Water-based binders for more sustainable packaging solutions

‘Sustainable Food Packaging’

Milano (IT), May 27th 2025

BASF

We create chemistry

Presenter contact details

Sonia Morselli
New Market Development Manager
Resins for Printing & Packaging
BASF Italia SpA
sonia.morselli@basf.com
+39 3485330053

Niels Kappen
Technical Service Manager
Resins for Printing & Packaging
BASF Nederland BV
niels.kappen@basf.com
+31 6 18292298

BASF
We create chemistry

BASF Resins – Global unit for multiple segments

Focus Industries & Coating Technologies to bring solutions

Furniture & Flooring

Chemical Resistance

Weathering Resistance

Scratch Resistance

Automotive & Industrial

Corrosion Resistance

Chemical Resistance

Weathering Resistance

Scratch Resistance

Printing & Packaging

Functional Coatings

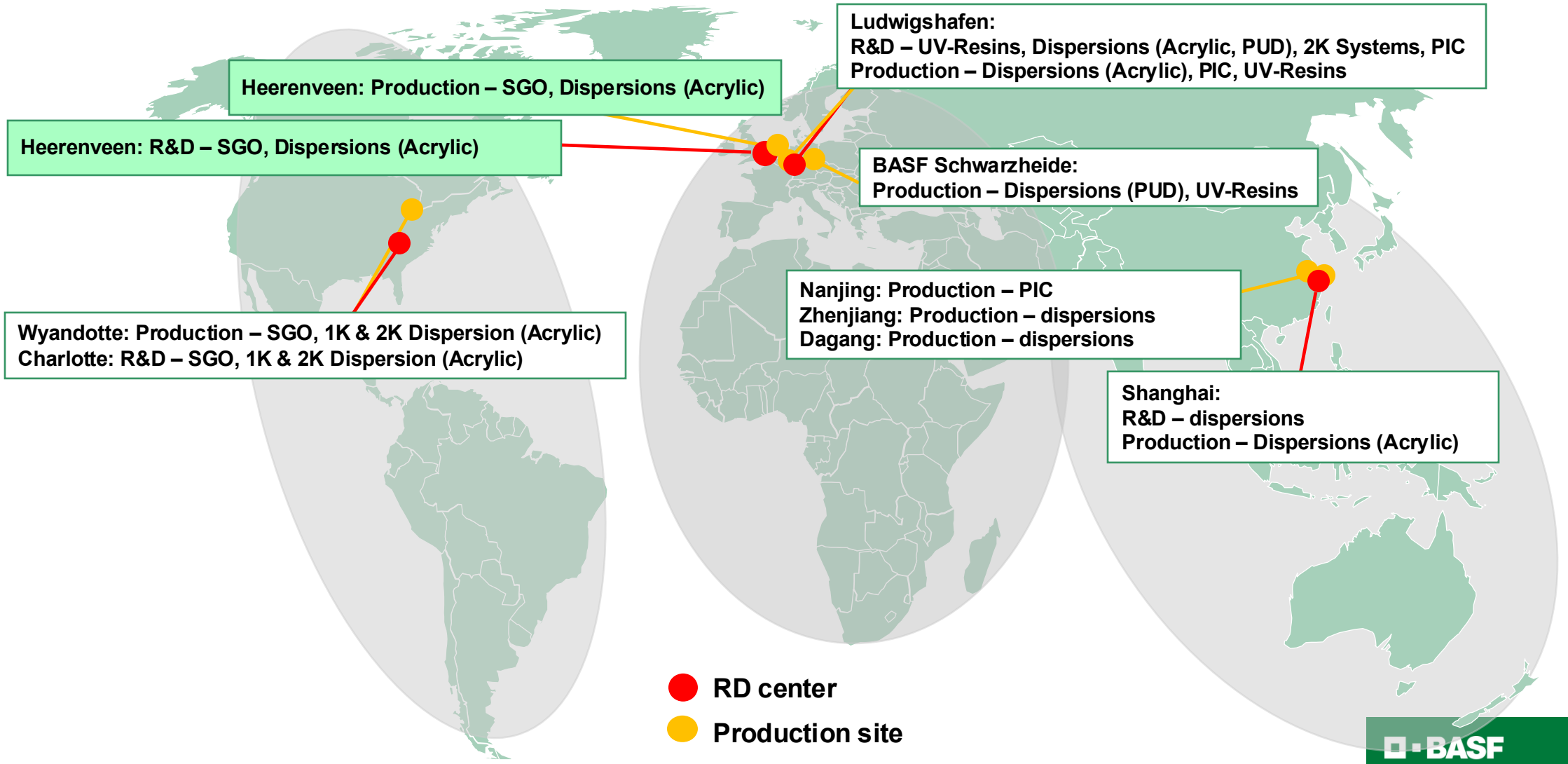
OverPrint Varnishes

Printing Inks

BASF
We create chemistry

Resins for Printing & Packaging

Global R&D and Application Technology Footprint Close to Assets and Customers



BASF
We create chemistry

Reduce Product Carbon Footprint

“Before store”

Reduce fossil-based substrates

“In store”

Recycling (End of life)

“After store”

BASF
We create chemistry

Our sustainability focus on reducing carbon footprint in the packaging value chain

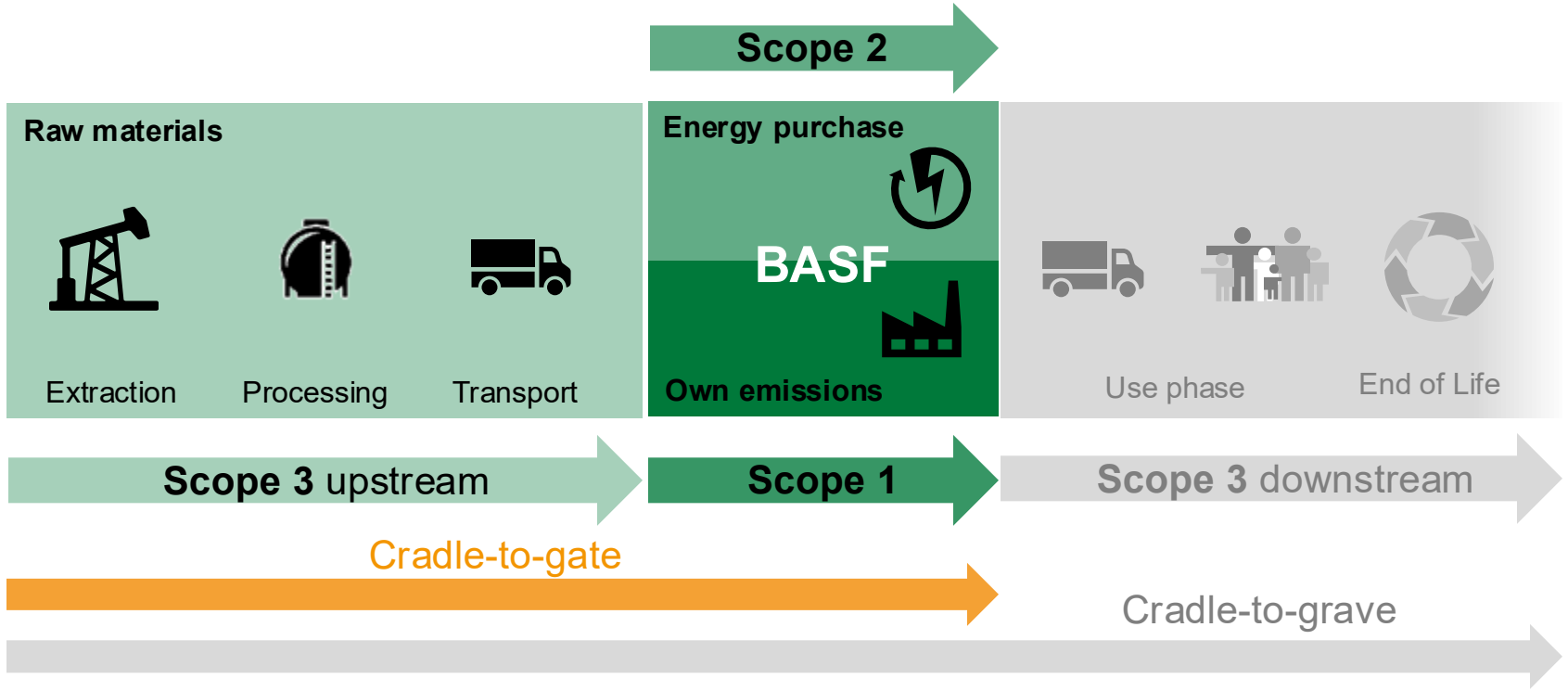
- **Conversion from solvent-based to water-based**
  Lower PCF* for water-based inks, coatings, and adhesives that perform as well as solvent/VOC containing systems
- **Efficient production setup**
  BASF Verbund structure helps to minimize CO_2 emissions
- **Use of biobased raw materials**
  Via direct use of biobased raw materials (Joncryl® BRC) and/or via the biomass balance approach (Joncryl® MB)

* BASF – SCOTT Cradle-to-gate including biogenic CO2 savings.
PCF typical WB binder is ~1,5 and typical SB binder >2,5 CO_2/kg product.
Calculated January 2023 according to ISO 14067 and the TfS Guideline

BASF
We create chemistry

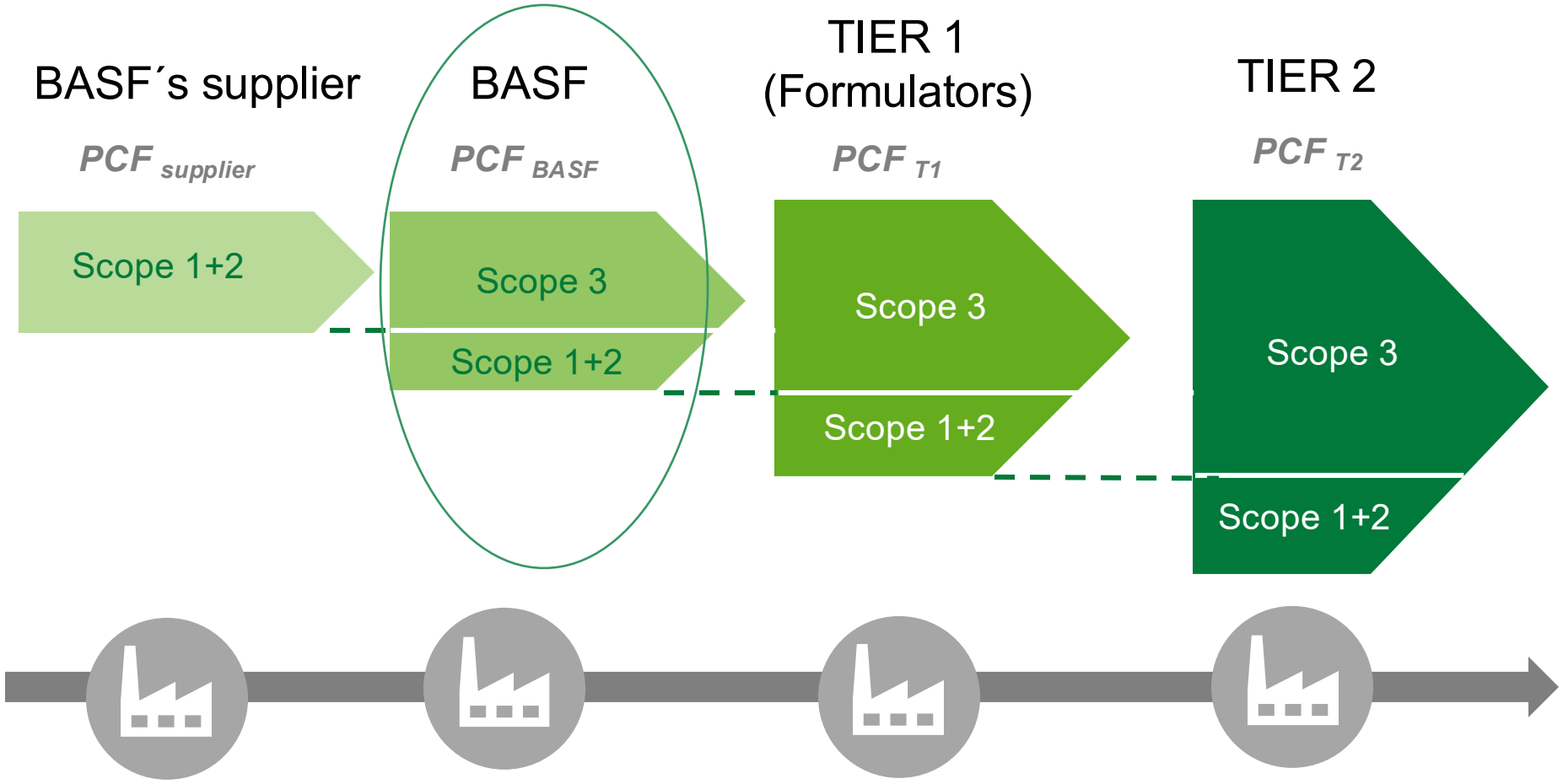
The BASF Product Carbon Footprint (PCF)

- The PCF is a measure for the climate impact of a product.
- BASF's PCFs summarize the total amount of greenhouse gas (GHG) emissions (Scope 1, 2 and 3) that are associated with a product throughout its life cycle from cradle to gate.
- Our upstream **Scope 3 emissions** account for about **70 percent of the product carbon footprints of our sales products.**
- BASF is taking targeted measures **to reduce emissions in all relevant Scope 3 categories along the entire value chain.**



BASF
We create chemistry

Emissions along the value chain

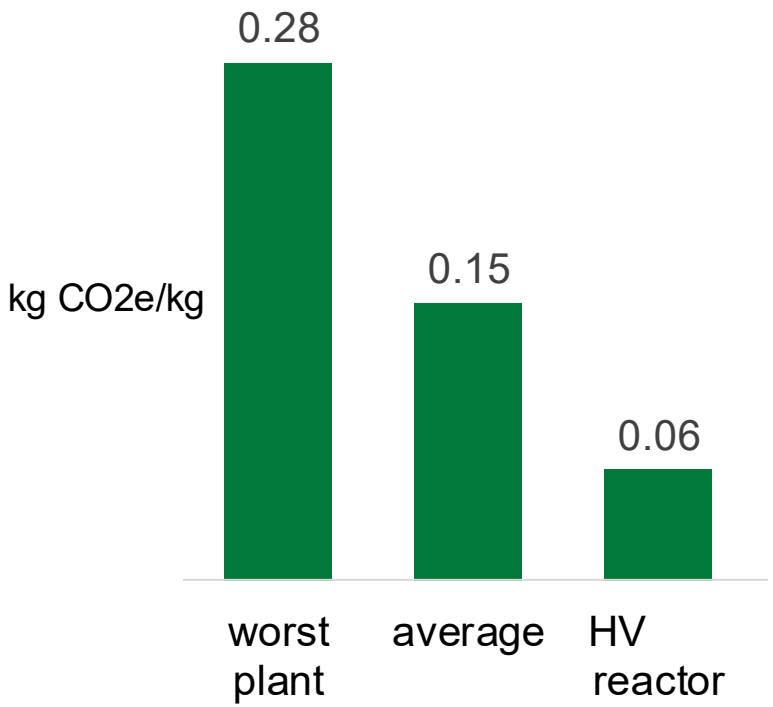


GHG emissions associated with product manufacturing

BASF
We create chemistry

Our Sustainability focus on reducing carbon footprint in the packaging value chain

Efficient production setup (std products)



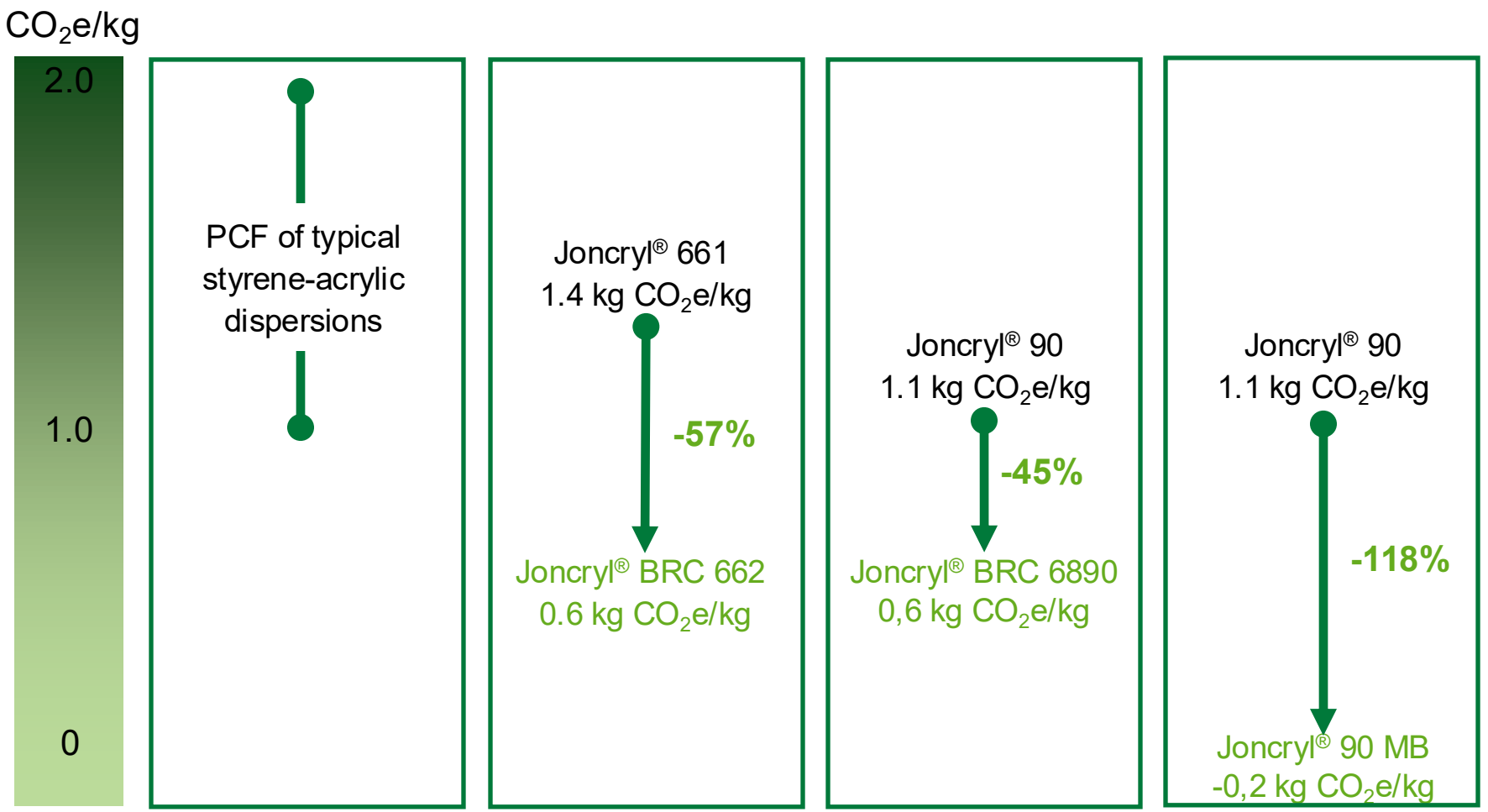
Reducing process emissions
(green energy, heat management)

CO_2 management program
on raw materials

BASF
We create chemistry

Use of biobased raw material to reduce the carbon footprint*

With Biomass Balance even Net zero possible



Biomass Balance

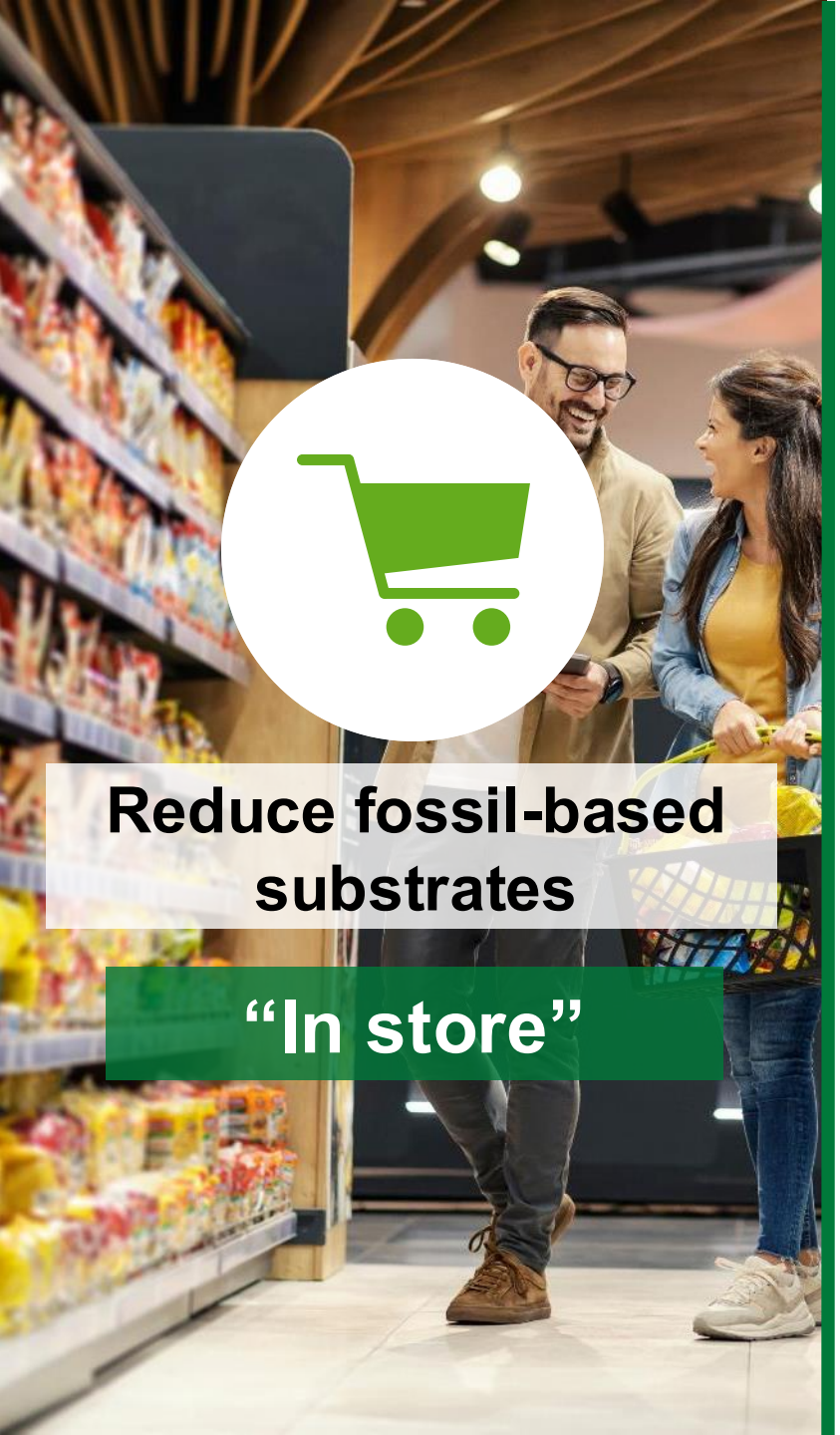
Identical product performance

No changes in food contact

2nd generation bio feedstock

BASF
We create chemistry

*BASF – SCOTT Cradle-to-gate including biogenic CO2 savings. Calculated January 2023 according to ISO 14067 and the TfS Guideline



Our contributions to create appealing, food safe and sustainable packaging

- Water-based polymers for barrier coatings that enable **paper-based packaging**
- **Alternatives to products like waxes or fluorocarbons,** barrier polymers preserve esthetics and integrity of paper-based packaging and are suitable for direct food contact
- Barrier polymers protect content by **limiting (chemical) penetration** of grease, mineral oil, water(vapor) and oxygen
- Binders for heat-seal lacquers that **ensure perfect closure** of paper and flexible packaging

BASF
We create chemistry

Paper-based packaging applications
Sustainable barrier solutions

Plastic reduction

Frozen foods

- Water uptake
- Repellency
- Sealability

Paper cups

- Water uptake
- Repellency
- Hot air sealing

Non-food

- Moisture barrier
- Sealability

PFAS replacement

Burger wraps

- Grease
- Water uptake
- Hot fill

Pet food pouches

- Grease
- Long term contact

Baking paper

- Grease
- Water uptake
- High temperatures

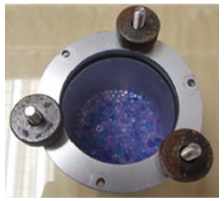
BASF
We create chemistry

Functional Packaging Coatings

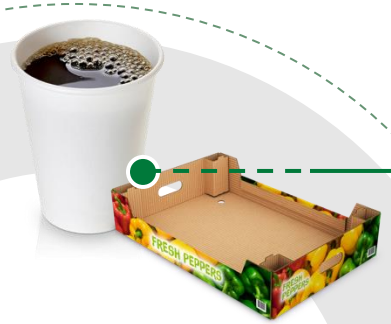
Barrier products toolbox

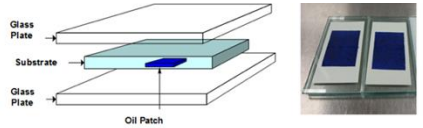
Liquid/water

Moisture



Barrier Coatings



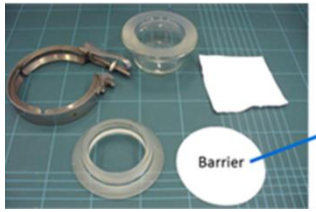


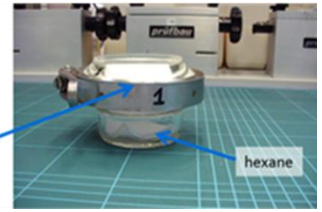
Oil & grease

- KIT test
- Oil staining
- Petfood test

Oxygen

Mineral oil barrier





BASF
We create chemistry

Our commitment to post-consumer package recyclability and improved end-of-life

Recycling

Joncryl® binders for water-based printing inks and overprint varnishes are fully recyclable*

Joncryl® HPB barrier polymers for paper-based materials do not affect recyclability**

Compostability

Majority of water-based printing ink and OPV systems for food packaging are certified***

* Over 40 years daily practice with water-based printing systems
** Tests according to CEPI method, Version 2
*** TUV Austria: www.tuv-at.be

BASF
We create chemistry

Your questions

BASF
We create chemistry

We create chemistry

BASF
We create chemistry

Our levers to reduce our PCFs

Scope 1+2

Grey-to-green

Power-to-steam

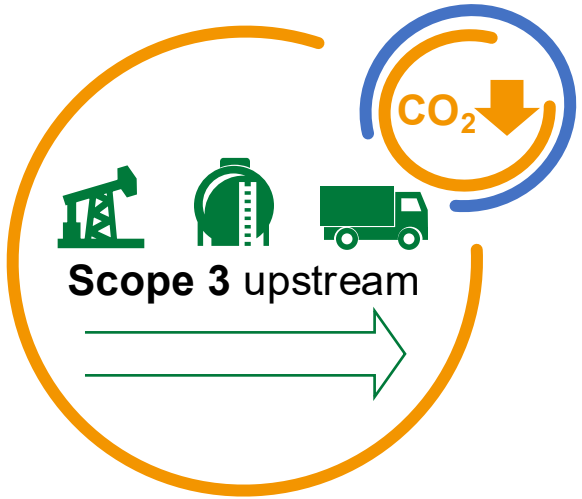
New technologies

Carbon capture

Continuous opex

Scope 3 (upstream)

Supplier CO2 management program



+

Circular raw material (BRC, MB & ChemCycling)

BASF
We create chemistry