



ROBOND™ L-90M/CR 9-101

Description ROBOND™ L-90M is designed for use as either a one-component or a two component, VOC compliant, waterborne adhesive for laminating flexible substrates.

ROBOND™ L-90M provides good shear strength, heat and chemical resistance when combined with CR 9-101. The CR 9-101 coreactant must be used at the recommended mix ratio to achieve the desired higher performance properties. Alcohol-free reduction, high clarity, lower nip temperature and low foam are important advantages of the ROBOND™ L-90M / CR 9-101 adhesive system. When used in conjunction with high slip films (COF < 0.2), it is strongly recommended that the user verify that potential film property changes due to the lamination process and materials are acceptable for the end use performance requirements.

This dispersion is water-based, care should be taken to minimize the generation of foam. Should foam occur, please contact your Dow representative for recommendations. If needed Foamaster MO may be used at levels of 0.05 – 0.10% on a wet/wet basis to control foam.

ROBOND™ L-90M/ CR 9-101 is usually applied as received. It may be diluted with water to 40 - 42% solids for some applications. Dilution below this level may cause mechanical stability and appearance problems on marginally treated films. Alcohol cannot be added directly to this system. isopropyl alcohol can be used, mixed with water at 1:1 ratio. This will improve release from the gravure cylinder, help to control foam generated under certain machine configurations and improve flow and leveling on some substrates.

For cleaning , drain the adhesive from the cylinder, pan and reservoir and dispose in accordance with state and local laws. Do not allow wet parts to dry out. Immediately rinse with tap water to remove the bulk of the adhesive residue. Follow by cleaning all wetted parts with ethyl acetate or other suitable solvent to remove any further residue. Dry all wetted parts. Dried or plugged cylinders may have to be cleaned with solvents that are more aggressive or other cleaning methods.

Typical Applications Films should be printed with suitable ink for lamination. Other application uses are possible, subject to performance trials and testing.

Suggested Substrates Metalized films.
Nylon or polyamide (PA).
Polyester (PET).
Polyvinylidene di-chloride (PVdC) coated substrates.
Treated polyethylene (PE), (minimum 38 dyne/cm).
Treated polypropylene (PP), (minimum 38 dyne/cm).

Typical Physical Properties	Adhesive	Coreactant	Unit
Solids Content	42	100	%
Viscosity (25°C)	45	2000	mPa·s
Weight/Gallon	8.80	9.80	lb
Volatile Solvent	Water	--	
Mix Ratio by Weight (PBW)	100	2.0	
Wet Appearance	<ul style="list-style-type: none"> • Liquid • Milky White 	<ul style="list-style-type: none"> • Colourless to Slightly Yellow • Liquid 	
Dry Appearance	<ul style="list-style-type: none"> • Clear • Transparent 	--	

*These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

Recommended Processing Guidelines

Stir well before use to insure uniformity.

The product is usually applied as received by gravure system.

Use of a smoothing bar will optimize film uniformity and appearance.

The best smoothing action is achieved when operating the smoothing bar against web direction.

The system may be diluted with water to 40 to 42% solids for some applications.

Dilution below this level may cause mechanical stability and appearance problems on marginally treated films.

The Coreactant should be added to the Adhesive with agitation.

Prior to adding the Coreactant, use a mechanical mixer to stir the Adhesive with enough speed until a vortex is formed, assuring that the adhesive is drawn from the sides and bottom of the mixing vessel.

Slowly charge the appropriate amount of coreactant at the edge of the vortex and continue mixing for 5 – 10 minutes.

General Comments

Dow's Technical Service is ready to supply assistance in regards to the correct use of our products.

Interaction may occur with other components of the structure. Inks, retained solvents from any source, substrates, additives, coatings and the packed product are some of the components that may cause a property change of the total structure.

Before regular production, the end user is responsible to verify the suitability and performance properties of the total construction for the intended end use application, including the suitability of the process, construction and components.

Recommended Application Weight

Apply 1.6 to 2.4 g/m² dry, depending on substrate, printing and application.

Drying Guidelines

An increasing temperature profile in multi-zone dryers is recommended.

Dry properly with sufficient amount of heated air at adjusted temperature range of > 81°C to evaporate water at given production speed.

The drying process has to remove water completely.

Nip Temperature

For a good lamination adhesion bonds, nip temperature should be 60 to 90°C.

The rubber roll in the nip with hardness of 85 Shore A or greater is recommended.

Slitting / Rewind Time

Slitting and rewind is possible after 5.0 min at 25°C (77°F).

Curing Time

Converters should verify appropriate cure times and conditions for their individual application.

Initial bonds are typically lower than bonds reached in 1.0 day.

In-line corona treatment of the substrates typically increases the initial and final bonds, reducing the need to wait until slit time.

The curing process is normally completed 7.0 day after lamination at 21°C and may be influenced by the type of film used, applied weight and by the storage conditions.

Tunnel resistance is good even with relatively low bonds.

Approximate Pot Life

The mixed Pot Life of the product is approximately 8.0 hr at 40 to 42% of solids content. It can vary based on environmental temperature and humidity conditions.

Suggested Application and Operating Guidelines**Adhesive Unit**

Application Method	Gravure
Application Cylinder or Anilox Range	65 to 79 lines/cm
Application Cylinder or Anilox Volume	7.7 to 12.4 cm ³ /m ²
Recommended Use of Smoothing Bar	Yes
Application Solids Percent Range	40 to 42 %
Recommended Dilution Solvent	<ul style="list-style-type: none">Deionized WaterIsopropyl Alcohol
Application Temperature	60 to 82 °C
Drying Web Temperature	> 81 °C
Chill Roll Temperature	25 to 27 °C
Cleaning Solvent	<ul style="list-style-type: none">Ethyl AcetateMethyl Ethyl KetoneWater

Suggested Cleanup Guidelines

A proper cleaning procedure should be implemented and practiced as part of the machine operation.
After finishing production, the equipment should be cleaned immediately with room temperature flushing water.
Harder, dried deposits should be cleaned with solvent like Methyl Ethyl Ketone or Ethyl Acetate.
Do not allow wet parts to dry out.
Dried or plugged cylinders may have to be cleaned with solvents that are more aggressive or other cleaning methods.

Storage and Shelf Life Guidelines

The product may be stored up to stated expiry date provided that the product is stored in a dry and cool, well ventilated place between 5 - 35°C (41 - 95°F) unopened in the original shipping container.
Protect from freezing. Product will become unusable.

Disposal

Dispose in accordance with all local, state (provincial) or federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.
It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) or federal regulations.
Contact your Dow Technical Representative for more information.

FDA and/or European Food Contact Compliance

Due to the evolving nature of European and FDA food contact compliances, please contact Dow's Customer Information Group for the most up to date food contact compliance information. Call 800-258-2436 or use the web form at Dow.com for complete FDA and European food contact statements available.

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

Any and all medical application use of Dow materials, whether a device, a component, or any type of primary or secondary packaging of a medically related object or substance, needs to be reviewed and approved by Dow before any Dow material can be tested in such application.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

For further information contact your Dow sales or technical representative to request a Medical Application Review Request Form.

Additional details of Dow's Medical Applications Policy are available at: <https://www.dow.com/en-us/support/product-safety.html>

Tobacco and Marijuana Policy

Dow does not support or intend for its products to be used, directly or indirectly, in the production of tobacco, the manufacture of tobacco products, the manufacture and use of electronic cigarettes (including vaping devices), the production of marijuana, or the manufacture of marijuana products intended for human consumption, where the Dow product (or its residues) may be present in the finished product or be alleged to facilitate the delivery of nicotine, other tobacco components, marijuana, or marijuana components.

Harmful Applications Policy

Dow does not intend for its products to be used in applications specifically intended to harm humans.

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

NOTICE: If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

NOTICE: This data is based on information Dow believes to be reliable, as demonstrated in controlled laboratory testing. They are offered in good faith, but without guarantee, as conditions and method of use of Dow products are beyond Dow's control. Dow recommends that the prospective user determine the suitability of these materials and suggestions before adopting them on a commercial scale.

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication, however we do not assume any liability for the accuracy and completeness of such information.

For additional information, not covered by the content of this document, contact us via our web site http://www.dow.com/products_services/.

Additional Information

North America

U.S. & Canada: 1-800-441-4369
1-989-832-1426
Mexico: +1-800-441-4369

Latin America

Argentina: +54-11-4319-0100
Brazil: +55-11-5188-9000
Colombia: +57-1-219-6000
Mexico: +52-55-5201-4700

Europe/Middle East

Italy: +800-3694-6367
+31-11567-2626
+800-783-825

South Africa

+800-99-5078

Asia Pacific

+800-7776-7776
+603-7965-5392

www.dow.com

This document is intended for use within North America

Published: 2016-10-27

© 2023 The Dow Chemical Company

