



Adhesive and Co-reactant for Flexo Applicators

INTRODUCTION

These two products comprise a two-part, water base and water dilutable adhesive for film, paper and foil laminating applications for flexible packaging.

Co-reactant must be used at the suggested ratio to achieve the desired properties.

Typical Properties*	Adhesive
Solids	54.0
Viscosity centipoise (cps)	140
Weight per Gallon	8.6
PH	4.5
Mix Ratio	4.0
Storage Life**	4 months***
Special Handling	Protect from Freezing

Typical Properties*	Co-reactant
Solids	32
Viscosity centipoise (cps)	40
Weight per Gallon	8.8
PH	11.1
Mix Ratio	1.0
Storage Life**	6 months***
Special Handling	Protect from Freezing

These items are presented for general information, only. They are typical values and are not intended to be used as product specifications.

** Store in a tightly closed container in a cool, dry place.

*** Mix well before using. Use good agitation and mix for at least 10 minutes.

MIXING INFORMATION

- Mix adhesive and co-reactant before blending together.
- Mix each product in the original shipping container before use to insure that the product is uniform.
- 20 parts of co-reactant should be mixed with 80 parts of adhesive. If necessary, water can be added to dilute the combined mixture to lower application solids and viscosity.

MIXING INFORMATION (cont'd)

- After blending adhesive and co-reactant together, use the material within 12 hours. Pot life is approximately 12 hours. Do not add additional Co-reactant.
- After 12 hours, the products should not be used.

TYPICAL MIXTURES:

As Supplied by Northwest Coatings

Adhesive	80 pounds
Co-reactant	20 pounds
Water	0
Application Solids	50 %
Application Viscosity centipoise (cps)	210
Application Viscosity #2 Zahn Cup	NA
Application Viscosity #3 Zahn Cup	NA

Diluted to 40 % Solids

Adhesive	80 pounds
Co-reactant	20 pounds
Water	25 pounds
Application Solids	40 %
Application Viscosity centipoise (cps)	35
Application Viscosity #2 Zahn Cup	23 seconds
Application Viscosity #3 Zahn Cup	8 seconds

Adhesive with co-reactant may be used without dilution. However, when dilution is necessary, dilute with water to no lower than 38 % solids. Further dilution has not been fully evaluated. Alcohol/water dilution is not typically used and may not provide any benefit. Isopropyl alcohol and/or other solvents should not be added directly to adhesive or co-reactant, nor after the two components have been mixed together. If used, isopropyl alcohol must be premixed with equal amounts of water before adding to the combined adhesive and co-reactant.

COATING PARAMETERS

A coating weight of 1.0 to 1.5 dry pounds per 3000 ft² ream is typical for food packaging applications. Lower coating weights may be applied if the resulting bond

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COATING PARAMETERS (cont'd)

values have been determined to be acceptable by the end user. Higher coating weights should be used for more demanding applications.

Best results are achieved by applying the adhesive to the most dimensionally stable, least porous material. Target coating weights can be achieved at 48 to 52 % solids using a 10 to 25 BCM anilox cylinder.

Corona treatment levels of 40 dynes or higher will provide good surface wet out and bonding. In-line corona treatment is suggested for optimum film clarity and lamination bond strength.

Follow the material suppliers recommendations for film treatment. Note: Metallized films also, benefit from in-line corona treatment.

The use of a smoothing bar is not recommended.

DRYING AND COMBINING CONDITIONS

As with all water base material, maintaining oven temperatures and air velocities in the drying tunnel to completely remove the water is critical. Exit web temperatures of 140 to 180 degrees F are normally sufficient. Nipping conditions are a function of pressure, temperature and dwell time. These conditions will be different for each adhesive, structure and laminator combination. As a general rule, the hotter the nip roller, higher the pressure and the larger the wrap around the heated roll, the higher the green bond strength. Laminations may be made with the nip roller at room temperature, but the green strength will be lower. The ultimate bond strength will not be affected, as long as the water has been completely evaporated from the adhesive prior to the nip roller. (The highest green strength is obtained when the glue line temperature of 140 to 160 degrees F is achieved.)

As with any laminating adhesive system, when using adhesive and co-reactant, care must be taken to evaluate compatibility with inks, substrates and coatings used in the finished structure.

CLEAN UP

Drain the adhesive from the cylinder pan and reservoir. Collect all clean up materials and dispose of in accordance with local, state and federal regulations. Avoid letting the adhesive dry out. Immediately rinse with tap water to remove most of the residual adhesive. Remove any residue by following this up by cleaning all parts with suitable solvent. Dry all parts thoroughly.

FDA STATUS

Adhesive and co-reactant is comprised of ingredients, which comply with the Food and Drug Administration Code of Federal Regulations, Title 21, 175.105, Adhesives.

SAFETY, HANDLING AND STORAGE

- Store in cool, dry, well-ventilated area. Protect from freezing.
- Follow good manufacturing and handling practices.
- Wash up thoroughly after handling any adhesive. Wash contaminated goggles, face-shield and gloves.
- Professionally launder contaminated clothing before re-use.
- Attention: Do not re-use empty container without professional cleaning.
- Refer to Material Safety Data Sheet for more information.

ADDITIONAL PRECAUTIONS

When running water base materials, certain metals must not come in contact with the adhesive. Brass, copper, bronze and black iron or steel must be eliminated from all wetted parts of the coatings system, including the pan, pumps, piping, application cylinder and doctor blade assembly. Materials that can be used are stainless steel, chrome or ceramic (for the anilox cylinder), and various plastics.

For those who are converting from solvent base materials to water base materials, additional airflow will be needed, in order to effectively drive off all the water.

Infrared heaters may be added to boost drying capacity.

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