BASF
We create chemistry

# Innovative Solutions for Adhesives Applications

## Raw material product guide

# Adhesives Overview

As a leading supplier in the adhesives industry, BASF offers a comprehensive portfolio of adhesives and additives for the labels, tapes, graphics, lamination, and sound damping markets. BASF's environmentally and socially responsible products include acrylic dispersions, styrene-butadiene rubber (SBR) dispersions, polyurethane dispersions (PUD), and ultraviolet (UV) curable acrylic hot melts.

In addition to base dispersions, BASF also offers fully formulated "coater ready" dispersions to meet customer requirements. BASF's responsive technical and regulatory support teams, state-of-the-art product offerings,and commitment to sustainability makes BASF a preferred partner for your adhesive needs.

## Paper Labels

BASF's water-based emulsions offer wide versatility encompassing cold temperature, general purpose, recyclable, permanent, and removable adhesive options. Coater ready versions enable high line speed and process efficiency in the production of paper labels.

## Specialty Tapes

BASF offers sustainable products that feature high coat weight, high performance, fast drying, and anchorage to a wide variety of substrates. BASF UV hot melt and water-based technologies can often replace conventional solvent-based adhesives. Typical applications include automotive, construction, and medical.


## Filmic Labels

BASF's filmic label solutions offer excellent clarity, sustainability, and water whitening resistance. Our products offer dimensional stability, low VOC, smoothness, anchorage to low surface energy (LSE) substrates, chemical and moisture resistance, and wettability.


## Graphic Film Adhesives

BASF's adhesives for graphic applications offer a more sustainable solution compared to solvent technologies. Our portfolio offers key performance attributes critical to the graphics industry such as water whitening resistance, plasticizer migration resistance, UV resistance, and low shrinkage.

## Technical Lamination Adhesives

BASF technical lamination adhesives are appropriate for applications requiring high heat resistance, high green strength, and high cohesion. Typical applications include automotive, furniture, footwear, and contact/foam bonding adhesives, and substrates such as wood, metal, glass, leather, foil, and rubber.

## Lamination Adhesives for Packaging

BASF water-based laminating adhesives are focused on sustainability and are particularly suitable for recyclable or compostable packaging constructions. They are appropriate for both rigid and flexible packaging applications, requiring high green peel strength, and can be formulated further to meet specific customer needs. Compostable grades are suitable for compostable films such as PLA, PBA, cellophane, EcoFlex®, and Ecovio®. BASF also offers a complementary portfolio of water-based barrier coatings.

## Liquid Applied Sound Damping (LASD)

BASF dispersions for robotically applied sprayable acoustic coatings satisfy light-weighting goals, reduced labor costs, and are overall the most cost-effective vehicle damping treatment. BASF's portfolio is a popular choice in the automotive space, as well as in acoustic treatment applications for appliances, home construction, flooring, and more.

## Additives

BASF offers a wide array of additives that may be used to optimize or augment properties of base dispersions. They include rheology modifiers, wetting agents, defoamers, and dispersing agents.

Featured product

# acResin®

Experience unparalleled performance in clarity, heat resistance, chemical resistance, sustainability, safety, and versatility with acResin UV-curable hotmelt pressure sensitive adhesives. acResin is the ultimate adhesive solution for tape, label, construction, and packaging applications. In addition to standard grades, BASF also offers mass balance (MB) grades that achieve a lower product carbon footprint (PCF) and are produced from renewable feedstocks, all while maintaining the same great performance.

## CLARITY

acResin is optically clear, suitable for clear-on-clear applications

## VERY LOW TVOCs

Very low odor and TVOCs compared to water and solvent based products

## HEAT RESISTANCE

acResin is designed to retain PSA performance under high heat, humidity, and UV exposure

## SENSITIVE APPLICATIONS

Versatile enough to be used in industrial tapes, but safe enough for direct food contact

## SMALL PROCESSING FOOTPRINT

UV curing equipment requires minimal floorspace and can often be retrofitted to existing hot melt coating lines

## COST EFFECTIVE

Lower production and utility cost compared to similar products

| Standard Grades | acResin A 204 UV | acResin A 250 UV | acResin A 260 UV | acResin UV 3532 |
|---|---|---|---|---|
| **Solids (% wt.)** | 100.0 | 100.0 | 100.0 | 100.0 |
| **Tg (°C)** | -34 | -39 | -39 | -60 |
| **Uncured Viscosity at 140 °C (cP)** | 35,000 | 45,000 | 45,000 | < 10,000 |
| **Typical VOC Content (mg/kg)** | < 300 ppm | < 300 ppm | < 300 ppm | < 2,000 ppm |
| **Category** | Permanent | Permanent | Permanent | Removable |
| **MB Grades** | **acResin ZeroPCF A 204 UV** | **acResin ZeroPCF A 250 UV** | **acResin ZeroPCF A 260 UV** | **acResin ZeroPCF UV 3532** |
| **PCF Reduction** | 100% | 100% | 100% | < 80% |
| **Certification** | REDcert2 | REDcert2 & ISCC PLUS | ISCC PLUS | REDcert2 |



Featured product

# Epotal® CF 430

With the continuing focus for more sustainable flexible packaging options, converters and packaging brand owners alike are looking for solutions that do not sacrifice performance. The groundbreaking Epotal CF 430 is the industry's first coater ready water-based compostable adhesive for flexible packaging.

Certified by the Biodegradable Products Institute (BPI) and DIN Certco for composting, Epotal CF 430 ensures your packaging performs exceptionally and contributes to a greener future.

## EASY PROCESSING

Easy processing due to low foam generation and stable viscosity

## HIGH GREEN PEEL STRENGTH

High green peel strength enabling in-line downstream processing

## WIDE VARIETY OF SUBSTRATES

Suitable for film, foil, paper, and biofilm

## HEAT RESISTANCE

Improved heat resistance when used with optional Basonat® LR 9056 crosslinker

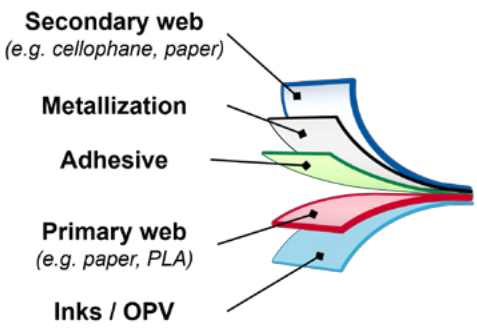
## FOOD CONTACT

FDA food contact approval

## CERTIFICATIONS

BPI and DIN Certco certified for composting

## Typical compostable packaging lamination




## For use in a wide range of applications:

- Compostable laminating adhesive
- Compostable heat seal
- Paperboard constructions
- Food packaging (vertical form fill, flexible/rigid packaging)
- Seed pod binder
- Seed coatings
- Coffee pods
- Tea bags
- Sandwich wraps

# Pressure Sensitive Adhesives (PSA)

## Dispersions for PSA Applications

| Product Name | Features/Benefits | Tg (°C) | Solids (%) | Viscosity (cP) | pH | Peel | Loop Tack | Static Shear | Permanent | Removable | Paper Label | Filmic Label | Specialty Tapes | Graphic Films |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Aqueous Acrylic Dispersions** | | | | | | | | | | | | | | |
| Acronal NX 2160 | Broad application temperature range | -58 | 65.0 | 750 | 4.0 | ■■ | ■■■ | ■ | ✓ | | ✓ | ✓ | | |
| Acronal 3760 | General purpose paper label | -55 | 55.0 | 280 | 7.0 | ■ | ■■ | ■ | | ✓ | ✓ | | | |
| Acronal 3727 NA | General purpose paper label; excellent blush resistance | -55 | 55.0 | 280 | 7.0 | ■■ | ■■■ | ■■ | ✓ | | | ✓ | | |
| Acronal A145 | Plasticizer resistance, low tack, smooth peel | -45 | 52.0 | 200 | 8.5 | ■ | ■ | ■■■ | | ✓ | | ✓ | ✓ | ✓ |
| Acronal A245 | Plasticizer resistance | -45 | 53.0 | 150 | 9.0 | ■■ | ■■ | ■■■ | ✓ | | | | ✓ | ✓ |
| Acronal DS 3598 NA | General purpose label adhesive; good clarity and LSE adhesion | -45 | 61.0 | 1300 | 8.5 | ■■ | ■■ | ■■■ | ✓ | | ✓ | ✓ | | |
| Acronal V 215 NA | General purpose permanent, balanced adhesion, cohesion, tackifier response | -43 | 69.0 | 1000 | 4.5 | ■■■ | ■■ | ■■■ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Acronal 3635 | High cohesion, excellent plasticizer resistance | -40 | 50.0 | 45 | 8.0 | ■■ | ■■■ | ■■■ | ✓ | | | ✓ | ✓ | ✓ |
| Acronal 3633 NA | Very high peel and tack for specialty tapes; rapid drying at very high coat weights | -35 | 60.0 | 200 | 7.0 | ■■■■ | ■■■■ | ■■ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Acronal 3630 | High peel and tack for specialty tapes; rapid drying at high coat weights | -35 | 60.0 | 150 | 7.0 | ■■■ | ■■■ | ■■■ | ✓ | | ✓ | ✓ | ✓ | |
| Acronal 4034 | Moderate peel and tack; good LSE adhesion | -33 | 60.0 | 225 | 7.5 | ■■ | ■■ | ■ | ✓ | | ✓ | ✓ | | |
| Acronal V 278 NA | High cohesion, plasticizer resistance, moderate adhesion | -31 | 65.0 | 250 | 4.5 | ■■ | ■■■ | ■■■ | ✓ | | | ✓ | ✓ | ✓ |
| Acronal NX 2278 | Plasticizer resistance, GP film, self-crosslinking, high cohesion | -31 | 58.0 | 550 | 5.5 | ■ | ■■ | ■■■ | | ✓ | | ✓ | ✓ | ✓ |
| Acronal A 240 NA | Moderate adhesion, tack, good plasticizer and chemical resistance; able to be crosslinked | -30 | 51.0 | 150 | 6.0 | ■■ | ■■ | ■■ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| **Aqueous Styrene-Butadiene Dispersions** | | | | | | | | | | | | | | |
| Butofan NS 166 | General purpose, good chemical and mechanical stability | -40 | 51.0 | 450 | 8.7 | ■■■ | ■■■ | ■■■ | ✓ | | ✓ | | ✓ | |
| Butofan NS 222 | Exhibits good chemical and mechanical stability | -26 | 51.0 | 300 | 8.7 | ■■ | ■■■ | ■■■■ | ✓ | | ✓ | | ✓ | |

Key:
■ low
■■ medium
■■■ high
■■■■ very high
✓ applies

FDA compliance is available upon request

# Pressure Sensitive Adhesives (PSA)

## UV Cross Linkable Acrylic Hot Melts for PSA Applications

| Product Name | Features/Benefits | Tg (°C) | Solids (%) | Melt Viscosity (cP) | Peel | Loop Tack | Static Shear | Permanent | Removable | Paper Label | Filmic Label | Specialty Tapes | Graphic Films |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **UV Cross Linkable Acrylic Hot Melts** | | | | | | | | | | | | | |
| acResin UV 3532 | Low adhesion, moderate cohesion, removable / freezer applications, excellent aging, heat & water resistance, high clarity | -60 | 100.0 | < 10,000 | ■ | ■ | ■■ | | ✓ | ✓ | ✓ | ✓ | |
| acResin A 250 UV | Excellent clarity and water resistance, very high adhesion, suitable for high coat weights | -39 | 100.0 | 45,000 | ■■■■ | ■■■ | ■■ | ✓ | | ✓ | ✓ | ✓ | |
| acResin A 260 UV | Balance of adhesion and cohesion, excellent aging, heat & water resistance, high clarity | -39 | 100.0 | 45,000 | ■■■ | ■■■ | ■■■ | ✓ | | ✓ | ✓ | ✓ | |
| acResin A 204 UV | Designed to accept tackifier, moderate adhesion, high cohesion | -34 | 100.0 | 35,000 | ■■ | ■■ | ■■■■ | ✓ | | ✓ | ✓ | ✓ | ✓ |

Key:
■ low ■■ medium ■■■ high ■■■■ very high ✓ applies

## Formulation Additives for PSA Applications

| Product Name | Features/Benefits | Chemistry | Solids (%) | Bio-renewable content |
|---|---|---|---|---|
| **Wetting Agents** | | | | |
| Hydropalat WE 3475 | Effective surface tension reduction; foam stabilizing | DOSS | 75 | |
| Lumiten I-SC | Surface tension reduction | DOSS | 58 | |
| Hydropalat WE 3120 | Surface tension reduction; low foam | Alkoxylated | 100 | 30% |
| Hydroplat WE 3322 | Surface tension reduction; low foam | Polymer-based | 100 | |
| Hydropalat WE 3650 | Surface tension reduction; low foam | Alkoxylate modified TMDD | 100 | |
| **Defoamers** | | | | |
| Foamaster MO 2190 | Moderate to high shear required for incorporation, high efficiency | Mineral oil based | >93 | |
| Foamaster MO 2192 | Moderate to high shear required for incorporation, high efficiency | Mineral oil based | >96 | |
| Foamaster MO NXZ NC | Easy incorporation over wide shear range, moderate efficiency | Mineral oil based | >88 | |
| Foamaster NO 2331 | Moderate shear required for incorporation, biobased | Natural oil | 100 | >90% |
| **Rheology Modifiers** | | | | |
| Rheovis PU 1251 EC | Medium shear viscosity builder, solvent free | HEUR | 30 | |
| Rheovis PU 1235 EC | Medium shear viscosity builder, contains water and solvent | HEUR | 25 | |
| Rheovis AS 1127 NA | Low shear viscosity builder, pH dependent | Alkali Swellable | 40 | |

# Lamination Adhesives

## Technical Lamination Adhesives for Industrial Applications

| Product Name | Features/Benefits | Tg (°C) | Solids (%) | Viscosity (cP) | pH | Wet Bonding | Dry Bonding |
|---|---|---|---|---|---|---|---|
| **Aqueous Acrylic Dispersions** | | | | | | | |
| Acronal 4255 | Designed for bonding films for use in high heat/humidity environments | -28 | 56.0 | 100-500 | 7.0 | | ✓ |
| **Aqueous Polyurethane Dispersions** | | | | | | | |
| Luphen D 207 E | Good heat resistance, even with low crosslinker amount, partly aromatic, very high green strength | -48 | 45.0 | 30-100 | 8.0 | ✓ | ✓ |
| Luphen D DS 3548 | Good heat resistance, chloroprene-free alternative, effective with a wide range of coagulants | -46 | 45.0 | 10-70 | 8.5 | ✓ | ✓ |
| Luphen D 259 U | Aqueous dispersion of polyether-polyurethane elastomer for using in film-to-film lamination | -45 | 40.0 | 20-120 | 6.5 | ✓ | ✓ |
| **Aqueous Styrene-Butadiene Dispersions** | | | | | | | |
| Styronal ND 430 | Casein-compatible; good adhesion; good for foil laminating | -25 | 50.0 | 500-1500 | 7.0 | ✓ | |
| **Polyisocyanate Cross Linkers** | | | | | | | |
| Basonat LR 9056 | Water-dispersible polyisocyanate used to improve heat resistance of laminating adhesives. 17.5-18.5% NCO content | - | 100.0 | 1500-3500 | | | |

Key: ✓ applies

## Lamination Adhesives for Packaging Applications

| Product Name | Features/Benefits | Tg (°C) | Solids (%) | Viscosity (cP) | pH | Flexible Packaging | Rigid Packaging |
|---|---|---|---|---|---|---|---|
| **Aqueous Polyurethane Dispersions** | | | | | | | |
| Epotal ECO 3702 | Water-based compostable lamination adhesive; suitable for biofilms, paper, foils; certified compostable by BPI and DIN Certco | -46 | 40.0 | 40 | 8.0 | ✓ | ✓ |
| Epotal CF 430 | Coater-ready version of Epotal ECO 3702, formulated for gravure and flexo printing; high green peel strength, certified by BPI and DIN Certco | -46 | 40.0 | 85 | 8.0 | ✓ | ✓ |
| Luphen D 259 U | Polyether-polyurethane copolymer dispersion for use in film-to-film lamination | -45 | 40.0 | 20-120 | 6.5 | ✓ | ✓ |
| **Aqueous Styrene-Butadiene Dispersions** | | | | | | | |
| Styronal NX 4222 | Carboxylated styrene-butadiene copolymer dispersion for wet lamination of foil and metallized film; casein-compatible | -25 | 50.0 | 500-1500 | 7.0 | ✓ | |
| Styronal ND 430 | Outstanding mechanical and chemical stability, excellent adhesion | -7 | 50.0 | 100-350 | 8.5 | ✓ | |
| Styronal ND 656 | Mechanically and chemically stable dispersion that improves the cohesive strength of laminating adhesives | 18 | 50.0 | 50-350 | 7.0 | ✓ | |
| Styronal ND 811 | Mechanically and chemically stable modifier in laminating adhesive formulations, provides stiffness and toughness | 63 | 50.0 | 50-200 | 7.5 | ✓ | |
| **Polyisocyanate Cross Linkers** | | | | | | | |
| Basonat LR 9056 | Water-dispersible polyisocyanate used to improve heat resistance of laminating adhesives; 17.5-18.5% NCO content | - | 100.0 | 1500-3500 | - | - | |

Key: ✓ applies

# Liquid Applied Sound Damping (LASD)

## Dispersions for LASD

| Product Name | Features/Benefits | Peak Damping Temperature (°C) | Tg (°C) | Solids (%) | Viscosity (cP) | pH | Composite Loss Factor at Peak |
|---|---|---|---|---|---|---|---|
| **Aqueous Acrylic Dispersions** | | | | | | | |
| Acronal DS 3612 | Low temperature damping | 10 | -15 | 55.0 | 500 | 7.0 | 0.15 |
| Acornal DS 3502 | High MW; room temperature damping | 25 | 4 | 55.0 | 15000 | 7.5 | 0.20 |
| Acronal 4053 X | High damping at room temperature | 25 | 4 | 53.0 | 2500 | 6.0 | 0.25 |
| Acronal S 504 NA | Standard damping at room temperature | 25 | 4 | 50.0 | 300 | 7.5 | 0.18 |
| Acronal 3626 | High damping at high temperature | 60 | 35 | 55.0 | 550 | 7.0 | 0.18 |
| Acronal NX 5818 | High temperature damping | 65 | 39 | 52.0 | 250 | 6.5 | 0.10 |
| **Aqueous Styrene-Butadiene Dispersions** | | | | | | | |
| Butofan NS 175 | Adhesion to clearcoat, exterior applications | -35 | -58 | 71.0 | 1250 | 10.5 | 0.10 |
| Butofan NS 209 | Adhesion to clearcoat, exterior applications | 0 | -26 | 51.0 | 350 | 8.6 | 0.10 |
| Styrofan NX 6690 | Standard damping at warm temperature | 30 | 11 | 53.0 | 450 | 8.0 | 0.10 |

## Formulation Additives for LASD

| Product Name | Features/Benefits | Chemistry | Solids (%) |
|---|---|---|---|
| **Dispersing Agents** | | | |
| Dispex CX 4320 | Excellent dispersing performance; Wet-scrub and blocking resistance | Carboxylic acid copolymer (sodium) | 25.0 |
| Dispex AA 4030 | Standard dispersing agent for inorganic fillers | Ammonia polyacrylate polymer | 30.0 |
| Dispex AA 4144 EB | Efficient dispersing agent for inorganic fillers | Sodium polyacrylate polymer | 35.0 |
| Dispex Ultra PA 4560 | Suitable for general pigment dispersions; pH independent | Modified polyacrylate polymer | 40.0 |
| **Wetting Agents** | | | |
| Hydropalat WE 3987 | Non-ionic; HLB > 24 | Alkoxylate surfactant | 100.0 |
| **Rheology Modifiers** | | | |
| Attagel 40 | Improved anti-sagging; anti-spatter and syneresis control | Natural attapulgite | 100.0 |
| Rheovis HS 1153 | Efficient low shear viscosity builder; anti-sagging and anti-settling | HASE | 40.0 |
| Rheovis AS 1130 | Efficient low shear viscosity builder; anti-sagging and anti-settling | Alkali Swellable | 40.0 |

FDA compliance is available upon request

## About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. Around 112,000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €68.9 billion in 2023. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the United States. Further information at www.basf.com.

## About BASF's Dispersions and Resins Business

The Dispersions and Resins business of BASF develops, produces, and markets a range of high-quality resins, additives, colorants, and polymer dispersions worldwide. These raw materials are used in formulations for coatings and paints, printing and packaging products, construction coatings, adhesives, cellulosics and composites, and paper manufacturing. With a comprehensive product portfolio and extensive knowledge of the industries we serve, our customers benefit from innovative and sustainable solutions to help them advance their formulations through chemistry. For further information about the Dispersions & Resins business in North America, please visit http://www.basf.us/dpsolutions.

## Contacts:

Please contact our technical service department for more help on formulating with products from the adhesives product line.

**North America**
USA
Phone: +1 800 231-7868
dpsolutions@basf.com
www.basf.us/dpsolutions

BASF
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