

LANXESS AF DP1-1701

- Anti-drop / anti-fog coating system
- Water-based
- Finish for parts in polycarbonate or other thermoplastics

Product description

LANXESS AF DP1-1701 is an aqueous anti-drop and anti-fog coating system for solid sheet, multi-wall sheet, corrugated sheet and other semi-finished products made of polycarbonate, as well as for injection molded parts in this same material.

It can also be used as an anti-fog agent for a large number of other thermoplastics, glass and metal. The coating can be applied in a single operation without any primer.

Application

The modifier can be applied, either on a discontinuous basis or online during sheet production. The following coating methods are suitable:

- roller coating
- spray coating
- dip coating
- flow coating
- spin coating

The coating can be cured either in circulating-air ovens or by means of IR radiators.

LANXESS AF DP1-1701 is supplied ready-to-use in 216-l- and 1000-l-IBC containers. Other containers are available on request.

It can be diluted with distilled or desalinated water where required.

LANXESS AF DP1-1701 can be stored for at least six months at room temperature. Any haze that occurs should be filtered off.

Mode of action

An anti-drop and anti-fog finish is a surface coating that spontaneously disperses water. This functions on the basis of an extremely thin (< 1 µm) waterswellable layer that is nonetheless firmly anchored to the substrate.

This information and our technical advice - whether verbal, in writing or by way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

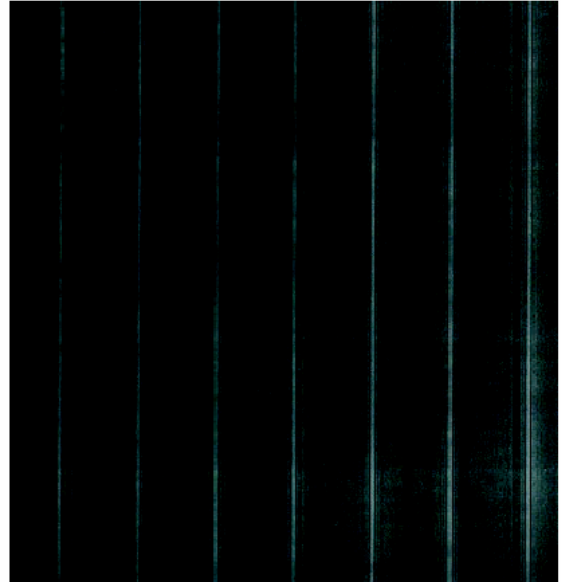
In the United States of America the LANXESS business is conducted by LANXESS Corporation, Pittsburg, PA. Customers in the US are kindly asked to address their requests directly to this legal entity.

LANXESS AG, Leverkusen, Germany

Condensate appearance in a greenhouse test



Uncoated



LANXESS AF DP1-1701 coated

Application

1. Roller coating

The roller coating method has proved successful for online coating. Coating rollers that also operate in reverse mode are suitable (produced by Bürkle and Elmag, for example). Any foam that develops can be reduced by reducing the fall height in the return line (through spiral hoses, for example) and using a larger-area coating reservoir. Good results have been achieved with the following basic settings:

Application roller: 40 to 50 Shore smooth 10 to 20 m/min reverse mode

Sheet speed: 0.8 to 3 m/min

Quantity applied: 6 to 10 g LANXESS AF DP1-1701/m²

In the case of online application, the coating can be applied without any problems at sheet surface temperatures of 40 to 60 °C. The evaporation time is then reduced to < 30 sec. It is essential for the coating to be dust-dry prior to subsequent curing.

Experience has shown that residence times of 3 to 5 min at approx. 140 °C will suffice for the subsequent curing operation. The anti-drop solution can become more concentrated in the course of online application. This can be offset through the addition of distilled or desalinated water.

A 5% solution – like the solution supplied – has proved successful in most cases.

This information and our technical advice - whether verbal, in writing or by way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

In the United States of America the LANXESS business is conducted by LANXESS Corporation, Pittsburg, PA. Customers in the US are kindly asked to address their requests directly to this legal entity.

LANXESS AG, Leverkusen, Germany

LANXESS Distribution GmbH / Katzbergstr. 1/ 40764 Langenfeld / www.lanxess-distribution.com

2. Spray coating

LANXESS AF DP1-1701 can be readily processed with the standard spray guns. Thin, uniform layer thicknesses are best achieved by employing a high injection pressure and diluting the modifier to a solids content of 2 to 3 % through dilution with distilled or desalinated water.

3. Flow and dip coating

LANXESS AF DP1-1701 is also correctly adjusted for flow and dip coating. A slight adjustment with desalinated or distilled water may be necessary. An evaporation period of approximately 30 min should be allowed at room temperature prior to curing.

Dipcoated multi-wall sheet also displays an outstanding waterdispersing action inside the chambers.

4. Curing

Once evaporation is completed and the coating is dust-dry, the coated part must be thermally cured. Both circulating-air units and infrared sections have proved successful here.

The standard curing times are:

120 to 130 °C: 15 to 60 min

140 °C: 3 to 5 min

Experience has shown that, with online coating, this time is considerably reduced by the residual warmth of the sheet.

5. Surface finish

Sheet coated with LANXESS AF DP1-1701 has a high brilliance. The high refractive index differential means that colored shading can result from fluctuations in the coating thickness if the coating is incorrectly applied. A haze will develop if the coating is too thick (>1 µm).

6. Packaging the coated sheet

Once the sheet has been coated, the standard type of adhesivefree protective film should be applied to it for transport and storage. Protective film GH-X 173 manufactured by Bischof und Klein has proved successful for this. Smaller parts can be protected by PE pouches or PE film.

Testing

1. Layer thickness

The layer thickness should be between 0.2 and 1.0 µm over the full width of the sheet. While excessively thin layers have good dispersing properties to begin with in some cases, they become less efficient at an early stage.

Higher layer thicknesses can produce a haze and, in extreme cases, the layer will become chalky.

2. Dispersing behavior

The dispersing behavior can be readily verified with water. It is recommended that the water be sprayed on in the form of mist. No drops should form on the coated part during this test. The anti-fog effect can be verified by

This information and our technical advice - whether verbal, in writing or by way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

In the United States of America the LANXESS business is conducted by LANXESS Corporation, Pittsburg, PA. Customers in the US are kindly asked to address their requests directly to this legal entity.

LANXESS AG, Leverkusen, Germany

simply breathing on the part. An even better method is to hold up the coated part above steam. It must not fog up, and must remain transparent.

3. Adhesion

The coating will display excellent adhesion if it has been correctly applied. A tape test can be conducted without any problems. It is recommended that a test be conducted on the basis of DIN EN ISO 2409, where a piece of adhesive tape with an adhesive force of 10 N/cm² is applied to the coating and firmly pressed down. After 1 minute, the strip of tape is torn off in a sudden movement at an angle of 45 ° in the direction of pull.

Transport, toxicity and hazards

Please refer to our safety data sheet.

Labeling

EU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Industrial applications.

Risk phrases : This product is not classified according to EU legislation.

This information and our technical advice - whether verbal, in writing or by way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

In the United States of America the LANXESS business is conducted by LANXESS Corporation, Pittsburg, PA. Customers in the US are kindly asked to address their requests directly to this legal entity.

LANXESS AG, Leverkusen, Germany