September 21, 2022 – 13:30 – Impulsvortrag

 Lebenslauf für jedes Kunststoffprodukt

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The unique watermark for plastics!

what it enables

- traceability
- identity
- brand trust
- industry 4.0

matriq
2018

2.600 million tones

Post-consumer plastic waste collected

550 million tones

Total post-consumer waste collected in plastic relevant streams

29 million tones

Total post-consumer plastic waste collected via those streams

Source: The circular economy for plastics – a European Overview, PlasticsEurope, 2019
Total collected post-consumer plastic waste (29 M t)

- Mixed waste collection: 52%
- Separate waste collection: 48%

- Recycling: 57%
- Energy recovery: 27%
- Landfill: 62%
post-consumer recycled material

- use recycled materials (rPET, rPP, ...)
- bring PCR-based value proposition to market
- reduction of hazardous materials
- use recyclable materials
- produce lighter-weight products
- use plastics for "meaningful" products

eco by design

- design products "prone to be" recycled

external recycling

- introduce circular economies
- separate, identify, and collect "unmixed" batches
- create awareness, educate people and provide opportunities for recycling
- advance chemical recycling technologies

fab-level recycling

- use highly productive and efficient processes
- back-feed production-site waste and rejects

materials

- use recycled materials (rPET, rPP, ...)
- bring PCR-based value proposition to market
helpful / important to know the origin and fate of plastics product in their life cycle by track & trace!
identity and traceability for plastics products

- **DynamicMold**
- **RFID chips**
- **inkjet printing**
- **laser marking**
- **in-mold labels**
- **needle marking**
- **adhesive labels**

**Surface**
- DNA codes
- holy grail 2.0

**Bulk**
- taggants

**Static**
- none/additives

**Dynamic**
the problem: today’s marking is costly and complex...

fabrication
handling, automation
down-stream marking
marked pieces

... but often required or mandatory for:

- track and trace along the product life cycle
- brand protection & legal compliance
- quality control & all process data
**the solution**: integrated in-mold ultrafast marking

- **fabrication**: laser marking
- **handling, automation**: inkjet printing
- **down-stream marking**: adhesive labels
- **marked pieces**: marked pieces

**in-mold marking insert**

- patents granted
- Ø 8mm

- ultra-fast within forming cycle
- all standard polymers
- >60% cost reduction
our innovative solution: DynamicMold variable marking in action

see our non-public video here: youtu.be/C6bYhmjv7iU
DM-date: date and time stamp on your products
injection molding video with DM-date

mounting mold insert

see our public video here: youtu.be/Px51vaNyN30
**DM-date**: system overview

The inserts are controlled by the “DMC”, sitting on the outer side of the mold tool.

The “DMS” (DynamicMold Supervisor) provides the interface to the Network.

Browser interface for system configuration.
injection molding cycle incorporating marking by DynamicMolding

no change of your standard injection cycle!

* marking is 150 to 300 milliseconds within the timeframe of packing /cooling phase, depending on the specific polymer used

~300 ms
matriq’s products roadmap

for in-mold, ultrafast, individual direct part marking

**DM-date**
- 4x5 code for date/time
- world's first digital date & time stamp

**mold.iq**
- Enables the identification and surveillance of mold tools

**DM-qode**
- 14x14 code serial number

**data management**
- digital twin
- serial number process-parameters meta-data

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2022

2023

* DM-brand
customized version for brand protection / authenticity
**DynamicMold** combines smart production with smart products

- **smart production**
  - digital twin
  - predictive maintenance
- **smart products**
  - identity
  - traceability

- marked parts
- process data
- in-mold marking
- process sensing
- product data
- machine learning
**DynamicMold impact:** smarter products to valorize plastics

- **process**
  - efficient and affordable process control also for material variations of recycling

- **traceability**
  - follow the product along its value chain and have all data about its use and end-of-life

- **productivity**
  - gain higher yields and create less waste and rejects by “predictive product performance”

**valorize plastics**
- efficient and sustainable use of plastics products
The unique watermark for plastics!

Our vision

matriq is the worldwide leading solution provider of plastic product marking for traceability, unique identification, and brand trust.

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