

FILMEXA 1015A+815C

THE ESSENTIAL ADHESIVE FOR FOOD PACKAGING

WHAT IS ESSENTIAL IS INVISIBLE TO THE EYE

EASY TO USE - RELIABLE UNDER ANY CONDITIONS



SYSTEM OVERVIEW

FILMEXA 1015A + 815C is an advanced, solvent-free two-component polyurethane laminating adhesive engineered for demanding flexible packaging applications. Built as an **Adaptive System**, it delivers fast green-bond development, high ultimate bond strength, and exceptional durability under thermal and chemical load. It is fully compatible with contemporary solvent-free lamination equipment utilizing precision dosing and continuous in-line mixing technology.

APPLICATIONS

For lamination of printed and unprinted **PET, BOPP, OPA, PE, CPP, METPET, and foil** structures. Covers the full range from **general-purpose snacks to high-barrier and detergent pouches**. Ideal for PET/PE, PET/OPP, PET/METPET/PE, and MLP combinations.

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FILMEXA 1015A + 815C – Technical Data Sheet

General Information

Essential Adhesive is a balanced polyurethane system designed to meet the majority of everyday lamination needs with predictable, consistent performance.

Its controlled reactivity and optical clarity make it suitable for a wide range of structures, from standard snacks to printed PET laminates.

A straightforward, efficient solution that focuses on reliability and process stability.

Typical Properties of Components

Property	FILMEXA 1015A	FILMEXA 815C
Chemistry	Isocyanate-terminated prepolymer	Polyester polyol
Appearance	Clear to light yellow	Clear to light yellow
Solids Content	100%	100%
Brookfield Viscosity @25°C (mPa·s)	1,000–3,000	900–1,500
Specific Gravity @25°C	1.15 ± 0.02	1.08 ± 0.02
NCO Content (%)	16.5–17.5	—
OH Value (mg KOH/g)	—	185–195

Recommended Mixing Ratios (by weight)

Laminate Type	Mix Ratio (1015A:815C)	Typical Use	Comments
High-resistance MLP, PET/ALU/PE, PET/PA/PE, PET/PE for liquids. Sealing layer PE or CPP	100 : 55 - 60	Multi-layer barrier structures and high-temperature resistant laminates (detergents, sauces, dry fruits, pet food).	Highest crosslink density → excellent chemical & thermal resistance. Harder cured film, slightly slower viscosity build.
Printed PET/PE, Printed PET/PE, Reverse-printed films with NC or PU inks	100 : 60 - 65	Printed laminates where inks/coatings may interact with NCO.	Controlled NCO excess ensures proper anchorage without yellowing. Ideal ratio for printed structures needing clarity and stability.
Metalized PET/PE, Metalized BOPP/PE, PET/METPET/PE	100 : 70 - 75	Laminates requiring high gloss, curl control, and excellent optical appearance.	Balanced reaction profile enhances clarity and minimizes haze. Produces a softer, more flexible cured film.
Standard PET/PE, PET/PE, OPA/PE, General snack laminates	100 : 75 - 80	General-purpose laminations for snacks, biscuits, confectionery, and dry food.	Good balance of reactivity, pot life, and bond strength. Wide machine-speed window. Best cost/performance ratio.

Notes

Lower B-ratios (55–65) → **higher resistance**, harder cure.

Higher B-ratios (70–80) → **better optical performance** and softer bonding.

Always maintain slight **NCO excess** to consume moisture and prevent ink interaction.

Troubleshooting Quick Guide

Observation	Possible Cause	Recommended Action
Poor adhesion on PE	Low surface treatment	Increase treatment to 38 dyn/cm
Cloudy interface	High nip temperature or film humidity	Reduce nip temperature / pre-dry films
Too fast viscosity build-up	Excess polyol or wrong ratio	Re-check pump calibration
Low bond after curing	Too little NCO (high polyol ratio)	Adjust to 100:60–65 or use fresh mix
Tacky surface	Excess OH or insufficient cure	Extend curing / verify ratio

Reactivity Profile – Viscosity @ 40°C (mPa·s)

Time (min)	100 : 60	100 : 70	100 : 80
0	900	800	700
30	3.500	4 000	4.500
60	10.000	11.000	12 000

Viscosity increases faster when OH concentration is higher:

100 : 80 faster viscosity build, softer cured film, shorter pot life

100 : 55-60 slower viscosity build, harder cure, longer pot life

Storage & Shelf Life

FILMEXA systems, stored in the well-sealed, original, containers at temperatures between 5°C and 35°C, are stable for one year. Packages already opened must be hermetically sealed and consumed within a short period of time (preferably within a week). If the material is stored at temperatures below recommended values, especially during winter, viscosity increases in reversible way. In case of applications during the winter period, store containers at 10°C for at least 24 hours before use. Avoid storage in the presence of heat sources or under sunlight: hazardous pressure increases may occur in the containers.

Processing Guidelines

General Operation

Use on modern solvent-free laminators equipped with multi-roller application systems.

Maintain continuous metering and in-line mixing to ensure a consistent supply of freshly prepared adhesive.

Temperature Settings

Component Tanks (1015A & 815C): 35°C

Metering / Application Rollers: 35 - 40°C

Laminating Nip: 40 - 60°C

Verify that all temperature-controlled zones reach operating conditions before starting production.

Surface Treatment

Polyolefin substrates (PE / PP / CPP) must be treated to ≥ 38 –40 dyn/cm to ensure optimal adhesion.

Films with high slip, white opacity, or specialty coatings should be individually confirmed for compatibility.

Adhesive Coating Weight

Apply 1.5–4.0 g/m², depending on substrate type, film thickness, and performance requirements of the final laminate.

Web Handling

Maintain stable, well-balanced web tension throughout unwinding, coating, lamination, and rewinding to prevent issues such as curling, tunneling, or registration drift.

Curing

Slitting / rewinding: typically possible in 18-24 hours at 25 °C.

Full cure: achieved within 5-10 days at 25 °C (curing may be accelerated at elevated temperature).

Mechanical strength, chemical resistance, and heat resistance continue to develop throughout the curing process.

Cleaning

In case of production stops longer than 30 minutes, clean the application rollers and mixing head using **MyCLEAN**, Ethyl Acetate, or MEK.

Ensure all solvents are fresh, dry, and filtered.

Refer to the safety data sheets of the solvents regarding their proper handling.

Use suitable personal protective equipment during application and refer to SDS for safe handling and precaution of adhesive during production.

Food Contact Compliance

This adhesive system is compositionally compliant with the following food-contact standards:

EU: Regulation **EU 10/2011** (Plastics Materials and Articles Intended to Come into Contact with Food)

USA: **FDA 21 CFR §175.105** (Adhesives Used as Components of Articles Intended for Use in Contact With Food)

End-use compliance must be verified on the final laminate under actual processing and storage conditions.

Important

FILMEXA 1015A + 815C contains aromatic isocyanates. For this reason, we strongly recommend that migration testing be performed on the fully cured laminate under the intended conditions of use - particularly for applications involving elevated temperatures - to verify compliance with regulatory limits for primary aromatic amines (PAA). Complete curing of the adhesive is essential before carrying out any migration or compliance testing.

Since the exact end-use conditions - including substrate type, printing inks, coatings, additives, and the nature of the packaged product - are not under our control, the responsibility for verifying regulatory and application compliance lies with the converter. This includes all tests required to demonstrate conformity of the finished laminate with applicable food-contact regulations.

Our responsibility as the adhesive supplier is limited to providing products that comply with the specifications defined in the Technical Data Sheet (TDS) and Certificate of Analysis (COA), along with the appropriate food safety and regulatory statements relating to the adhesive itself.

Packaging

FILMEXA 1015A: supplied in 220 kg metal drums and 20 kg pails

FILMEXA 815C: supplied in 220 kg metal drums and 20 kg pails

Additional Operating Suggestions for Machine Operators

1. Mixing and Metering

- Verify calibration of the metering unit before starting production.
- Ensure both components flow freely; avoid any material that shows signs of crystallization or moisture contamination.
- Maintain the mixing ratio within $\pm 5\%$ by weight to guarantee stable reactivity and consistent performance.
- For machine stoppages longer than 20–30 minutes, purge and clean the mixing head to prevent premature gel formation.

2. Coating and Application

- Circulate the adhesive for 10–15 minutes to stabilize temperature and viscosity before coating.

- Keep application rollers clean and free from any cured adhesive residues.
- Reduce roller pressure slightly when coating very thin films (< 20 µm) or printed substrates to prevent distortion.
- If micro-bubbles or foaming appear, decrease mixing speed or increase the back-pressure in the dosing system.

3. Lamination and Nip Control

- Ensure uniform pressure across the entire nip width to maintain a consistent laminate profile.
- For metallized or opaque films, avoid excessive nip pressure, which can cause optical defects including haze.
- Keep tension differences between the two webs below 5N to minimize curl and misalignment.
- Do not exceed 60°C at the laminating nip to avoid blocking or surface softening during winding.

4. Post-Lamination and Rewinding

- Allow at least 18-24 hours before slitting or rewinding to ensure adequate green-bond development.
- During the first 6 hours, keep finished rolls ventilated to prevent condensation of residual solvents from printed substrates.
- Verify bond strength after 24 hours and again after 7 days, as adhesion and resistance continue to improve during curing.

5. Cleaning and Maintenance

- Use clean, dry air and ensure all solvent filters are in good condition.
- Avoid recycled solvents that may contain moisture or contaminants.
- Flush the system with fresh solvent during production interruptions longer than 30 minutes, and seal all valves tightly afterward.
- Clean application rollers thoroughly at the end of each shift to prevent polymer build-up and maintain coating quality.

Disclaimer

Under certain conditions, substrates, inks, coatings, additives, or even the packaged product itself may interact with the adhesive, potentially resulting in unexpected variations in laminate performance -sometimes appearing only after a period of time.

For this reason, before moving to industrial-scale production, converters must perform all necessary tests to verify the suitability of the FILMEXA system for the specific laminate structure and the required final properties.

The recommendations provided in this document are based on our best knowledge and practical experience and are believed to be accurate.

However, they do not constitute a guarantee or warranty of performance. Since the processing parameters and end-use conditions are outside our control, no expressed or implied warranty is provided, and no liability is accepted for results obtained in production.

We strongly advise customers to conduct thorough preliminary trials to confirm that the adhesive system is appropriate for their intended application, substrates, processing conditions, and regulatory requirements.



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