
www.basf.com/acresin
#chooseZeroPCF
choose
zer
for future
BASF
We create chemistry
acResin®
The acrylic hotmelt

acResin® – the acrylic hotmelt

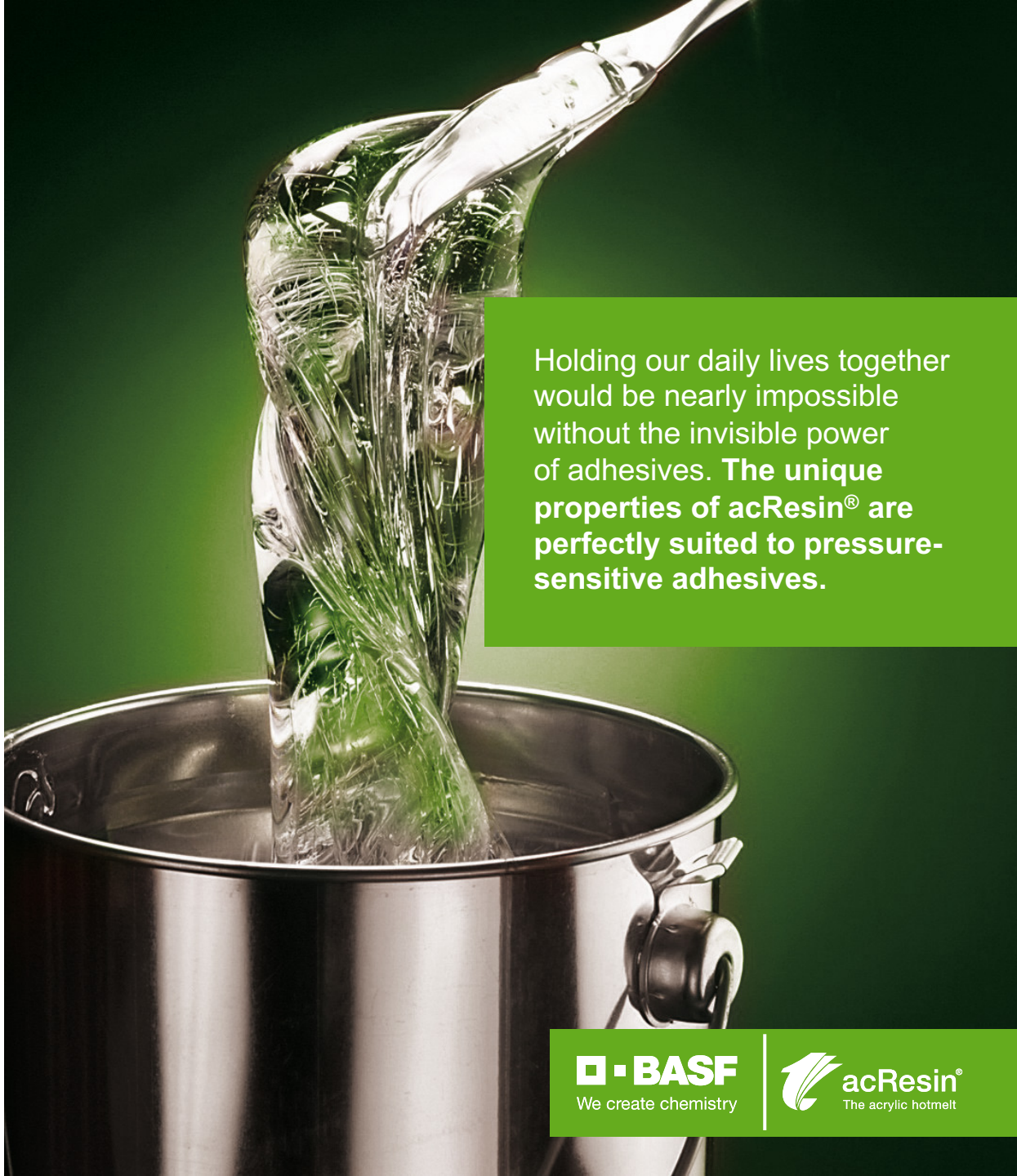
Your number one choice for performance and sustainability

BASF We create chemistry | acResin® The acrylic hotmelt

High-performance adhesive

Depending on the application, adhesives have to meet specific requirements such as high durability, resistance to humidity, skin tolerability or a transparent no-label look.

acResin® has been specially designed for the manufacture of high-quality self-adhesive specialty products for automotive, construction, medical, cosmetics, food or beverage applications.



Significant sustainability benefits

Innovative adhesive technology for self-adhesive label and tape applications

Challenge

To replace high-performance solvent-borne adhesives with environmentally friendly alternatives featuring comparable property profiles

Solution

Development of innovative new UV-curable acrylic hotmelt adhesives which offer a unique combination of properties

Benefits

Compared to traditional solvent-based adhesives, acResin® is more sustainable, less expensive and helps save significant CO_2 emissions (125 kg CO_2 per 1000 m² of label material), as demonstrated by a TÜV-certified eco-efficiency analysis for durable labels.

BASF We create chemistry | acResin® The acrylic hotmelt

acResin® makes a significant contribution to sustainability in the value chain.

- Safe for contact with food and good skin compatibility
- Suitable for sensitive applications due to low fogging, VOC and odor
- Free of biocides, MOSH[1] and MOAH[2]
- As 100 % system most efficient transportation
- Higher eco-efficiency than solvent-based alternatives
- Significant Product Carbon Footprint (PCF) reduction through our Biomass Balance approach

[1] Mineral oil saturated hydrocarbons
2 Mineral oil aromatic hydrocarbons

acResin® – the acrylic hotmelt

Product portfolio

We offer a broad range of acResin® products, tailored to customer and industry needs.

Discover our product portfolio, and let’s discuss how we can enhance the performance of your products.

Our acResin® products: 100% solid content

Our acResin® portfolio

100% solid content

Product	Main applications	Good to know	
acResin® A 260 UV	▪ Automotive tapes ▪ Construction tapes ▪ Medical tapes	▪ Preferred choice for formulated adhesives	▪ Very low VOC ▪ Compliant with ISO 10.993-5 /-10 ▪ Coating weights up to 150 g/m²
acResin® A 250 UV	▪ Construction tapes ▪ Permanent filmic labels	▪ Excellent adhesion to low-energy surfaces ▪ Good optical properties	▪ Very low VOC ▪ Compliant with ISO 10.993-5 /-10 ▪ Coating weights in excess of 250 g/m²
acResin® A 204 UV	▪ Permanent paper labels ▪ Durable labels ▪ Specialty tapes	▪ Preferred choice for formulated adhesives	▪ Resins or resin-based tackifiers possible ▪ Coating weights up to 100 g/m²
acResin® UV 3532	▪ Removable labels ▪ Wash-off filmic labels	▪ Excellent optical properties	▪ Coating weights up to 50 g/m²

acResin® A 260 UV

Application segment

Automotive

Construction

Medical

Food, beverage and cosmetics

Shear

++

Tack

++

Glass transition temperature

-39°C

Peel

++

Features and benefits

- Well-balanced properties for a wide range of applications
- Resistance to humidity and water
- Excellent balance between adhesion and cohesion
- Option to modify with other solid acrylic resins or rosin-based tackifiers
- Compliant with ISO 10993-5/-10
- Certifiable according to UL 969

BASF We create chemistry | acResin® The acrylic hotmelt

acResin® A 250 UV

Application segment


Automotive


Construction


Medical


Food, beverage and cosmetics

Shear

+

Tack

+++

Glass transition temperature

-39°C

Peel

+++

Features and benefits

- Excellent adhesion to low-energy surfaces
- Resistance to water whitening, humidity and water
- Excellent clarity in adhesive films
- Coating weights in excess of 250 g/m²
- Compliant with ISO 10993-5/-10
- Certifiable according to UL 969

BASF We create chemistry | acResin® The acrylic hotmelt

acResin® A 204 UV

Application segment

Automotive

Construction

Medical

Food, beverage and cosmetics

Shear

+++

Tack

++

Glass transition temperature

-34°C

Peel

+

Features and benefits

- Excellent cohesion
- Especially suitable for permanent paper labels
- Option to modify with other solid acrylic resins or rosin-based tackifiers
- High heat resistance
- Certifiable according to UL 969

BASF We create chemistry | acResin® The acrylic hotmelt

acResin® UV 3532

Application segment

Automotive

Construction

Medical

Food, beverage and cosmetics

Shear

+++

Tack

+

Glass transition temperature

-60°C

Peel

+

Features and benefits

- Excellent clarity in adhesive films
- Resistance to water whitening
- For removable and wash-off labels
- Suitable for applications with low to medium coating weights

acResin® – benefits at a glance

- Solvent-free UV acrylic hotmelt
- Variable adhesive power enabled by adjustable UV crosslinking
- Outstanding resistance to aging and heat
- Excellent clarity for transparent films (no-label look)

- New sustainable product range (with a carbon footprint of zero)
- Higher eco-efficiency than solvent-based alternatives
- Low fogging, VOC and odor
- Safe for contact with food and good skin compatibility

- Wide range of adhesive properties covered by specially designed product grades
- Efficient upscaling on our pilot coater with the support of our technical experts

acResin® – the acrylic hotmelt

Application segments

Automotive

acResin® is highly durable and resistant to aging. This makes it the ideal solution for developing labels and tapes for automotive applications.

- ✓ **High durability**
- ✓ **High resistance to aging**
- ✓ **Low VOC and low fogging**
- ✓ **Minimal migrating ingredients**

Construction

acResin® is long-lasting and resistant to humidity, making it the perfect choice for developing pressure-sensitive adhesives for construction applications such as single-sided and double-sided tapes.

- ✓ **High durability**
- ✓ **Resistance to humidity**
- ✓ **High resistance to aging**
- ✓ **Resistance to water whitening**

BASF We create chemistry | acResin® The acrylic hotmelt

Medical

acResin® products offer substantial sustainability benefits, and are therefore the ideal choice for the production of medical tapes.

- ✓ **Latex-free**
- ✓ **No organic solvents**
- ✓ **Minimal migrating ingredients**
- ✓ **Compliant with ISO 10993-5/-10** (biological evaluation of medical devices)
  - **Not cytotoxic**
  - **No skin irritation**
  - **Anti-allergenic**

Food, beverage and cosmetics

acResin® is food safe and offers excellent clarity. This makes **acResin®** the number one choice for the production of paper and filmic labels for food, beverage and cosmetics applications.

- ✓ **Excellent clarity of adhesive film**
- ✓ **Resistance to humidity**
- ✓ **Resistance to water whitening**
- ✓ **Food safe**

BASF We create chemistry | acResin® The acrylic hotmelt

acResin® – the acrylic hotmelt

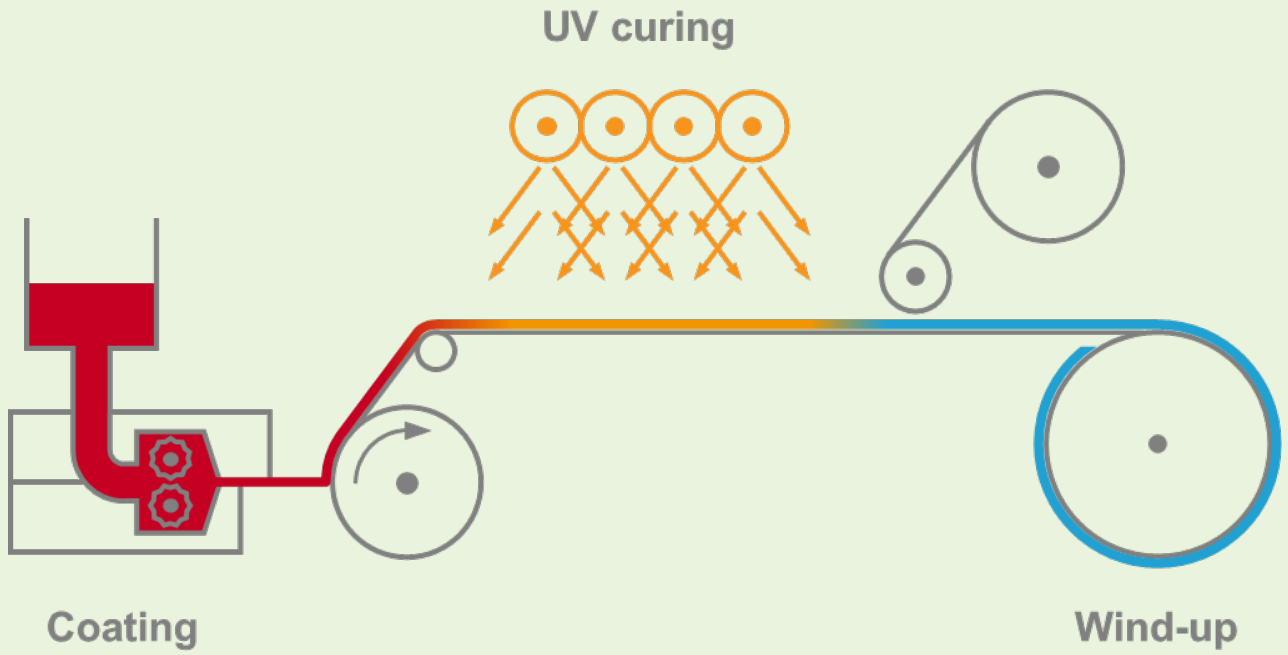
UV-curable technology

UV-curable technology

acResin® products contain only pure solids and can be processed immediately on standard hotmelt coaters equipped with commercial UV lamps. No extra drying equipment or flash-off zones are required.

Processing of acResin®

- Easy, cost-efficient curing
- Fast, controllable reaction
- Photoreactive crosslinking



Variable adhesive power

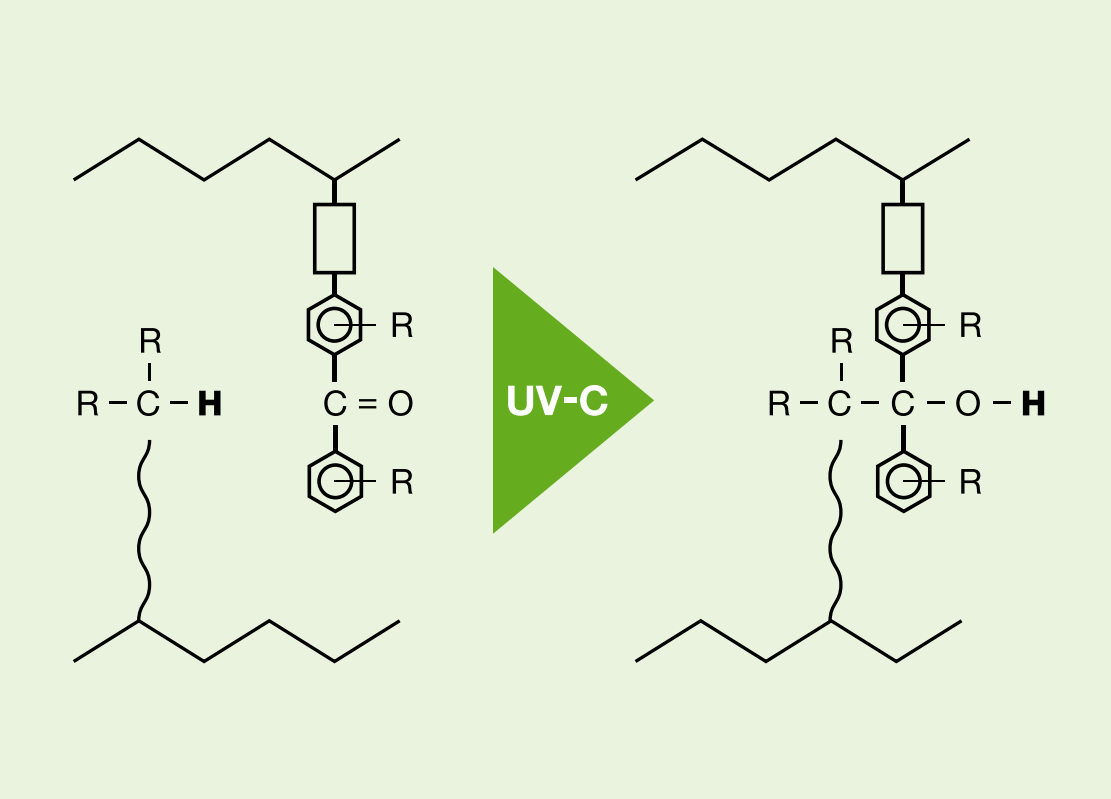
acResin® unleashes its full adhesive power with the right UV curing.

Easy, cost-efficient curing

acResin® can be processed on hotmelt coaters equipped with UV lamps. No solvent or water needs to be removed because **acResin®** is 100% acrylate. This makes processing far more cost-efficient.

Fast, controllable reaction

When irradiated with UV-C light, the potentially reactive groups attached to the chains form crosslinks with neighboring polyacrylate chains. The crosslinking reaction is instantaneous, but remains easy to control – it stops as soon as the UV-C radiation is removed.



Photoreactive crosslinking

The photoreactive groups in the **acResin®** attack the C–H bonds present in neighboring chains, resulting in the crosslink structure typical of pressure-sensitive adhesives.
UV-C sensitive photoreactive groups are an integral part of the polymer and therefore non-volatile, which explains why no products of potential toxicological concern are released.

Blending of acResin®

Blending **acResin®** products with other tackifying resins before curing increases the adhesion of the final product. However, it is important that the selected resins do not absorb significant amounts of UV radiation between 250 nm and 260 nm.

This ensures that sufficient radiation is available for curing. Blending **acResin®** with modifiers that lack photoreactive groups leads to a certain degree of dilution. This means that a higher dose of UV-C must be used to achieve the required crosslinking density in the blend.

acResin® – the acrylic hotmelt

Sustainability

Product Carbon Footprints calculated with a certified digital solution

Scope 3

Emissions caused by suppliers and generation of raw materials

Scope 1 + 2

Emissions caused by own operations[1]

- TÜV-certified[2]
- Meets ISO standards[3]
- Calculates Product Carbon Footprints cradle-to-gate

Product Carbon Footprints of sales products

- Verification of PCF calculation by TÜV Rheinland Energy GmbH.

Customer benefits

- Transparency on CO_2 emissions
- Identification of main reduction levers
- Certified software
- Transparent documentation

[1] Energy generation and chemical processes
[2] ISO 14067:2018
[3] ISO 14040:2006, 14044:2006, 14067:2018, GHG Protocol Product Standard

BASF We create chemistry | acResin® The acrylic hotmelt

The Product Carbon Footprint of acResin®

Product	Savings	
acResin® ZeroPCF A 260 UV	 **100%**	**Product Carbon Footprint** in kg CO_2-eq per kg
acResin® ZeroPCF A 250 UV		
acResin® ZeroPCF A 204 UV		
acResin® LowPCF UV 3532	**80%**	

All data represents the current state of assessment [November 15, 2022]
*including green electricity certificates

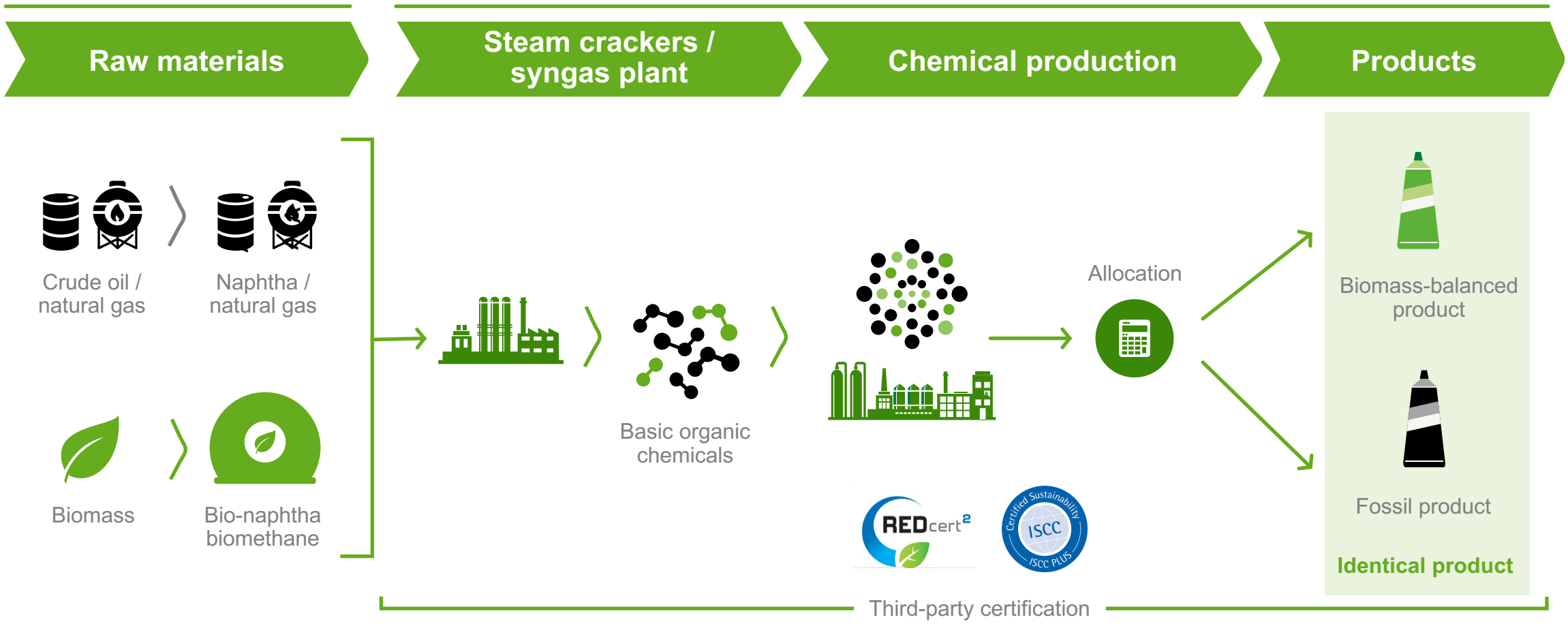
BASF We create chemistry | acResin® The acrylic hotmelt

acResin® – the acrylic hotmelt

Biomass Balance approach

BASF's Biomass Balance approach

How does it work?



Only second-generation feedstock (bio-waste) is used.
Find out more about our BMB approach.

BASF We create chemistry | acResin® The acrylic hotmelt

Benefits of using our BMB acResin® portfolio

Renewable
is used to replace
fossil resources, reduces
greenhouse gas emissions

Reduction
by up to 100% compared to
conventional products,
drives the use of renewable
resources

Reliable quality
ensures identical
product performance,
no compromise on performance

Independent certification
according to REDcert²
and ISCC PLUS

BASF We create chemistry | acResin® The acrylic hotmelt

Our BMB-certified product offers

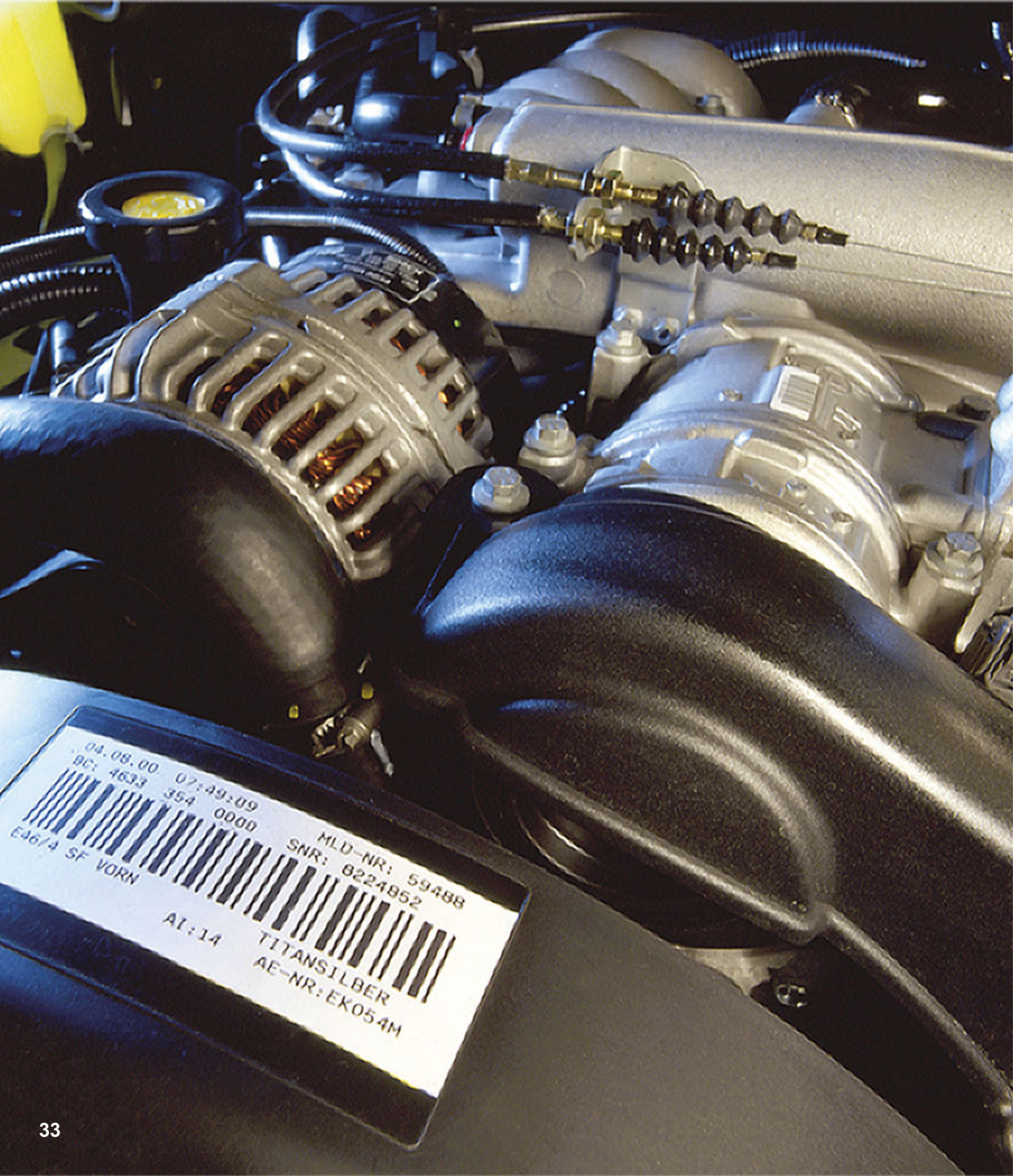
acResin® MB grades	Available certificate
acResin® ZeroPCF A 260 UV	ISCC PLUS*
acResin® ZeroPCF A 250 UV	ISCC PLUS & REDcert²**
acResin® ZeroPCF A 204 UV	REDcert²
acResin® LowPCF UV 3532	REDcert²

*More information on ISCC PLUS.
**More information on REDcert².

acResin® – the acrylic hotmelt

Eco-efficiency analysis

of adhesive production for durable labels



Adhesives for durable labels:
acResin® versus solvent-based acrylics

When it comes to durable labels, performance is everything. Typical requirements include resistance to chemicals, high temperatures and weathering.

BASF We create chemistry | acResin® The acrylic hotmelt

acResin® and solvent-borne acrylics show comparable performance when used as raw materials for durable labels.

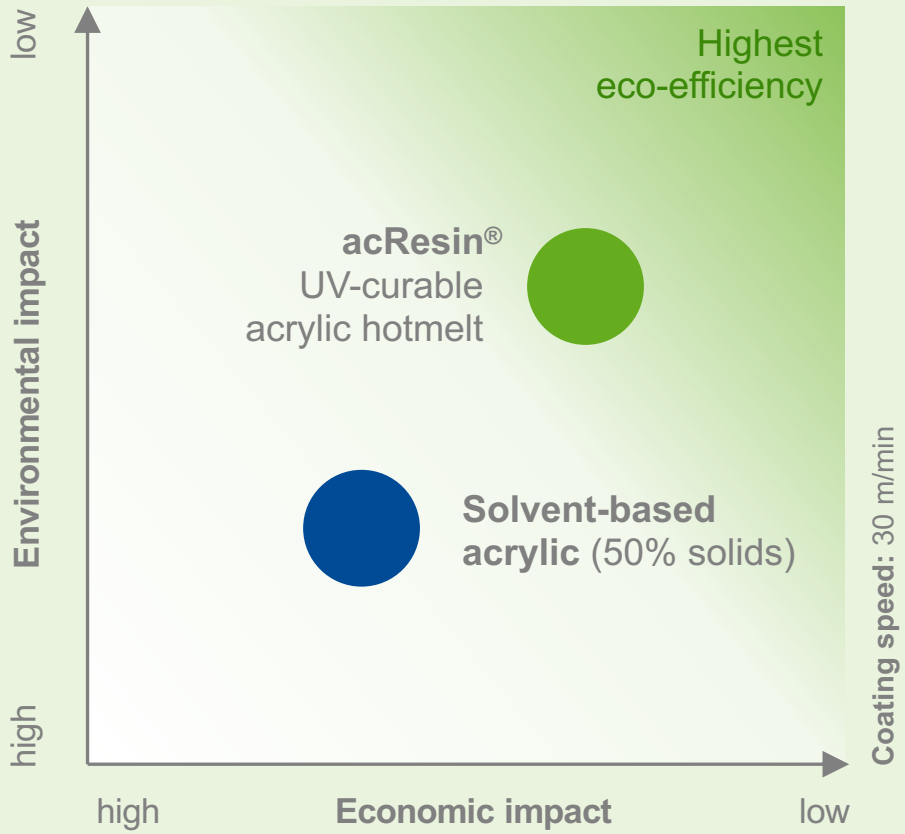
But what about cost and sustainability?

Eco-efficiency analysis

Adhesive production for durable labels

Results: acResin® sets new benchmarks in eco-efficiency

- Using **acResin®** is safer and cleaner for both humans and the environment
- Using **acResin®** saves money



BASF
We create chemistry
acResin®
The acrylic hotmelt

Independent review of eco-efficiency analysis

Commissioner

BASF We create chemistry

Partner (machine builder)

OLBRICH

Life cycle assessment practitioner

TÜVRheinland®
Genau. Richtig.

Critical reviewer

thinkstep

- **System under evaluation:**
  Production of 20,000 m^2 of laminate for durable labels (1.6 m width)
- **acResin® A 250 UV** was compared to a **solvent-borne acrylate (50% solid content)** with a line speed of 30 m/min
- The analysis followed international standards **for life cycle** and **eco-efficiency assessment** (ISO 14040:2006, ISO 14044:2006, ISO 14045:2012)

BASF We create chemistry | acResin® The acrylic hotmelt

With acResin® you can save

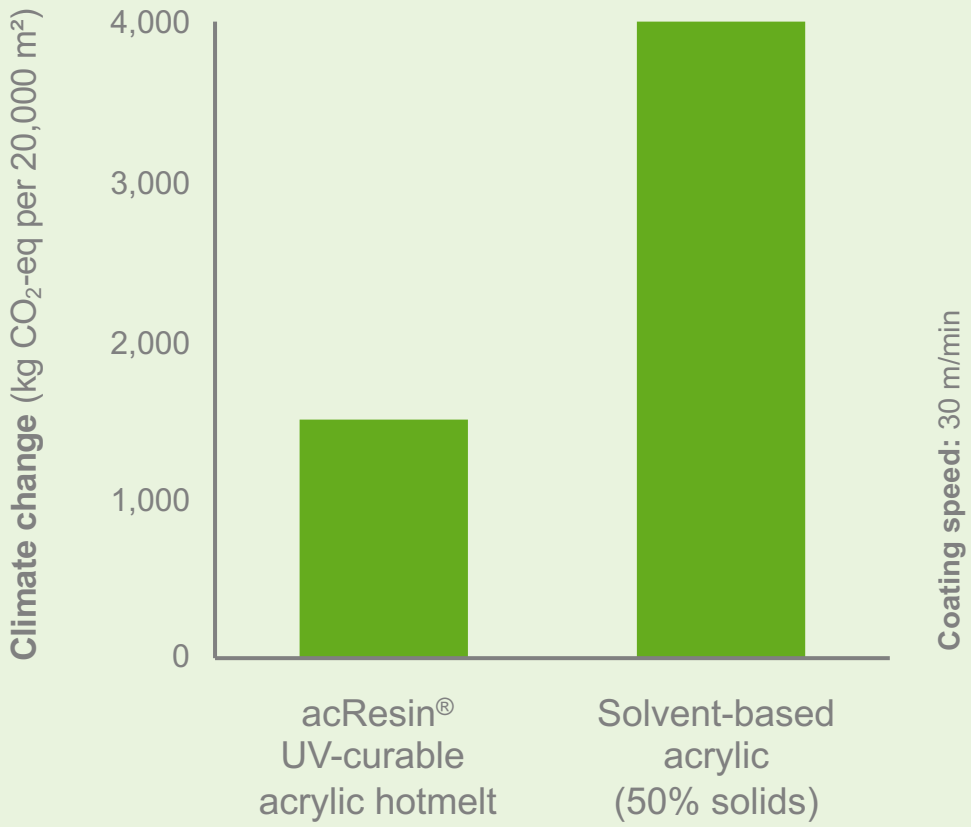
2,500 kg CO_2-eq
per 20,000 m²

2,500 metric tons CO_2 saved per year *

* Assuming 300 days of laminate production for durable labels with a line speed of 30 m/min

Environmental impact

Climate change (carbon footprint)



BASF We create chemistry | acResin® The acrylic hotmelt


Carbon footprint
How to compensate for 2,500 metric tons of CO_2?
Plant 5,000 trees!
... or switch to acResin®.
BASF
We create chemistry
acResin®
The acrylic hotmelt

acResin® – the acrylic hotmelt

Application support

The BASF Coating Center in Ludwigshafen

Committed application support

BASF
We create chemistry

acResin®
The acrylic hotmelt

Dedicated support team

When processing **acResin®**, you can rely on our service and expertise. At our Coating Center, we can help you to optimize your chosen coating systems and provide valuable input as you decide on new technologies or investments.

In close collaboration with major machine manufacturers, our team continuously works on improving coating technologies and concepts for new plants.

BASF We create chemistry | acResin® The acrylic hotmelt

The BASF Coating Center

Technical data

Min./max. coating speed	15 / 700 m/min
UV lamps	8 x 170 W/cm
Width of coating substrate	550 mm
Width of laminating substrate	570 mm
Diameter of core	76 or 152 mm / 3 or 6 inch
Max. diameter of rolls	1000 mm

Available coating systems

- Slot die with rotating bar
- Curtain die
- Kiss coat

Let’s discuss

how we can support you in developing high-quality and sustainable adhesives.

www.basf.com/acresin
#chooseZeroPCF

BASF
We create chemistry

acResin®
The acrylic hotmelt

BASF SE

Polymers for Pressure Sensitive Adhesives
67056 Ludwigshafen
Germany

pressure-sensitive-adhesives@basf.com
www.basf.com/acresin

We create chemistry