

New biobased and sustainable UV-cured and WB coatings

from the



project

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**IVM has been working already for over 20 years
to improve the sustainability of wood coatings:**

**LESS NOXIOUS
MATERIALS**

=

**HEALTHIER
AND LESS
POLLUTING**

**LOWER CARBON
FOOTPRINT
(GHG contribution)**

=

**BELOW
2.4 Kg CO₂/kg**

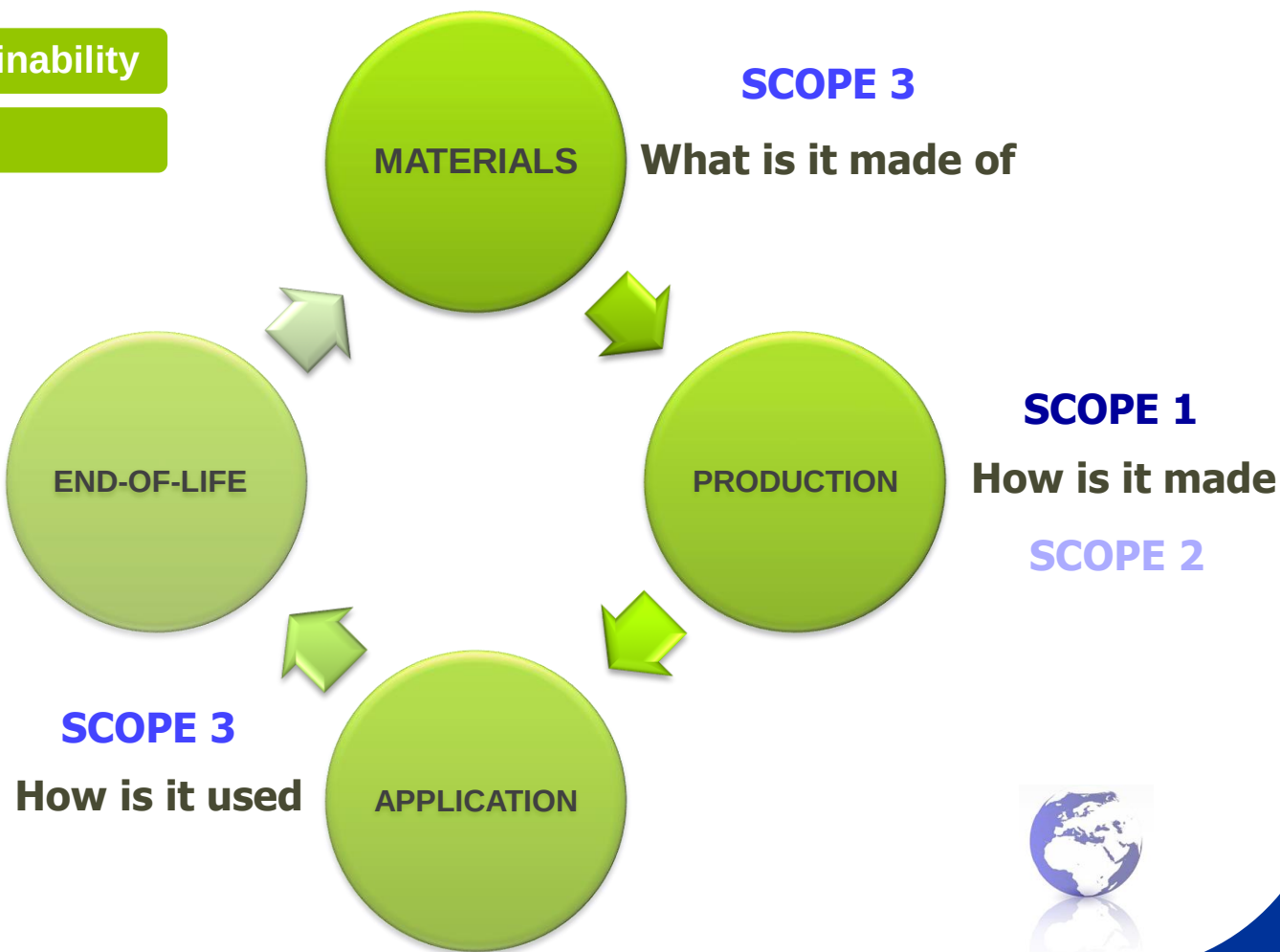


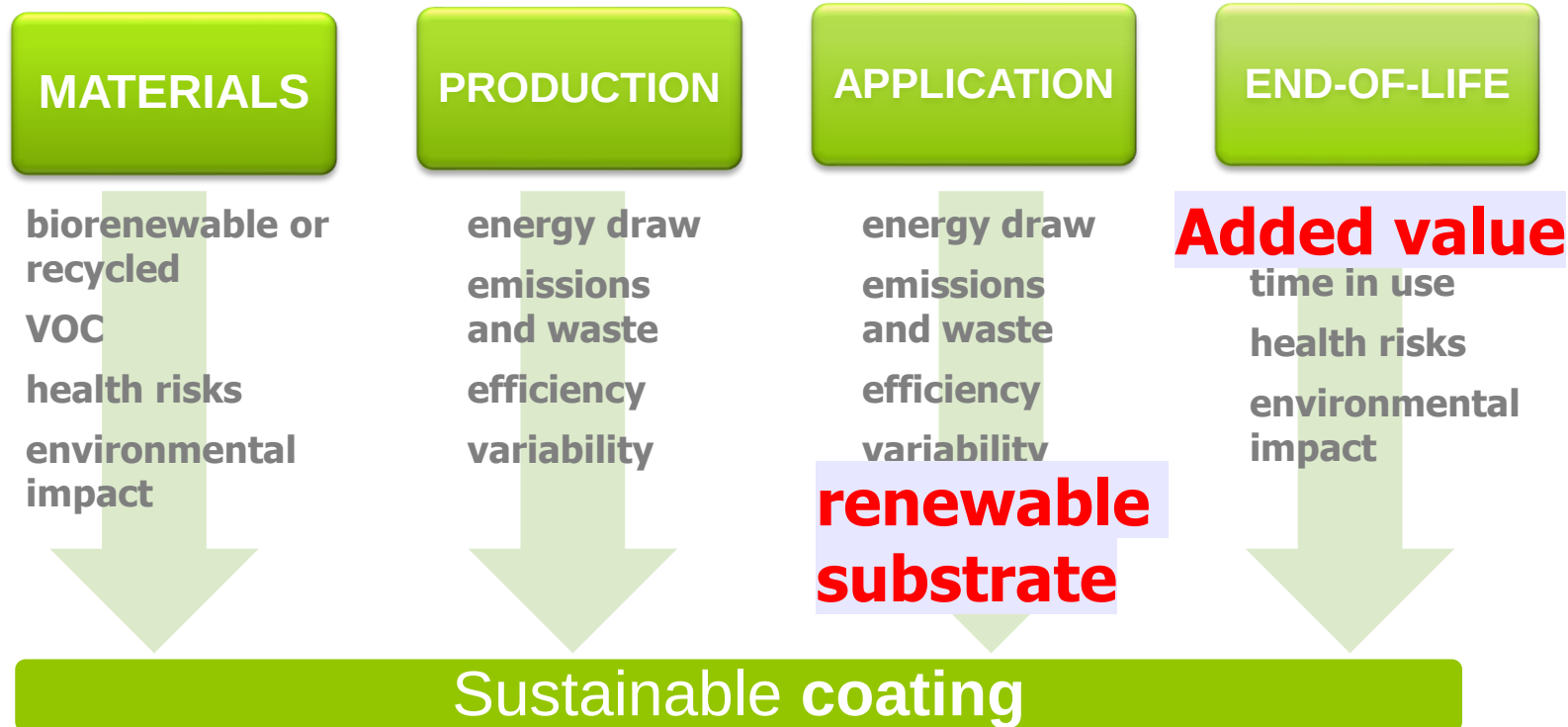


A product sustainability

depends on:

SCOPE 3
How long does
it last and how
is it disposed of

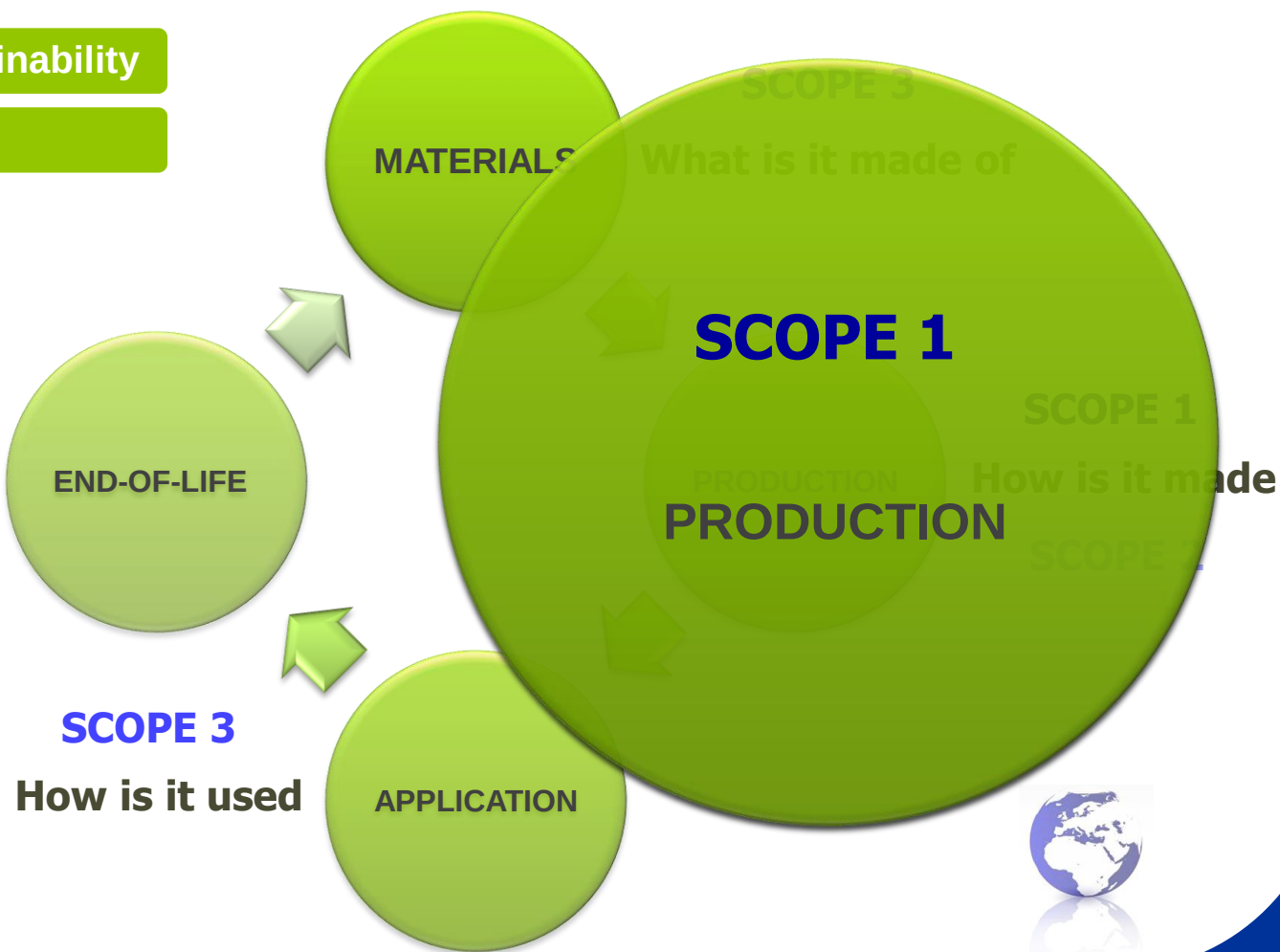




A product sustainability

depends on:

SCOPE 3
How long does
it last and how
is it disposed of



Resins and paint production plant in Parona

SCOPE 1



- State of the art
- Highly efficient
- Zero emissions

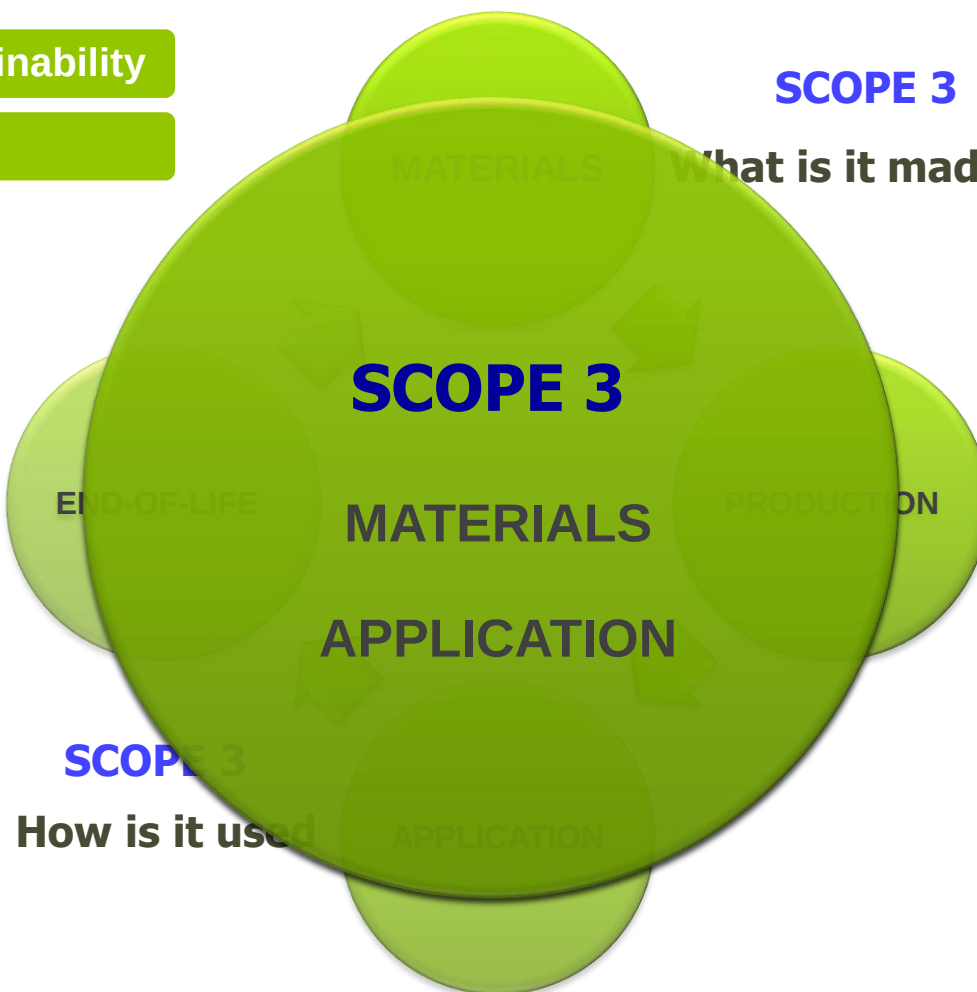




A product sustainability

depends on:

SCOPE 3
How long does
it last and how
is it disposed of



SCOPE 3

What is it made of

SCOPE 1

How is it made

SCOPE 2

SCOPE 3

How is it used



Wood coatings become sustainable solutions

**IVM is uniquely placed:
it produces
both resins and coatings**



**NEW RESINS
FOR NEW COATINGS**



from here...



... to here



**Materials
Application**

New products



Waterborne products

UV-cured products

Aromatic-free products

High-biorenewable content resins

Harö-line, high biorenewable content SB paints





Two highly innovative EU-funded projects



2018-2021

New UV-cured resins
and coatings



2021-2023

New waterborne resins
and coatings



LIFE is the main EU financing tool for environmental and climate progress

LIFE funds projects aiming to:

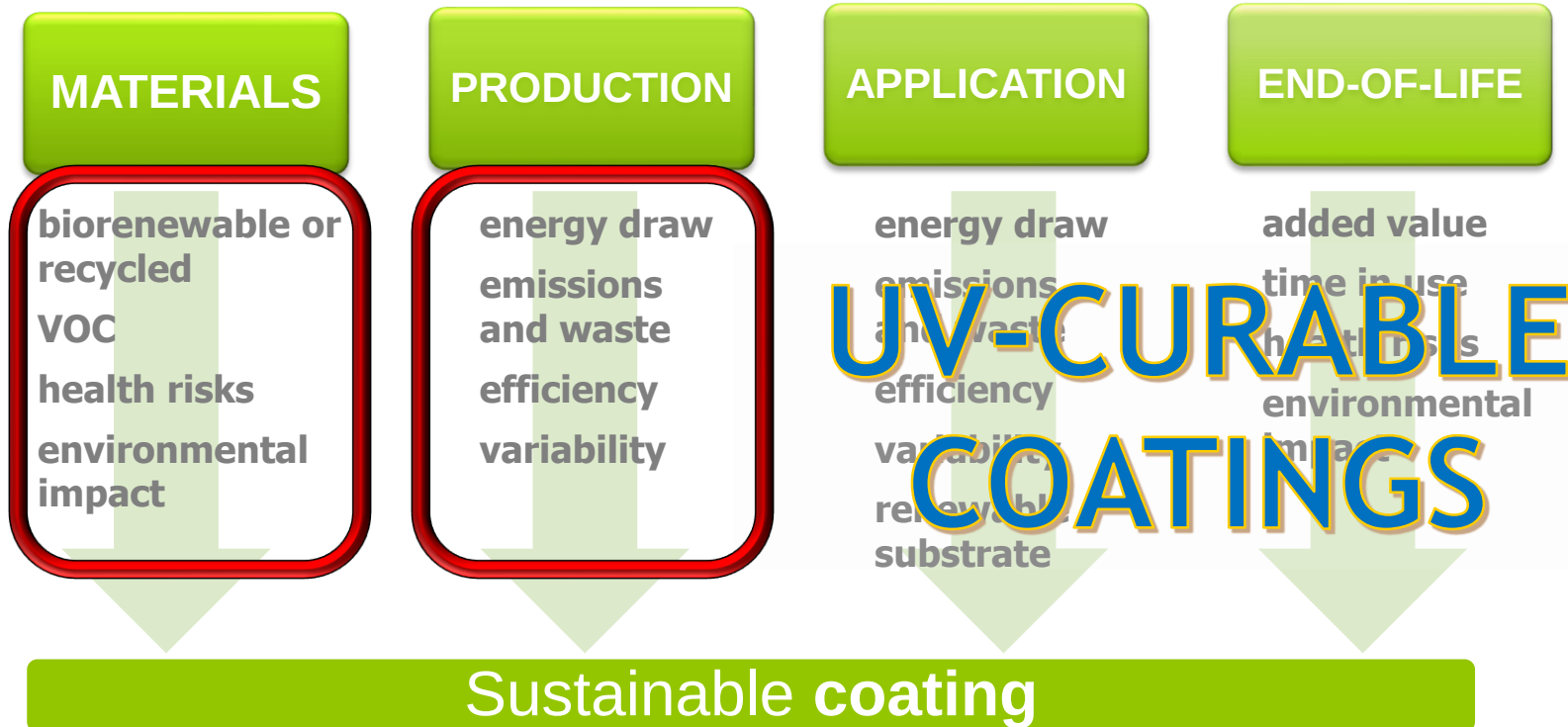
- Improve environment and health**
- Lower impact of human activities** on environment and climate
- Enhance greater biodiversity**
- Protect nature**

LIFE by numbers

2021-2027 budget = **€5,4 billions**
(increasing from €3,4 billion in 2014-2020 budget)

**Funding of LIFE-BioPaint certifies
IVM's technical capability
and commitment
to sustainable development**





MATERIALS

SCOPE 3

NEW RESINS

REPLACING

UV-curable polyesters

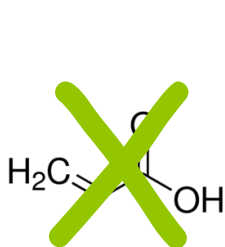
Safer

Low climate and environmental impact (by LCA)

On average, **about 65% biobased content**

components

- **unsafe**
- **polluting**
- **with high climate impact**



MATERIALS

SCOPE 3

NEW COATINGS

WITHOUT

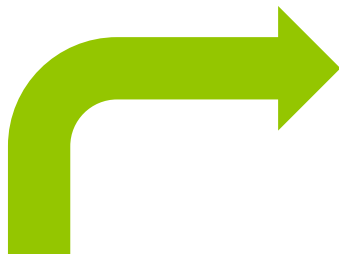
- primers, putties, basecoats, sealers and topcoats
- roll-coating, spray and vacuum coating

Reducing use of petrochemical-based materials
Reducing use of acrylates (reducing acrylic acid)
On average, **about 50% biobased content**

- 
- bisphenols
 - heavy metals
 - benzophenones
 - formaldehyde
 - etc.



Paint production plants enter the 21st century



Biobased coatings as good as traditional products





PRODUCTION

SCOPE 1

Design and build the pilot of a
novel paint production line



Consume **less energy** than current plants

Produce **no rejects and minimal waste, no VOC**

Ensure **maximum product quality and reliability**

Ensure **maximum production efficiency**

Maximum automation



PRODUCTION

SCOPE 1

Designed for Perfection

wholly automated process with complete tracking
– no errors, continuous improvement

closed temperature-controlled circuit
– no unwanted thermal rxns

controlled atmosphere
– no emissions to or contamination from the outside

dedicated line for each component
– no cross-contaminations

mobile sealed vats



Max efficiency



PRODUCTION

SCOPE 1

Absolute Precision



automated dosing optimized by dual measure

multiple-size, gauge-tunable supply valves - accuracy better than 10g per dosing

dispersion optimized via rheological feedback - energy use optimization

identical batches from 100 Kg to 2 tons

line cleaning after each dosing

Min variability



PRODUCTION

SCOPE 1

Minimal environmental impact



closed circuit can/drum/IBC filling

no emissions to or contamination from the environment

advanced double closed-circuit cleaning

solvent-recycling vat cleaning process

high pressure sealed vat washing station

Main environmental results from plant innovation

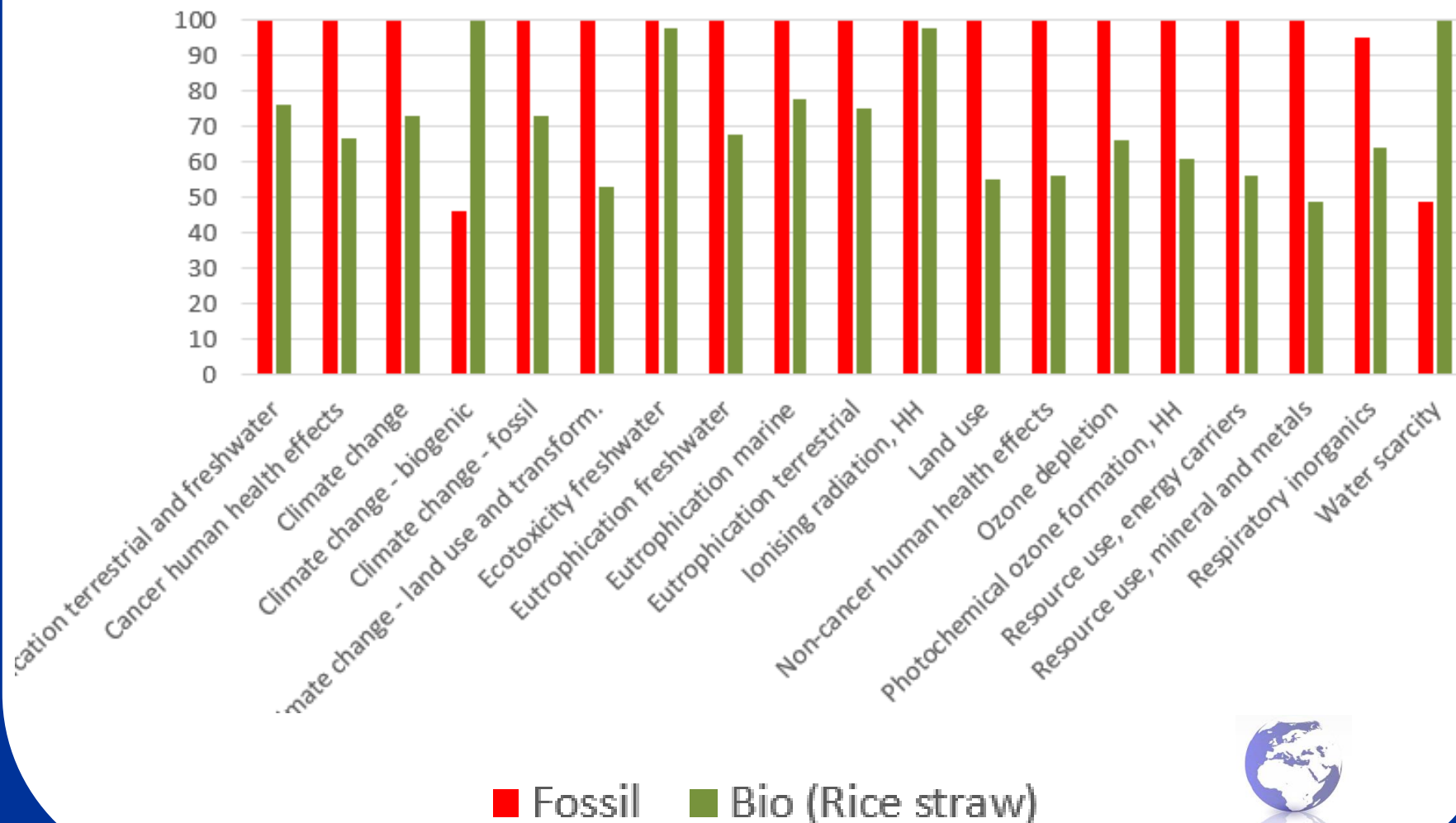


Type of impact	Reductions	percent benefits
GHG emissions	-170 tons/year	-75%
VOCs	-2,2 tons/year	-100%
Waste generation	-330 tons/year	-75%
Energy consumption	-550 MWh	-75%
Cleaning solvent use	-110 tons/year	-50%
Dangerous substances use	-3.300 tons/year	-33%

Estimated for 11.000 tons/year production



LCA results of product innovation





LIFE-BioPaint products can be certified



... and many more!



Biorenewable products are already available!

Full range of 100% UV
coatings, 70% bio, roller
application

clear primer
clear heavy putty for
closed grain
clear sandable sealers for
open or closed grain
clear top coats, from 5 to
70 sheen

Excellent
leveling
and
physical and
chemical
resistance

Open or closed grain
cycles with excellent
aesthetic quality,
for furniture, doors,
panels and flooring
("high foot traffic"
classification
according to UNI
11622: 2016)



Biorenewable products are already available!

100% UV oils
for roller applications

clear matt oil, 94% bio, 3 sheen

clear matt oil, 32% bio,
stainable, 3 sheen

Bio-sourced
and
far superior for
chemical and
physical resistance
to oils that are
not UV-cured





MATERIALS

SCOPE 3

NEW RESINS

REPLACING

WB short oil, high Mwt alkyd polyols

Safer

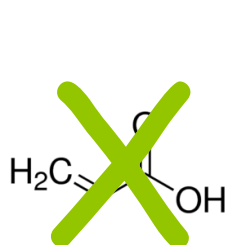
No VOC

Low climate and environmental impact (by LCA)

About 65% biobased content on solids

components

- **unsafe**
- **polluting**
- **with high climate impact**



MATERIALS

SCOPE 3

NEW COATINGS

WITHOUT

- **Waterborne with no or minimal VOC**
- **Cured coatings comparable to best SB PU products**

Reducing use of petrochemical-based materials
Reducing use of acrylic resins (and acrylic acid)
About 50% biobased content on solids

- 
- **aromatic solvents**
 - **heavy metals**
 - **benzophenones**
 - **formaldehyde**
 - **etc.**



PRODUCTION

SCOPE 1

Design and build the pilot of a
novel resin production line

By dispersing alkyds in water rather than solvents, no **VOCs** are emitted

Consume **less energy** than current plants

Produce **no rejects and minimal (water) waste**

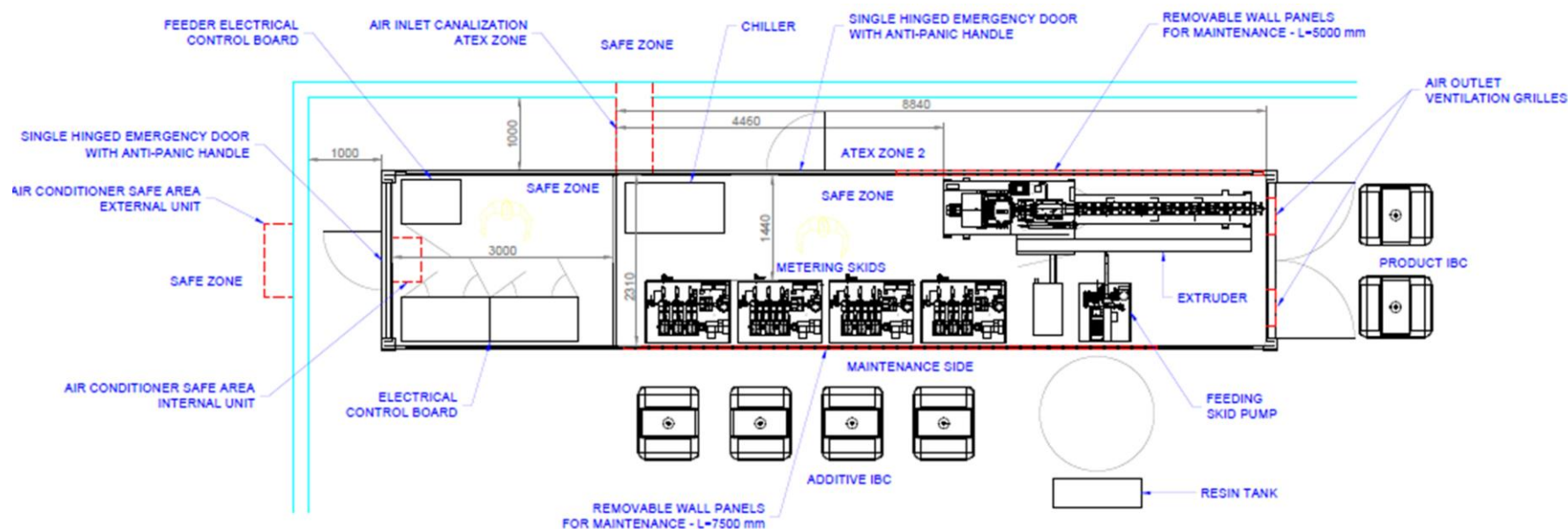
Ensure **maximum product quality and reliability**



PRODUCTION

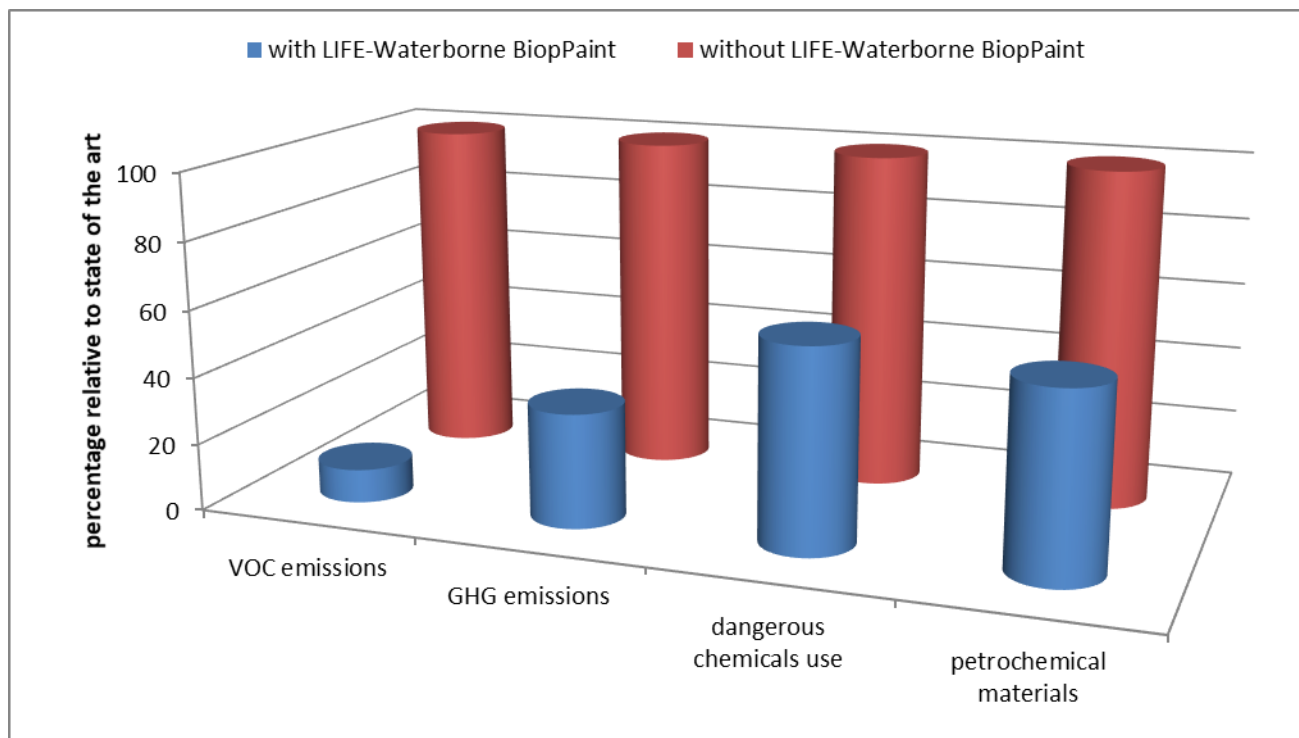
Extrusion emulsification in a box

SCOPE 1



- Maximum production flexibility
- Compatibility with ATEX production environment





66% lower CO2 emissions

90% lower VOC emission

45% less petrochemicals

40% less dangerous materials



QUESTIONS?

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