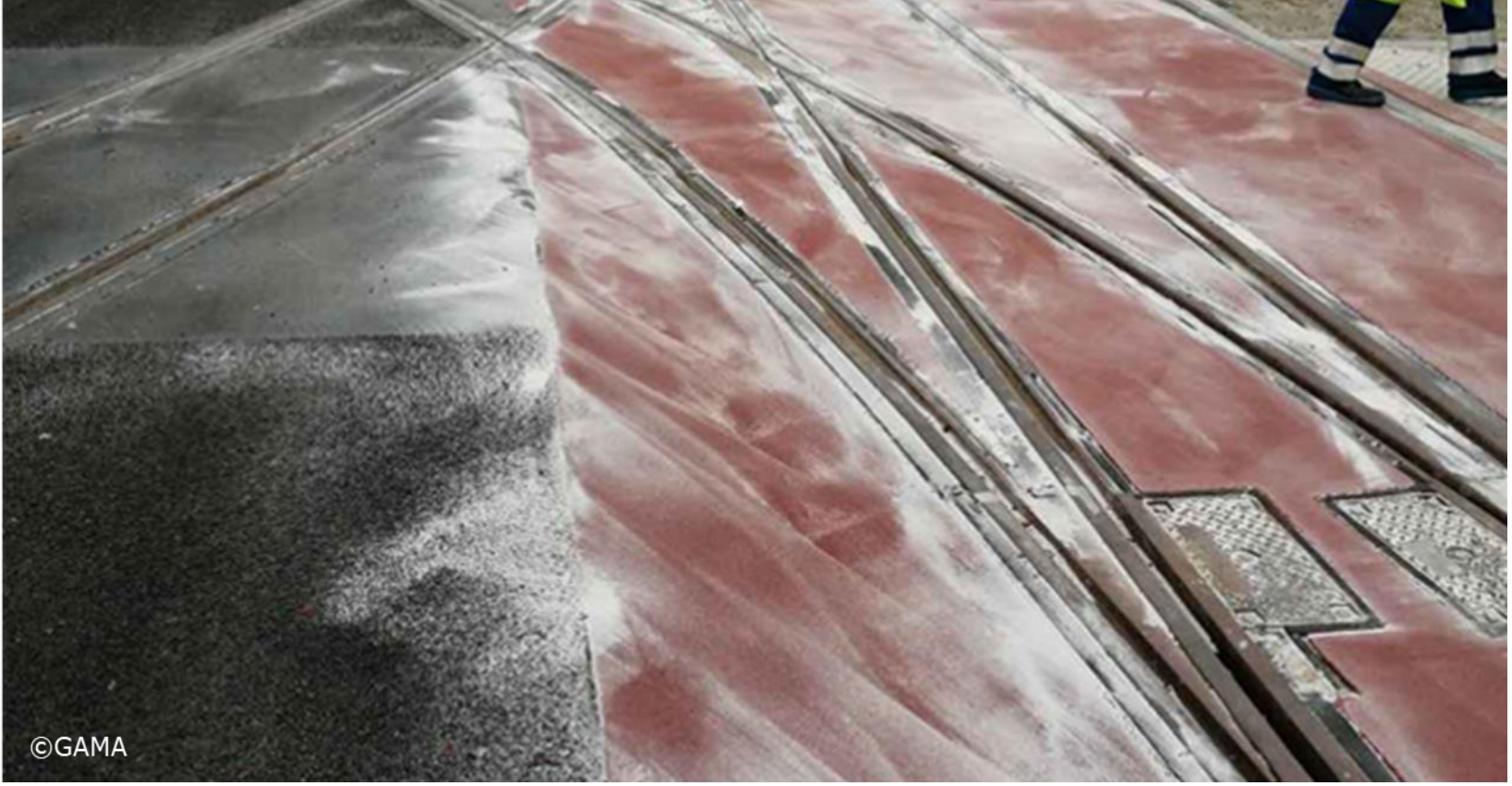
VENTRACO

Ton Eijkenboom

Why use coloured (mastic) asphalt?

There are several reasons for choosing coloured (mastic) asphalt;

- Enhancingng traffic safety
- Improving visibility
- Creating a comprehensible traffic situation
  to control and guide traffic
- Providing aesthetic benefits
  matching with its surroundings
- Reduced energy costs
- Durable pavement and colour
  Clear binder (Sealoflex) and fewer temperature fluctuations with light colours.
- Increased working conditions
- Maintenance-friendly



VENTRACO

Ton Eijkenboom

Coating vs. mastic asphalt

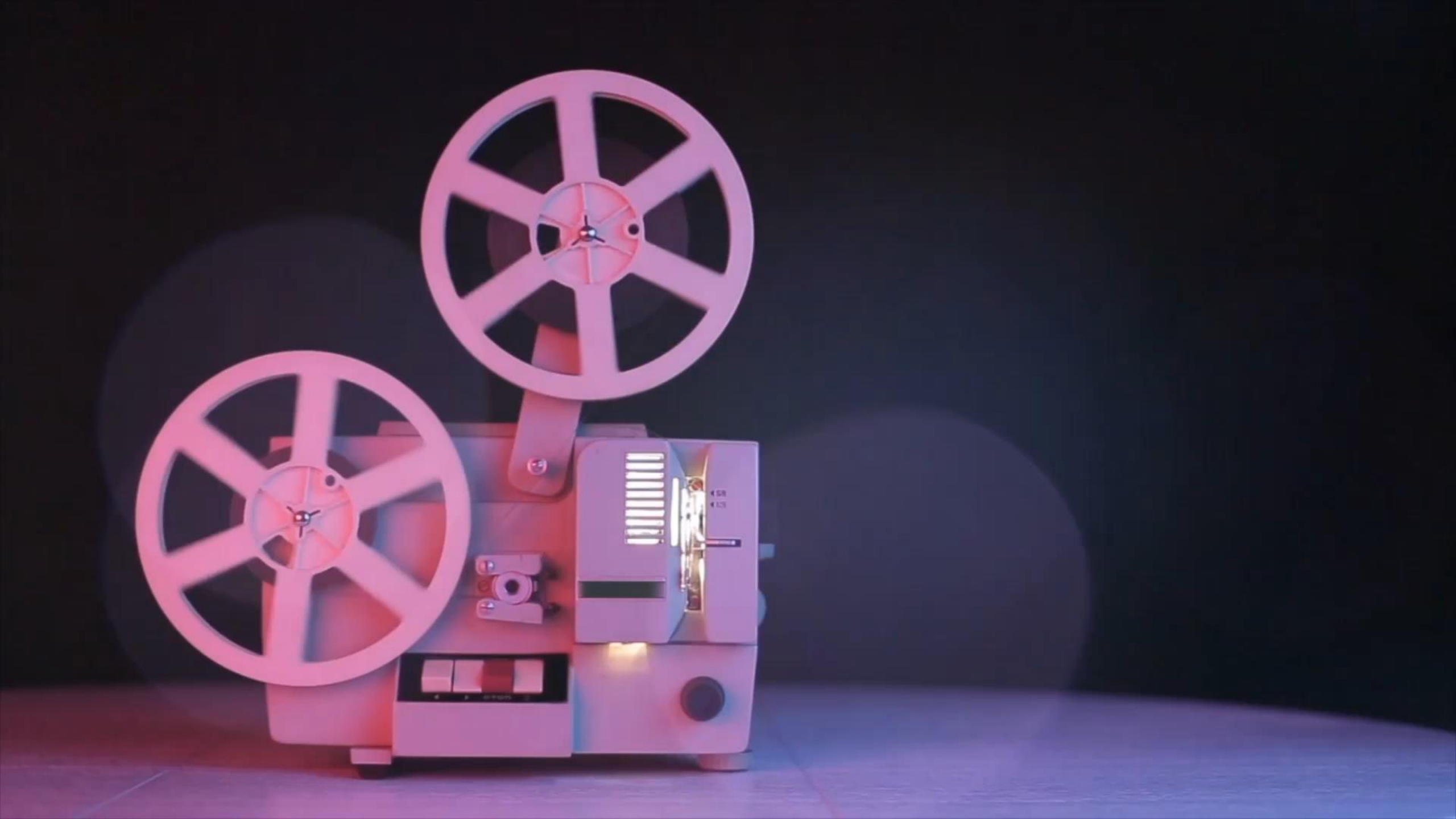
Coating

- Not possible to recycle
  End life: Chemical waste
- Non- favorable grip properties
- Chemical product
- Low ambient temperature not possible
- More complex adhesion
- Less durability (emulsion)
- Provides a thin surface layer

Mastic Asphalt

- Recyclable
- Favorable grip properties (aggregates)
- Natural product
- Low temperature
- Easy adhesion
- Durability
- Better temperature resistance
- Waterproof
- Absorbs sound and minimizes noise pollution

A picture paints a thousand words…..



VENTRACO

Ton Eijkenboom

Light Coloured road surfaces

A positive influence on the Urban Heat Island Effect
The sun's reflection is many times higher with light coloured road surfaces. The amount of heat absorption being many times higher on darker road surfaces. Black asphalt only reflects around 4 percent of the sunlight, whereas white asphalt reflects around 90%!

Energy consumption reduction
By decreasing the need for public lightning, energy consumption can be reduced.

Enhanced road safety
Light-coloured road surfaces contribute to improving road safety by enhancing visibility.

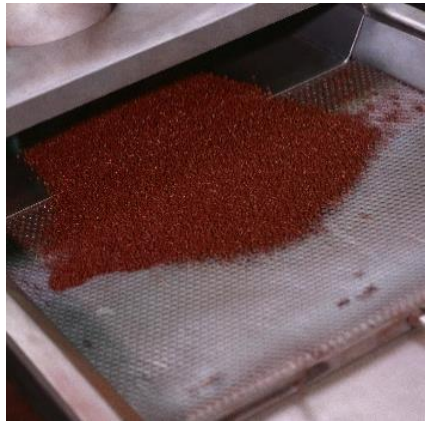
VENTRACO

Ton Eijkenboom

Coloured mastic asphalt mixture

- Colour options
- Durable mixture
  - Clear binder / HQ black bitumen / PMB
  - Matching aggregates / minerals
  - Pigment



ColorFalt

- Completely dust-free
- High colouring strength
- Sustainable
- Positive Life Cycle Analysis
- Extra stability
- Easy to dose and apply
- Safe to use

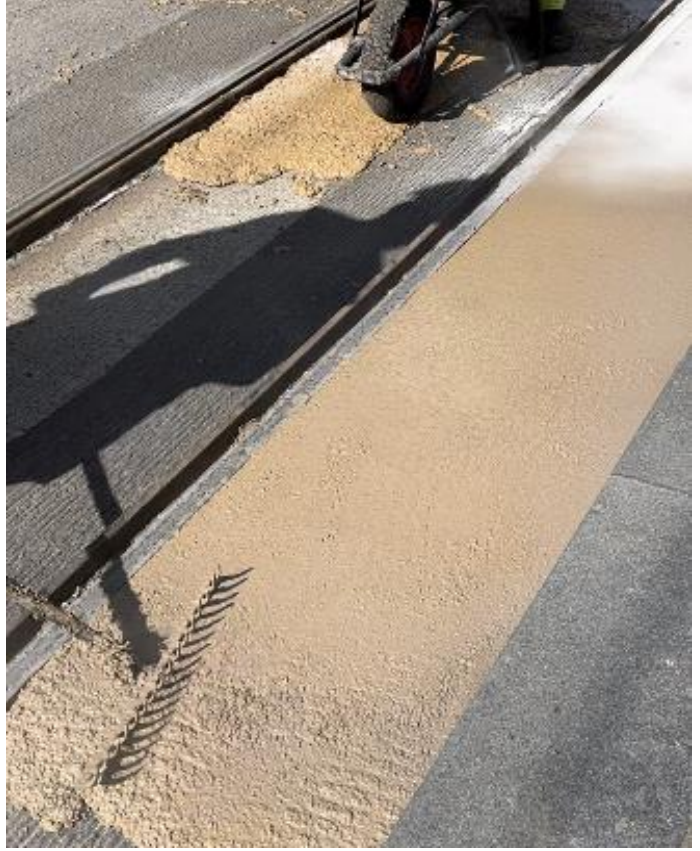
VENTRACO

Ton Eijkenboom

Pilot coloured mastic asphalt

- Why pilot with low temperature coloured mastic asphalt?
  Reduction emissions, vapour / working conditions / degradation of the binder
- Composition of the mastic asphalt
  Clear binder / 1% Zinc ferrite, 2% titanium white / GALT EX1
- Video pilot


DELTAPLUS



VENTRACO

Ton Eijkenboom

Results Pilot coloured mastic asphalt

- Production temperature trial Antwerp
  230°C / 170°C / 185°C
- Results
  - ✓ For a smooth workability, also at 2.5cm thickness, use GALT EX 1 in the asphalt mix at 185°C production. This results in a 45°C reduction in production temperature!
  - ✓ Producing mastic asphalt at lower temps cuts costs, reduces emissions, benefiting employee health and the environment.

Indentation determination on mastic asphalt

Test date: 14-09-2023

Test number: Norm: EN 12697-20

Laboratory deckx puurs Plant: puurs

Executor: bh

Code TF 8022/ 692 **without additive**

Sample location: Antwerp

Testing conditions: Type C
stempel 500mm²
Test temperature 40°C
Cooling time 24 h
Conditionering time 60 min

Sample nr.	Indentation after 10 min	Indentation after 30 min	Indentation after 60 min
1	0,21	10,01	12,43
2			

RESULT (average):

DEMAND = **<**

DEVIATION: 9,80 absolute deviation
0,98 20% average

Only for prescription 1617: 0,6mm > 0,00 toename 30' => 60'

Identification indentation device: P6

Indentation determination on mastic asphalt

Test date: 14-09-2023

Test number: Norm: EN 12697-20

Laboratory deckx puurs Plant: puurs

Executor: bh

Code TF 8022/ 692 **with additive**

Sample location: Antwerp

Testing conditions: Type C
Stamp 500mm²
Test temerature 40°C
Coolingtime 24 h
Conditionering time 60 min

Sample nr.	Indentation after 10 min	Indentation after 30 min	Indentation after 60 min
1	0,07	5,15	6,62
2			

RESULT (average):

DEMAND = **<**

DEVIATION: 5,08 absolute deviation
0,51 20% average

Only for prescription 1617: 0,6mm > 0,00 increase 30' => 60'

Identification indentation device: P6

Results Pilot coloured mastic asphalt

Contact

Company:	**Stadsbader**	**Ventraco**
Name:	Kris Mallefroy	Ton Eijkenboom
Email:	kris.mallefroy@stadsbader.com	Ton@ventraco.nl
Tel:	+32 56 26 06 66	+31 (0)20 665 22 90
Website:	www.stadsbader-infrastructure.be	www.ventraco.com