

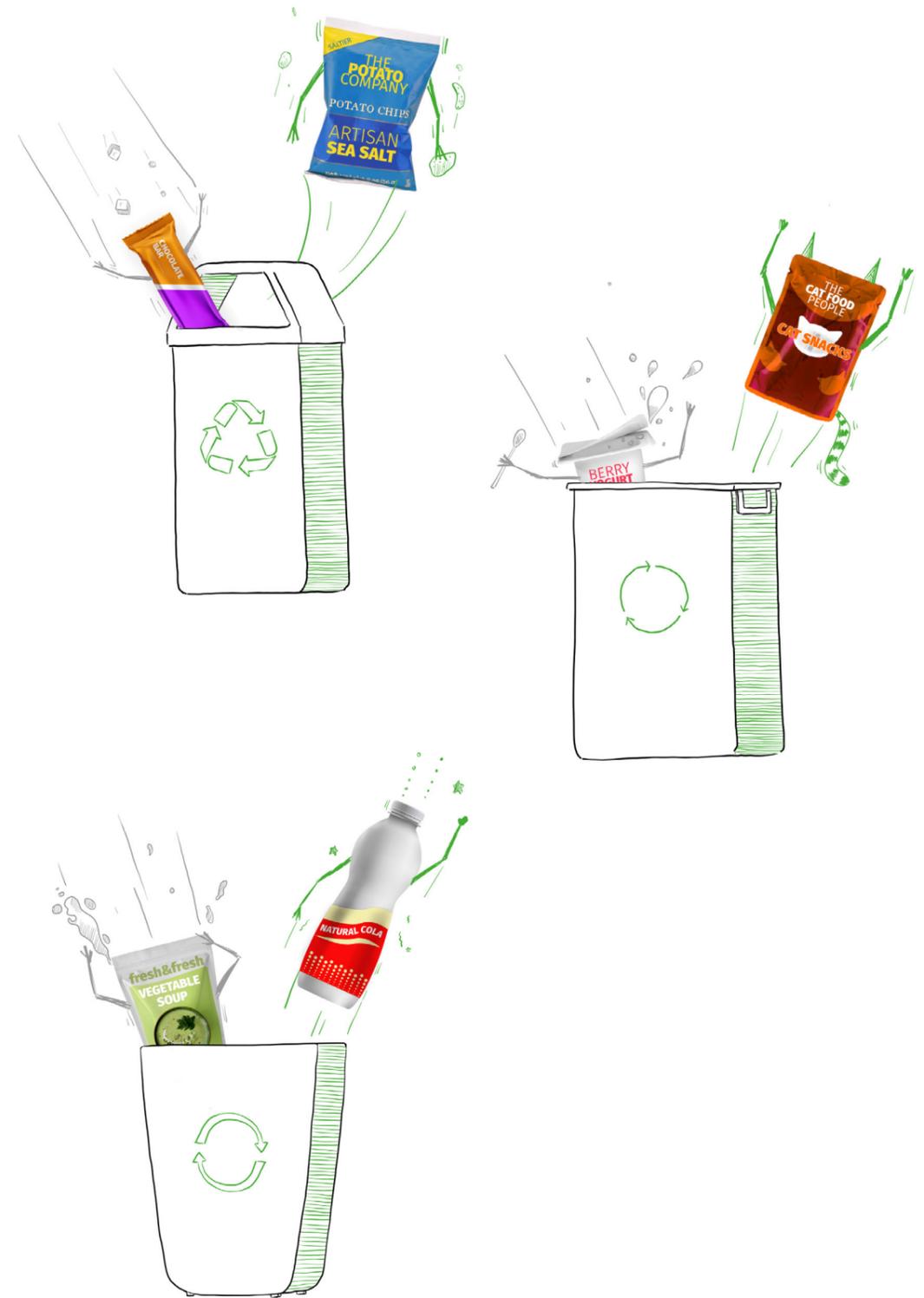


# Covestro monomaterial solutions.

Recyclable packaging that protects.



“Driven by our commitment to both our customers and our planet, we’ve developed a range of monomaterial coating resin solutions to enable recyclable packaging – without compromising on sealing ability, heat resistance, or protection from mineral oils.”



# The future of monomaterial flexibles

As concern around natural resource depletion increases for businesses and consumers alike, so does the drive toward a circular economy, where recycling is a fact of life. For the packaging industry in particular, recyclability is no longer a 'nice extra', but an essential.

However, achieving this can be challenging for packaging manufacturers, especially when it comes to flexible barrier packaging, such as retort pouches and multilayer laminate. Often, recycling this packaging requires separating various polymers and metal foils – which can be expensive or impractical. As consumers become increasingly aware of this, manufacturers face the challenge of simplifying their flexible barrier packaging. This often involves moving toward monomaterials constructed from similar or identical polymer grades that can be recycled as a single substance.

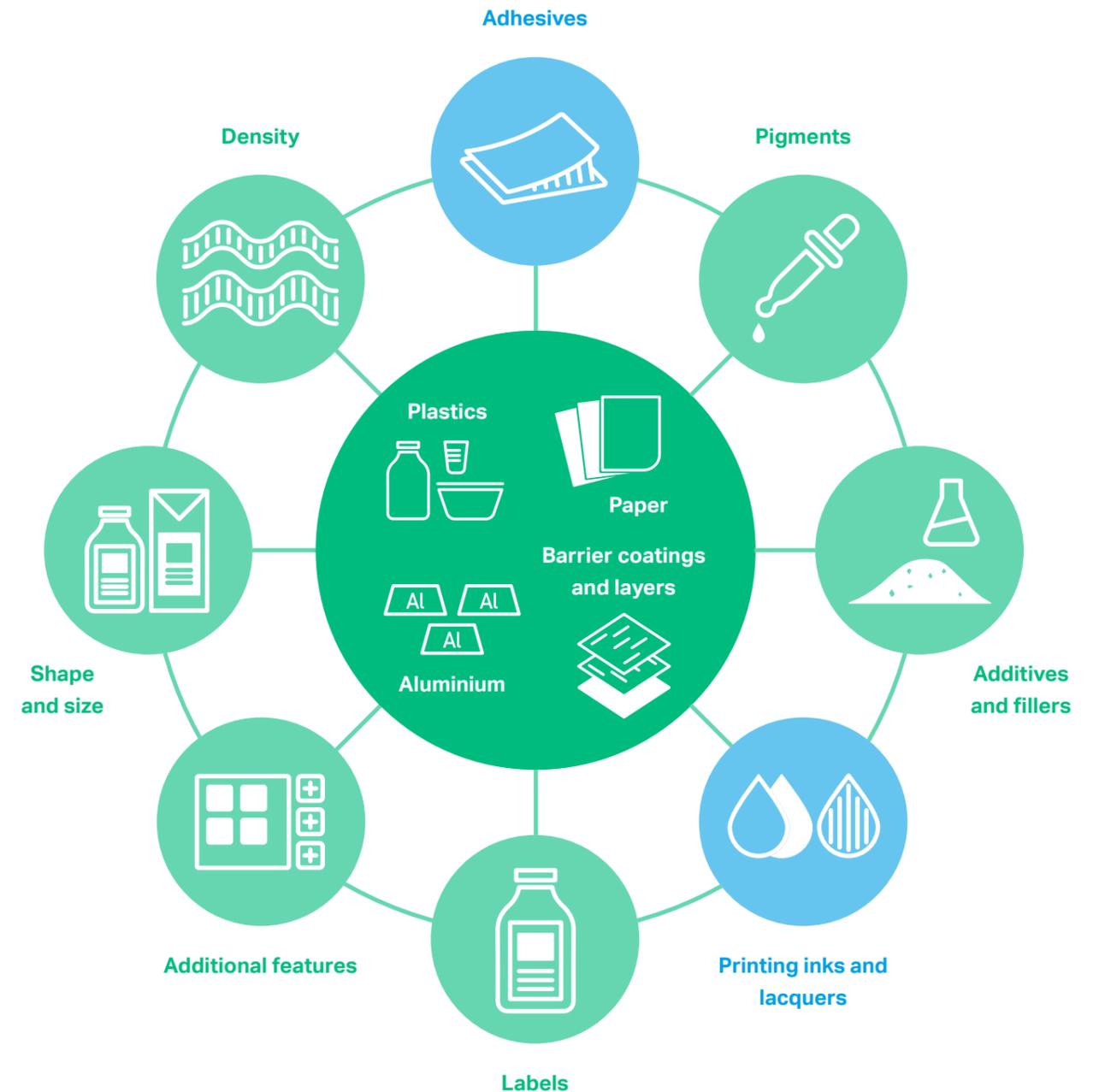
Nevertheless, many traditional monomaterial packaging solutions fail to deliver the levels of functional performance that consumers expect. Specifically, maintaining sufficient barrier performance – the ability to keep food or other perishable goods safe – is a key concern in reduced-material or monomaterial designs. In line with the growing need for monomaterial packaging that retains functional performance, Covestro offers a portfolio of coating resin solutions. These allow manufacturers to replace extra material layers with thin, functional coatings – enabling high-performance monomaterial packaging.

## Building on a tradition of innovation

To develop the solutions in this portfolio, we have built on our long history of creating high-performance resins that meet customer and market needs. In fact, we've long been at the forefront of innovating coating solutions for the packaging sector. High-performance monomaterial packaging is just one example of the trends we continue to set using the latest coating resin technology.

And we aren't stopping there: we're already developing the next generation of monomaterial solutions through our core research program. What's more, because all our innovation is guided by our customers' needs, we actively involve them in our R&D efforts by visiting them regularly, involving them in technical discussions, and developing new resins together. Indeed, we can also offer you resins tailored to your precise needs – whatever they are.

To learn more about developing these solutions together, get in touch with us at [www.covestro.com](http://www.covestro.com)



## What is a monomaterial?

A monomaterial contains predominantly one material type, such as PE (LDPE, LLDPE, HDPE), PP, PET, or paper (Ceflex). For plastics, this normally means over 90% of one polymer type, as this is the upper threshold when adhesives, additives, and inks are included.

On many materials, acrylic coatings are typically used to improve the surface for printing, to improve sealability and seal integrity, and to prevent scratching and improve the overall material's toughness. To be classified as a monomaterial, the material can contain a maximum of 5% acrylic coatings.



# An extensive range of monomaterial solutions

To ensure barrier performance, packaging manufacturers need solutions that offer features such as sealability, heat resistance, and protection from odor and mineral oils. Our monomaterial solutions portfolio addresses each of these needs, and includes primers and topcoats – so, whatever your requirements, we've got your solution:

- Primers
- Lamination adhesives
- Heat-sealable solutions
- Heat-resistant topcoats
- Protective topcoats
- Mineral oil barriers
- Organoleptic, aroma, and flavor barriers

Traditionally, monomaterials' functional performance has been particularly limited in flexible packaging, which has often relied on the use of several layers. Our coating resins can add protective features to a wide range of film and flexible packaging substrates:

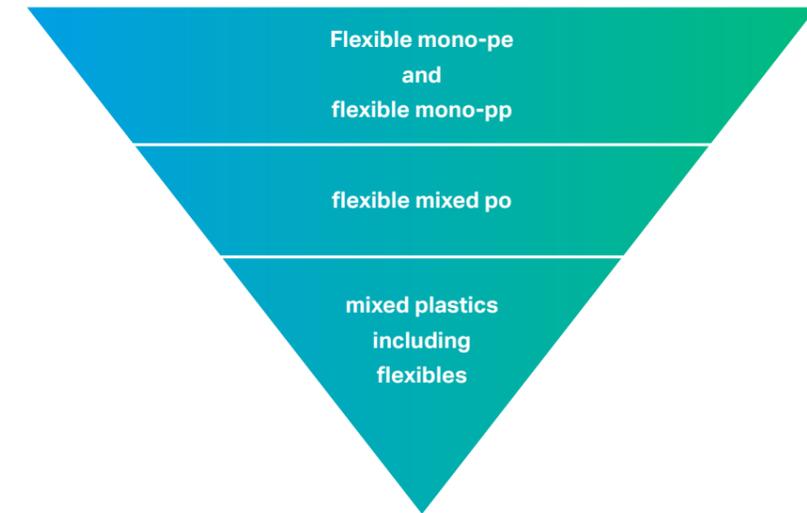
- BOPP (biaxially oriented polypropylene): A member of the polyolefin family of polymers, BOPP is a versatile material used for a wide range of applications. While some non-orientated polypropylene is used in packaging, orientation improves its low-temperature durability, making it ideal for freezer applications. Orientation also provides better grease barrier properties, tearing, tensile modulus, and produces a high gloss.
- BOPP has a very low density, excellent chemical resistance, and good strength at low cost, as well as a good moisture barrier. It is often used for applications such as microwave packs, due to its high melting point, as well as other food packaging, pharmaceutical, beauty, and household applications.
- BOPE (biaxially oriented polyethylene): BOPE is a polyolefin polymer formed of long chains of C<sub>2</sub>H<sub>4</sub> (ethylene) units, tangled together to form a tough, transparent, heat-sealable material. There



are three main types used in film applications: HDPE, LDPE, and LLDPE, with varying molecular structures.

- BOPE is valued for three main properties: toughness, heat-sealability, and water and water vapor barrier. It has a low coefficient of friction and little, if any, moisture absorption. Depending on grade, it can also have high tensile strength and high temperature tolerance. Because it has the lowest softening point of the packaging plastics, BOPE is very cost-efficient, particularly in terms of process energy costs. It has multiple applications across many areas and is used particularly often as a sealing layer. BOPE can also be combined with other materials to achieve the gas barrier that polyethylene alone lacks, making it suitable for use in food, personal care, household, and pharmaceutical applications.
- BOPET (biaxially oriented polyethylene terephthalate): BOPET is a stiff, high-clarity film that tolerates high temperatures (typically over 200°C). These properties can all be improved by orienting, coating, or copolymerizing the film. In particular, BOPET is often laminated with polyethylene to provide the seal properties needed for film application, or it can have a sealable coating applied to it.
- BOPET is typically used for its good clarity, aroma barrier, and moderate moisture and oxygen barrier. It's often used in packaging for cheese, meat, ready meals, and oven-ready products, as well as wet wipes, personal care, and household detergents.

- PLA (polylactic acid): PLA is a thermoplastic polyester that is typically produced from renewable resources such as fermented corn starch or sugar cane, so it is often used as a more sustainable packaging solution. It shrinks when heated and is often used in 3D printing, as well as in a range of food and other packaging applications.



## Maximum functionality in key performance areas

Of course, packaging manufacturers also need to ensure high functionality in areas besides barrier performance and recyclability. Our monomaterial packaging solutions offer all the key properties our customers expect, including:

- Blocking free
- Heat-sealable
- Good adhesion
- Printable
- High transparency
- Surface enhancement
- Food contact compliance

## Metalization

Metalization is a vapor deposition process in which a very thin layer of aluminum is deposited on the surface of a plastic film. This layer is roughly 0.02-0.5 microns thick and provides a range of functional properties including oxygen, moisture, and aroma barriers as well as light protection. There is a significant difference between flexible packaging structures with metalization and structures containing aluminum foil.

Metalization can be a layer within a laminated structure or on the surface of a packaging structure. Laminated and printed metalized flexible packaging structures do not cause any sortability issues. The NIR is not affected because the reflective layer is within a laminated structure and therefore cannot be seen.

Metalization is not regarded as a disruptor to the plastics' mechanical recycling process as the metalized layer is too thin to be significant. However, there may be sortability issues for structures with surface metalization, depending on the level of metalization and printing, due to the reflection disrupting NIR optical sorting processes.

## Our portfolio

To meet the growing need for recyclable monomaterial packaging that retains high functional performance, we offer an extensive range of coating resin solutions suitable for many applications – including flexible packaging and film. Whatever your monomaterial packaging need, we have you covered!

Whether it's a primer or a topcoat, and whatever barrier function you need, our portfolio of monomaterial solutions has the answer for you.

### Adhesives for lamination

- Neorez® P-806
- Neorez® P-925
- Neorez® P-900

### Primers for topcoat adhesion

- Neorez® R-670 XP
- ● Neorez® R-605
- ● Neocryl® A-1127, metalization
- ● Neocryl® BT-36, metalization

### Topcoats for protection

- ● Neocryl® BT-67, metalization
- ● Neocryl® A-2092
- ● Neocryl® A-1127
- Neocryl® A-1129
- Neocryl® XK-14

### Topcoats for heat-sealing

- ● Neocryl® BT-36
- ● Neocryl® FL-715
- ● Neocryl® FL-721
- Neocryl® FL-736 XP

### Topcoats with aroma and flavor barriers

- ● Neocryl® BT-36

### Topcoats with mineral oil barrier

- ● Neocryl® BT-36



# Adhesives for lamination

In lamination, materials are combined to optimize packaging for the product or environment where it will be used, offering greater flexibility. Adhesives play an important role in this – but to keep packaging easily recyclable, the total amount must be below certain thresholds. This is because adhesives can cause gel formation during extrusion, which can reduce recycle quality and block screen filters on the extrusion line. To avoid this, adhesives should only be a maximum of 5% of the total structure’s weight, whether they are polyurethane, acrylic, or natural rubber latex adhesives, or non-PE- or non-PP-based tie-layers. Our adhesives are highly effective at this level – driving functionality and recyclability in one.

### Neorez® PL-806 XP

**Neorez® PL-806 XP** is a high-solid, medium-molecular-weight polyester recommended for use in flexible packaging lamination adhesives – especially for high-end laminating applications. **Neorez® PL-806 XP** is designed to be cross-linked with aliphatic types. One of its key advantages is curing with relatively low levels of isocyanate crosslinkers. With the right crosslinker, it can be used for retort applications. **Neorez® PL-806 XP** displays excellent adhesion to a broad range of film substrates including PET, CPP, PE, and aluminum.

### Neorez® P-925

**Neorez® P-925** is a high-molecular-weight polyester supplied in solution form, recommended for flexible lamination adhesive systems. The resin adheres well to a range of film substrates, including PET, CPP, polyethylene, and aluminum. It can be used neat or crosslinked with isocyanate to boost its adhesive performance. **Neorez® P-925** can be cured at lower crosslinker levels, allowing for reduced curing times or lower post-curing temperatures. The resin system displays excellent adhesive performance and bond retention after severe retort conditions, which is often required for flexible packaging applications. **Neorez® P-925** is also free of aromatic isocyanates, enabling the elimination of aromatic amines in food packaging applications. Thanks to these properties, **Neorez® P-925** is ideal for most flexible lamination applications.

### Neorez® P-900

**Neorez® P-900** adheres well to a range of film substrates including PET, CPP, polyethylene, and aluminum, and can be used neat or crosslinked with isocyanate to drive its adhesive performance. A key advantage is that it can be cured at lower levels of crosslinker, allowing for reduced curing times or lower post-curing temperatures. The resin system displays excellent adhesive performance and bond retention after severe retort conditions, which is often required for flexible packaging applications.



## Adhesives for laminations

### Typical Properties

| RESINS                  | TOTAL SOLIDS W/w (%) | VISCOSITY PHYSICA23°C (mPa.s) | OH    | Tg (°C) | ACID VALUE (mg/KOH/g) | COLOUR (GARDNER) | BOPP | BOPET, PETG | LDPE | PLA | PVC |
|-------------------------|----------------------|-------------------------------|-------|---------|-----------------------|------------------|------|-------------|------|-----|-----|
| <b>Neorez® PL-806</b> ● | 69-71                | 1500-2000                     | 15-19 | ± 7     | Max 4                 | Max 2            | ✓    | ✓           | ✓    | ✓   | ✓   |
| <b>Neorez® P-925</b> ●  | 49-51                | 2000-3000                     | 2-10  | ± 7     | Max 4                 | Max 4            | ✓    | ✓           | ✓    | ✓   | ✓   |
| <b>Neorez® P-900</b> ●  | 49-51                | 2000-3000                     | 2-8   | ± 7     | Max 4                 | Max 4            | ✓    | ✓           | ✓    | ✓   | ✓   |

EMEA ●  
NMA ○

# Primers

Primers are initial coatings applied to a substrate to improve the adhesion of the following layers or coatings, to increase their durability, and to provide protection for the substrate. In particular, primers are always required with heat-sealable coating layers, which can enable sealing on stretched and oriented BOPP and BOPET film, to achieve the required strength and consistent adhesion.

Typically, these 0.1-0.2 g/m2 heat-sealable coating layers (dry) form less than 5% of the total film structure, providing a recyclable, high-performance monomaterial solution. As such, primers are a key component of enabling heat-sealable monomaterial solutions for use in food packaging and other applications. Thanks to their excellent adhesion and seal strength, our universal water-based primers are ideal to help deliver these solutions.

### Neorez® R-670 XP: The food-contact front-runner

**Neorez® R-670 XP** provides superior adhesion and seal strength for all topcoats, including heat-sealable topcoats. What’s more, this primer is free from SVHC components, future-proofing it from upcoming food contact regulations.

### Neorez® R-605: The versatile adhesive virtuoso

Designed for film primer applications, **Neorez® R-605** enables excellent adhesion on a variety of plastic substrates used in the flexible packaging industry, including those used for food packaging. It’s non-tin-based and gives excellent performance on adhesion, printability, and UV ink adhesion when blended with other resins and used as a primerless coating.

If you’re in the NMA region, we recommend blending **Neorez® R-605** with **Neorez® R-620** to improve block resistance.

### Neorez® R-610: The high-pressure performer

As well as providing superior adhesion and seal strength to topcoats for flexible packaging films, **Neorez® R-610** delivers particularly high performance when exposed to humid conditions, and is also suitable for food packaging.

## Primers (for topcoat adhesion or for metalization)

### Typical Properties

| RESINS                    | APPEARANCE                    | TOTAL SOLIDS W/w (%) | pH      | VISCOSITY BROOK-FIELD 25°C (mPa.s) | MFFT (°C) | DENSITY 20°C (kg/l) | FREE MONOMER | VOC (THEORETICAL) (%) | PRESERVATIVE(s): BIT (CASNO. 2634-33-5) (5) | CMIT/ MIT (3:1) (CASNO. 55965-84-9) | BOPP | BOPET, PETG | LDPE | PLA | PVC | METALIZATION | BLOCK-FREE |
|---------------------------|-------------------------------|----------------------|---------|------------------------------------|-----------|---------------------|--------------|-----------------------|---|-------------------------------------|------|-------------|------|-----|-----|--------------|------------|
| <b>Neorez® R-670 XP</b> ● | Hazy Yellowish                | 29-31                | 7.5-8.5 | Max 200                            | NA        | 1.03                | NA           | 0.06                  | 0.04  | 0.000                               | ✓    | ✓           | ✓    | ✓   | ✓   | ✗            | ✗          |
| <b>Neorez® R-605</b> ●○   | Bluish, hazy liquid           | 32-34                | 7-9     | Max 200                            | NA        | 1.02                | NA           | 0.06                  | 0.042                                       | 0.000                               | ✓    | ✓           | ✓    | ✓   | ✓   | ✗            | ✗          |
| <b>Neocryl® A-1127</b> ●○ | Yellowish, translucent liquid | 43-45                | 7.3-7.9 | 25-175                             | 7         | 1.05                | Max 500      | 0.06                  | 0.046                                       | 0.0012                              | ✓    | ✓           | ✓    | ✓   | ✓   | ✗            | ✓          |
| <b>Neocryl® BT-36</b> ●○  | Bluish, translucent liquid    | 19.5-20.5            | 10-11   | Max. 25                            | 45        | 1.04                | Max 500      | 0.06                  | 0.019                                       | 0.000                               | ✓    | ✓           | ✓    | ✓   | ✓   | ✗            | ✓          |

# Topcoats

Packaging has a long journey to make before it reaches the shelves. And, when being handled or transported, its protective features might be weakened through scratching, condensation, or extreme temperatures. In particular, the barrier properties of film packaging can severely deteriorate in these conditions. For this reason, the protective topcoat layers that protect the barrier are as important as the barrier itself.

Our 0.5-1.5 g/m2 (dry) topcoats can provide protective features, as well as delivering barrier properties themselves. What's more, they also offer additional useful functions beyond barrier performance – such as surface enhancement, metalization, heat-sealability, print performance, tactile properties, and optimal slip levels.



## Topcoats for protection

### Neocryl® A-2092: The all-round resistance ruler

**Neocryl® A-2092** is a modified acrylic-styrene copolymer dispersion that combines water, fat, and grease resistance with excellent printability and transparency. It also provides a glossy, flexible, block-resistant film that adheres well to a wide range of substrates. **Neocryl® A-2092** can be used in many applications, including some that require food contact compliance.

### Neocryl® A-1127: The versatile protective pro

**Neocryl® A-1127** is a self-cross-linking acrylic copolymer dispersion for use as a topcoat for flexible packaging films. It combines excellent adhesion to a range of packaging films – including PE, OPP, aluminum, and PET – with very good chemical and physical resistance properties. One of its strengths is its excellent grease resistance. **Neocryl® A-1127** is particularly suitable for printing on polyethylene and polyolefins.

### Neocryl® A-1129: The agile adhesion artist

**Neocryl® A-1129** is a self-cross-linking styrene acrylic dispersion for use in flexible and rigid packaging as well as PE-coated board applications. The product combines good adhesion properties – especially on PE, OPP, PET, and polyamide films – with excellent anti-blocking, toughness, and chemical resistance. It also has low foaming tendencies.

### Neocryl® XK-14: The ultra-resistant security shield

**Neocryl® XK-14** is a self-cross linking, emulsifier-free copolymer emulsion. It exhibits good resistances, transparency, wood wetting, and flow properties. In particular, it is water, alcohol, coffee, and detergent resistant and has a low foaming tendency. It's ideal for use in plastic coatings or as an adhesion promoter, and is compatible with a range of acrylic emulsions and urethane dispersions.

### Topcoats with heat-sealability

Sealing in packaging must remain functional throughout its lifecycle – a break in the seal will eliminate the barrier function of the whole packaging. Especially in the case of vacuumed or gas-flushed packaging, product shelf life is critically dependent on seal quality. For this reason, packaging materials must deliver not only strong barrier performance but good sealability – a combination that can be difficult to achieve. In particular, films' outer layers must be able to withstand the high temperatures of heat-sealing jaws.

To achieve this, 0.8-1.0 g/m2 (dry) acrylic coatings can be applied. Thanks to their heat-seal characteristics, these coatings are particularly suitable for flexible food packaging materials. Our acrylic topcoats provide heat-sealable solutions for a range of flexible packaging substrates, enabling hard, glossy coatings that can be printed with all typical printing inks:

For BOPP:

### Neocryl® BT-36: The universal heat-sealable topcoat

Developed for block-free heat-sealable coatings, Neocryl® BT-36 offers high seal strength, excellent clarity, low residual odor, and a good aroma barrier for BOPP packaging films. Providing excellent printability with a wide range of water- and solvent-based inks, Neocryl® BT-36 is especially suitable for metalization and holographic embossing.

### Neocryl® FL-715: The high-performance pro

Neocryl® FL-715 is a water-based acrylic dispersion recommended for use in low-temperature heat-sealable coatings for BOPP packaging films. It's ideal for a range of applications, including food packaging and heat-sealable overprint varnish for printed OPP films. Neocryl® FL-715 offers excellent anti-block properties and broad printability with various printing inks and is primarily suitable for reverse gravure coating application.

### Neocryl® FL-721: The cost-effective king

Neocryl® FL-721 is a high-solids, low-odor dispersion developed for low-temperature heat-seal coatings applied onto BOPP packaging films. It offers excellent anti-blocking, clarity, good slip levels, ease of transportation, and broad printability with many types of printing inks. Its high solid content makes it a cost-effective solution. Neocryl® FL-721 is suitable for a range of applications including food packaging and delivers high gloss and excellent transparency.

### Neocryl® FL-736 XP: The low-ammonia-odor leader

Developed for block-free heat-sealable coatings without ammonia odor, Neocryl® FL-736 delivers excellent seal strength, clarity, and a good aroma barrier for BOPP packaging films. It also provides excellent printability with a wide range of inks and is very suitable for metalization and holographic embossing.

## Topcoats for protection

### Typical Properties

| RESINS                 | APPEARANCE                    | pH    | MFFT (°C) | FREE MONOMER | PRESERVATIVE(S): BIT (CASNO. 2634-33-5) (5) | PRESERVATIVE(S): MIT (CASNO. 2682-20-4) (5) | LDPE     | PLA   | BLOCK-FREE | PRESERVATIVE(S): PRESERVATIVE(S): CMIT/ MIT (3:1) (CASNO. 55965-84-9) |                                    | BOPET, PETG | PVC | METALI-ZATION |                     |                       |      |
|------------------------|-------------------------------|-------|-----------|--------------|---|---|----------|-------|------------|---|------------------------------------|-------------|-----|---------------|---------------------|-----------------------|------|
|                        |                               |       |           |              |   |   |          |       |            | TOTAL SOLIDS W/w (%)  | VISCOSITY BROOK-FIELD 25°C (mPa.s) |             |     |               | DENSITY 20°C (KG/L) | VOC (THEORETICAL) (%) | BOPP |
| <b>Neocryl® BT-67</b>  | White, translucent            | 38-40 | 8.6-9.4   | 25-250       | 20  | 1.04  | Max 1000 | 0.247 | 0.000      | 0.0012  | 0.000                              | ✓           | ✓   | ✓             | ✓                   | ✓                     | ✗    |
| <b>Neocryl® A-2092</b> | Milky white liquid            | 46-48 | 8-8.6     | 250-650      | 6   | 1.05  | Max 200  | 0.06  | 0.002      | 0.000   | 0.003                              | ✓           | ✓   | ✓             | ✓                   | ✗                     | ✗    |
| <b>Neocryl® A-1129</b> | Hazy, yellowish liquid        | 39-41 | 8.3-8.9   | Max 150      | 33  | 1.05  | Max 1000 | 0.1   | 0.028      | 0.000   | 0.000                              | ✓           | ✓   | ✓             | ✓                   | ✓                     | ✗    |
| <b>Neocryl® A-1127</b> | Yellowish, translucent liquid | 43-45 | 7.3-7.9   | 25-175       | 7   | 1.05  | Max 500  | 0.06  | 0.046      | 0.0012  | 0.000                              | ✓           | ✓   | ✓             | ✓                   | ✗                     | ✓    |
| <b>Neocryl® XK-14</b>  | Hazy, yellowish liquid        | 39-41 | 8.3-8.9   | Max 150      | 33  | 1.05  | Max 1000 | 0.1   | 0.028      | 0.000   | 0.000                              | ✓           | ✓   | ✗             | ✓                   | ✓                     | ✗    |

For PLA:

**Neocryl® FL-721**

In fact, by formulating **Neocryl® FL-721** coating correctly, the coefficient of friction in PLA can be controlled to maintain the material's heat-sealability. Additionally, **Neocryl® FL-721** delivers excellent adhesion to PLA without requiring a primer.

**Topcoats with aroma and flavor barriers**

When it comes to food packaging, it's important for packaging to form a barrier against aromas and odors. Some food products, such as chocolate, need to be prevented from picking up external odors that impair their taste. Others, such as coffee and spices, need to maintain their own aroma.

Typically, uncoated BOPP film does not provide a sufficient aroma and flavor barrier; nor do most standard heat-seal resins. To help manufacturers protect food products more effectively, our portfolio includes a 1 g/m2 (dry) topcoat resin that can form an aroma and flavor barrier.

**Neocryl® BT-36: The practical food protector**

With a primer, **Neocryl® BT-36** can form the crucial strong aroma and odor barrier in BOPP food packaging films, enabling food products to maintain their own aromas and avoid picking up external ones. It also delivers high seal strength for block-free heat-sealable coatings, has low residual odor, and enables excellent printability with a wide range of water- and solvent-based inks. **Neocryl® BT-36** is especially suitable for metalization and holographic embossing.

**Topcoats with mineral oil barrier**

The migration of contaminants from packaging to food is a well-known issue in folding board packaging, but also poses a risk in flexible packaging. In particular, mineral oil migration from print on the front of packaging has been known to contaminate dry food products like cereal, pasta, and rice.

Indeed, PE and BOPP are not a sufficient barrier for mineral oils. With some mineral oils classified as carcinogens, it's crucial for packaging manufacturers to protect against this mineral oil migration. To address this issue, our monomaterial portfolio includes a 2-3 g/m2 (dry) topcoat resin that can deliver a functional mineral oil barrier for BOPP films.

**Neocryl® BT-36**

If high coat weights are applied (2-3 g/m2) and a primer is used, **Neocryl® BT-36** can form a mineral oil barrier for BOPP packaging films. It can also provide an aroma and odor barrier, deliver high seal strength for block-free heat-sealable coatings, and offer excellent printability with a wide range of water- and solvent-based inks.

Topcoats for heat sealing

**Typical Properties**

| RESINS                    | APPEARANCE                 | pH                                 | MFFT (°C)           | FREE MONOMER          | PRESERVATIVE(s):                                     |                        | LDPE    | PLA         | BLOCK-FREE |        |       |   |   |   |   |   |   |
|---------------------------|----------------------------|------------------------------------|---------------------|-----------------------|--|------------------------|---------|-------------|------------|--------|-------|---|---|---|---|---|---|
|                           |                            |                                    |                     |                       | BIT (CASNO. 2634-33-5) (5)                           | MIT (CASNO. 2682-20-4) |         |             |            |        |       |   |   |   |   |   |   |
|                           | TOTAL SOLIDS W/w (%)       | VISCOSITY BROOK-FIELD 25°C (mPa.s) | DENSITY 20°C (kg/l) | VOC (THEORETICAL) (%) | PRESERVATIVE(s): CMIT/ MIT (3:1) (CASNO. 55965-84-9) |                        | BOPP    | BOPET, PETG | PVC        |        |       |   |   |   |   |   |   |
| <b>Neocryl® BT-36</b>     | Bluish, translucent liquid | 19.5-20.5                          | 10-11               | Max 25                | 45   | 1.04                   | Max 500 | 0.06        | 0.019      | 0.000  | 0.000 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |
| <b>Neocryl® FL-715</b>    | Translucent                | 24.5-25.5                          | 9.5-10.5            | Max 100               | 26   | 1.05                   | Max 200 | 0.02        | 0.000      | 0.000  | 0.000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| <b>Neocryl® FL-721</b>    | Milky off white            | 37-39                              | 8.5-9.5             | < 100                 | 34   | 1.05                   | Max 200 | 0.02        | 0.003      | 0.0014 | 0.003 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| <b>Neocryl® FL-736 XP</b> | Blue/white liquid          | 24-26                              | 9.0-9.5             | Max 200               | 45   | 1.04                   | Max 500 | 0.1         | 0.02       | 0.000  | 0.000 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ |

Topcoats with aroma and flavor barriers

**Typical Properties**

| Resins                | APPEARANCE                 | pH                                 | MFFT (°C)           | FREE MONOMER          | PRESERVATIVE(s):                                     |                        | LDPE    | PLA         | BLOCK-FREE |       |       |   |   |   |   |   |   |
|-----------------------|----------------------------|------------------------------------|---------------------|-----------------------|--|------------------------|---------|-------------|------------|-------|-------|---|---|---|---|---|---|
|                       |                            |                                    |                     |                       | BIT (CASNO. 2634-33-5) (5)                           | MIT (CASNO. 2682-20-4) |         |             |            |       |       |   |   |   |   |   |   |
|                       | TOTAL SOLIDS W/w (%)       | VISCOSITY BROOK-FIELD 25°C (mPa.s) | DENSITY 20°C (kg/l) | VOC (THEORETICAL) (%) | PRESERVATIVE(s): CMIT/ MIT (3:1) (CASNO. 55965-84-9) |                        | BOPP    | BOPET, PETG | PVC        |       |       |   |   |   |   |   |   |
| <b>Neocryl® BT-36</b> | Bluish, translucent liquid | 19.5-20.5                          | 10-11               | Max 25                | 45   | 1.04                   | Max 500 | 0.06        | 0.019      | 0.000 | 0.000 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |

Topcoats with mineral oil barrier

**Typical Properties**

| RESINS                | APPEARANCE                 | pH                                 | MFFT (°C)           | FREE MONOMER          | PRESERVATIVE(s):                                     |                        | LDPE    | PLA         | BLOCK-FREE |       |       |   |   |   |   |   |   |
|-----------------------|----------------------------|------------------------------------|---------------------|-----------------------|--|------------------------|---------|-------------|------------|-------|-------|---|---|---|---|---|---|
|                       |                            |                                    |                     |                       | BIT (CASNO. 2634-33-5) (5)                           | MIT (CASNO. 2682-20-4) |         |             |            |       |       |   |   |   |   |   |   |
|                       | TOTAL SOLIDS W/w (%)       | VISCOSITY BROOK-FIELD 25°C (mPa.s) | DENSITY 20°C (kg/l) | VOC (THEORETICAL) (%) | PRESERVATIVE(s): CMIT/ MIT (3:1) (CASNO. 55965-84-9) |                        | BOPP    | BOPET, PETG | PVC        |       |       |   |   |   |   |   |   |
| <b>Neocryl® BT-36</b> | Bluish, translucent liquid | 19.5-20.5                          | 10-11               | Max 25                | 45   | 1.04                   | Max 500 | 0.06        | 0.019      | 0.000 | 0.000 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |

EMEA ●  
NMA ○





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<sup>1</sup>Please see the "Guidance on Use of Covestro Products in a Medical Application" document.  
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