METABAR®

INTRODUCTION OF METABAR TECHNOLOGY OY (Finland) TO GERMAN-FINNISH JOINT R&D PROJECT

May 23rd 2025

This presentation

1. Company introduction
2. Technology introduction
3. Growth plan
4. Reference cases within food processing industry
5. IP portfolio
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Appendix

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1. **Company introduction:** A Short History

A distruptive innovation: In 2010 Jarmo Lehtonen get an idea at his summer cottage how to remarkably reduce the water consumption of his broken Kärcher pressure washer.

An innovation was commercialized and patented: *Metabar Technology Oy* was established in 2017 to commercialize the key innovations. After the first patent (Fin) was filed Metabar started in 2020 the first co-operation project with one of the biggest food product companies in the world. After succcessful pilots and tests, new development versions has been installed to the pilot site. The latest version is able to achieve **80%-90% savings** in industrial-grade in-line washing process!

Current situation: First Metabar® nozzles are ready for market. They are already tested in multiple industries.

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1. **Company introduction:** A Change Maker

METABAR ® BRINGS A PARADIGM SHIFT TO INDUSTRIAL WATER SUSTAINABILITY

- PURPOSE: to help our industrial customers to improve their water sustainability level beyond the regulatory requirements in order to bring them competitive leverage.

- PATENTED TECHNOLOGY, which can **REMARKABLY DECREASE THE WATER CONSUMPTION** (water demand) incurring during industrial processes, like washing.

- NO DIRECT COMPETITIORS: Other water technology companies take water consumption volumes as a *given* parameter - and are focusing on maintaining/improving the water supply through closed-loop water recycling.

- WATER SUSTAINABILITY: Decreased water/liquid consumption during an industrial process means also **decreased waste water volumes**. Additional value propositions: no need for chemical purification of water, smaller footprint/weight for water/liquid tanks, more optimized logistics of the to-be-processed products/items.

- REFERENCES: Metabar has *references* how our solution will bring **REMARKABLE OPEX COSTS SAVINGS**.

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2. **Technology introduction:** The Enablers, Set-up & Impacts

ENABLERS (needed to any Metabar® washer)

- **Metabar® 3D-printed nozzle (made of metal)** – off-the-shelf (MB Pro 4.0 Series Washer) tai as tailored per any need
- **Inputs: Combination of pressured gas** (e.g. air, up from 0,1bar, no upper limit) **and liquid** (e.g. water or washing detergents) → Outcome: a washing-efficient "mist" or "spray" effect onto the to-be-washed product or surface.
- **Flow meters & sensors:** From well-known German / Japanies suppliers
- **Metabar® software:** Provining flow-control - taking into account the parameters trickered by flow meters and sensors.
- **Electricity:** Only needed to pressure the gas (e.g. air).

TECHNICAL SET-UP

- **Hardware:** Integration to the existing or new production lines.
- **Software:** Metabar® software can be integrated to the Enterprise Management System (ERP) of an industrial customer.

PRE-ESTIMATED ENVIRONMENTAL, WASHING EFFICIENCY AND COST IMPACT

- **Environmental impact:** *Liquid consumption* can decrease around 70%-90% - depending on the desired washing outcome. Consequently, also the *liquid waste* is automatically decreased. → Less water needed to be recycled, or to be discharged.
- **Washing efficiency:** Our software program can easily be adjusted based on the target surface – from "gentle" to "max".
- **OPEX-cost impact:** In our reference cases at a major food processing site the estimated pay-back time (according to our knowledge) has been between 1.7-1.8 years, depending of the size of individual investments.

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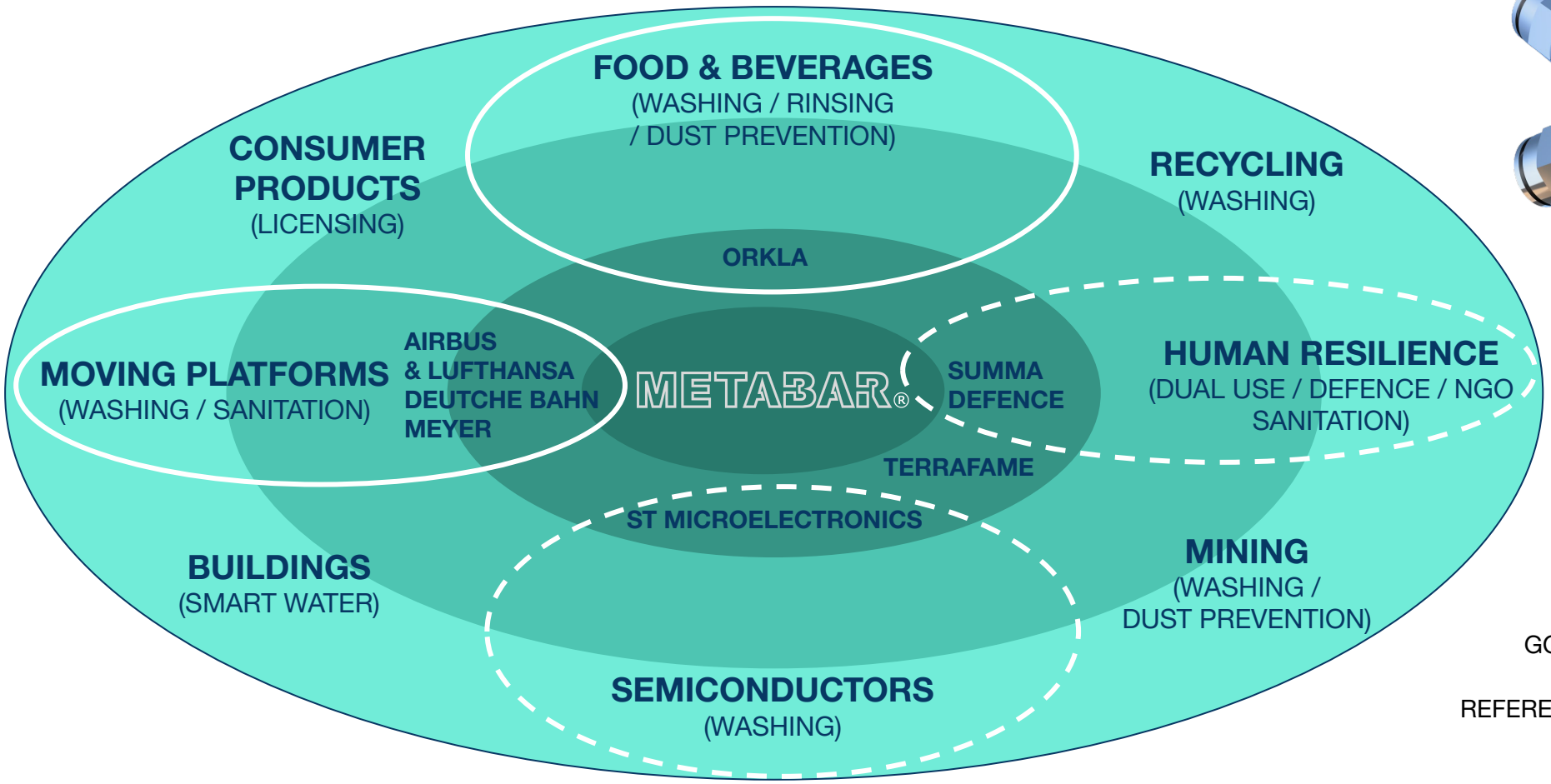
Growth Plan 2025 onwards



TARGET MARKETS

GO-TO-MARKET DRIVERS

REFERENCE / KEY CUSTOMERS

METABAR SOLUTIONS

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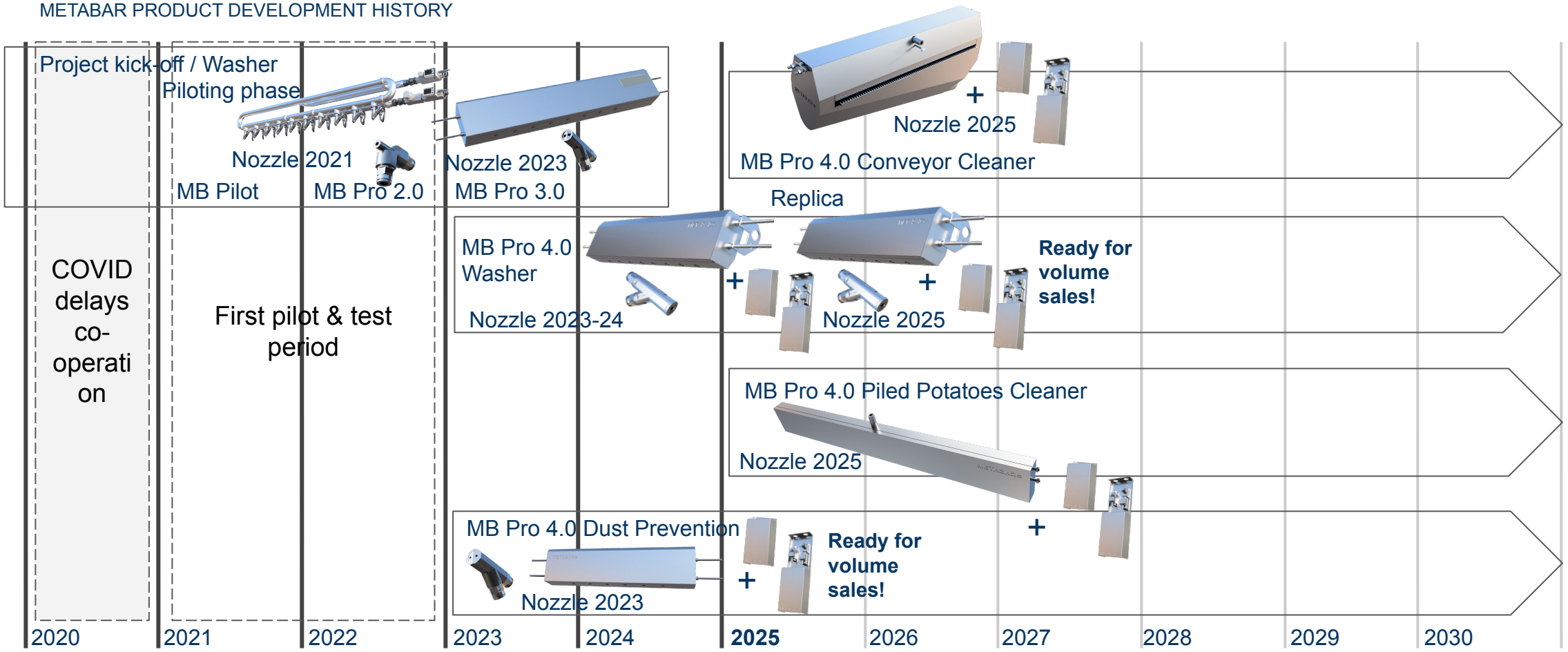
4. Reference cases within the Food Processing Industry

Sample Case / Food Industry: Kinetic aerosol method / Smart data / Stainless steel casing / Modular scalability

METABAR PRODUCT DEVELOPMENT HISTORY



> Control system in main housing

> Control system in separate housing

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MB Pro 4.0 Series Washer / Food Production

Kinetic aerosol method / Smart data / Stainless steel casing / Modular scalability

The system box is a standard solution whose profile length varies depending on the number of nozzles (or location arrangements, Control Unit left or right)

Support for hoses
- free position both sides

Metabar® ControL casing is the same as Dust Prevention case 1 / Sensors SMC

8 nozzles

Metabar® Cleantech Solution

New **lighter construction** with holistic MB industrial design and brand update

Metabar® Control's SMC has own adjustment inside the flow meter casing

Pressured air

water

Metabar® ControL casing is the same as Dust Prevention case 1 / Sensors SMC

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MB Pro 4.0 Series Washer: Comparison With the Old Solution

Kinetic aerosol method / Smart data / Stainless steel casing / Modular scalability

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5. IP portfolio

Patent portfolio:

FI (Finland):

First core patent application filed in 2/2017

- “Nozzle, Nozzle Arrangement and Liquid Distribution System”.

Applications for national patent extensions filed in 10/2019

- ”‘Optimized water/liquid use case-specific models and logistics in industry platforms.

EP (Europe): pending

CH (China): pending

JP (Japan): granted 8/22

US (USA): granted 10/22

AE (UAE): granted 12/2024

Metabar®

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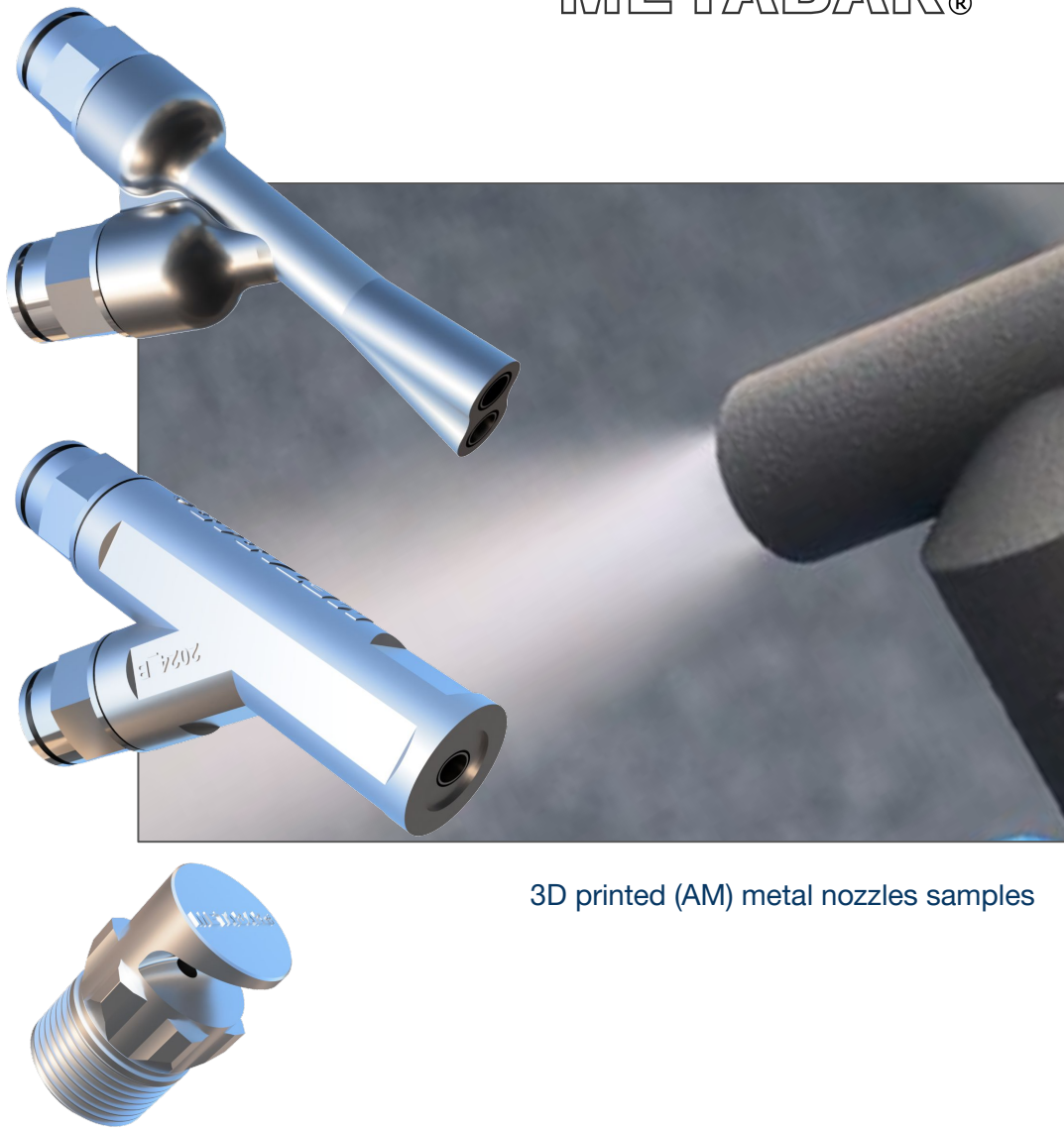

3D printed (AM) metal nozzles samples

6. Business model

- Metabar is aiming for international markets in order to grow - and to capitalize from the granted patents.
- Outside Finland **our main business model is licensing** - this concerns all markets.
- We are interested to look for partnerships with the following companies:
  - Who have established business presences in e.g. **food & beverages industry**;
  - Whose production sites are locating at **water scarcity areas**;
  - Who could integrate our key technologies to their own **“washing”, “coating” or “dust prevention”** offerings.
- Prior licensing stage we would first like to co-develop *reference cases* for each new technology application, as we do want to maintain a certain *Metabar® quality* -level with our nozzles and with their industrial applications. After an approved quality-level is jointly reached and after we are assured over our focus market partners’ capabilities to locally source 3D metal-printed Metabar® -nozzles and to calibrate them accordingly, our role would be more remote.
- Metabar® is a digital Company and all final product and component design data are filed as known 3D formats.

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7. Metabar contact details

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Metabar Technology Oy provides *tailored solutions* per each customer's specific needs. Our solution development is based on **experienced in-house team, high quality partner network and world class technology providers**. www.metabar.fi

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APPENDIX:

Potential target use cases

METABAR®

Potential Use Cases for Metabar® Technology

RINSING

RINSING, NEW!

MOISTURISING, LIGHT

WASHING, HEAVY

MOISTURISING, HEAVY

COATING, LIGHT

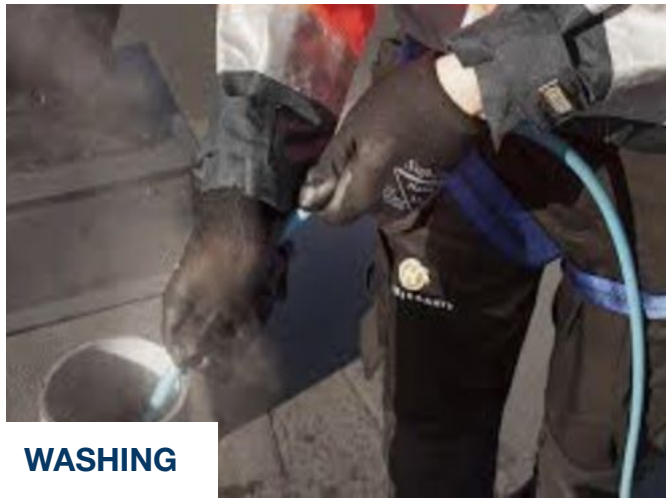
DUST PREVENTING

WASHING, LIGHT

Images; traditional solutions from web search.

METABAR®

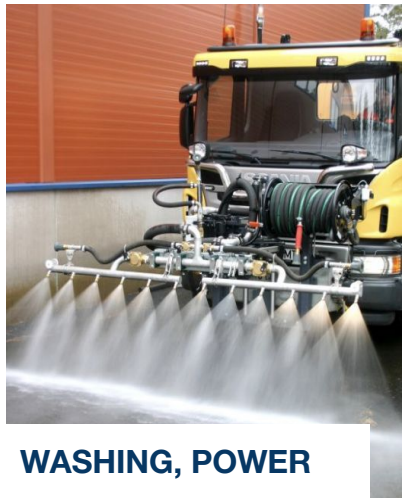
Potential Use Cases for Metabar® Technology



WASHING

WATER BRUSHING

MOISTURISING



WASHING, POWER

WASHING, CONTROLLED

COATING, TREATMENT

DUST PREVENTING

WASHING, HYGIENE

Images; traditional solutions from web search.

Potential Use Cases for Metabar® Technology

Scalable liquid management technology can be modified to different use cases and product platforms.

Industry services & solutions:

- cleantech e.g. washing
- surface treatment e.g. coating
- fire surpression
- fuel or other liquid distribution

Metabar® ingredients

Water
Soap
Disinfection
Chemical
Fuel
Hydrogen
Light oils

Images; traditional solutions from web search.