ARLANXEO

Performance Elastomers

BAYPREN® ALX
PRODUCT PORTFOLIO

Nowhere visible but everywhere present in everyday life: Contact adhesives based on Baypren® ALX from ARLANXEO.

www.arlanxeo.com

BAYPREN® ALX
POLYCHLOROPRENE FOR CONTACT ADHESIVES

Baypren® ALX – Polychloroprene for contact adhesives

ARLANXEO's polychloroprene (chloroprene rubber) is a polymer made from the monomer 2-chloro-1,3-butadiene. It is produced by state-of-the-art processes with over 50 years` experience. Good resistance to environmental influences, excellent solubility in many organic solvents and solvent mixtures, as well as a high rate of crystallization make it ideal for the production of solvent based contact adhesives. The polychloroprene product line for adhesive applications is now offered under the brand name Baypren® ALX.

Adhesives based on Baypren® ALX are specially suitable for contact bonding. This bonding technique requires the application of the adhesive on both substrates. After brief surface drying the substrates are joined with pressure within the open time (contact bonding time) of the adhesive. One of the most prominent features of adhesives based on Baypren® ALX is the high initial strength that is established instantly with joining. The bonded substrates can be handled immediately, fixation of the substrates until the cure is finalized is not needed. The initial strength as well as the open time can be influenced by the pressure during bonding. The higher the pressure, the higher is the initial strength and the longer is the contact bonding time (see chart).

Following momentary strength, crystallization of the polychloroprene further increases cohesion, resulting in a final bond strength, that is markedly exceeding adhesion strength achievable with contact adhesives based on natural or nitrile rubber.

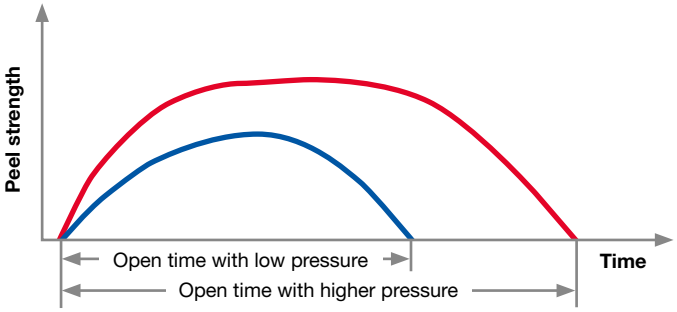
Apart from their simple, economical processing, contact adhesives based on Baypren® ALX are distinguished by their excellent adhesion to a wide range of materials. Additionally they allow formation of soft bond lines for the joining of flexible substrates like rubber, foams or leather.

Main application industries

The demand for contact adhesives based on Baypren® ALX is particularly high in the shoe industry, in fabrication of mattresses, in furniture production, in the construction and automotive industries and in the do-it-yourself sector.

Baypren® ALX chips

Initial strength as a function of open time and applied pressure during bonding



Footwear sector – one of the industries where contact adhesives are indispensable

BAYPREN® ALX
SELECTION OF GRADES

Choice of crystallization rate and solution viscosity

The Baypren® ALX portfolio is consisting of two grade lines, distinguished by their rate of crystallization. As shown in the chart below, the 300 grades are crystallizing more readily and are reaching a higher final degree of crystallization than the 200 grades. Within both grade lines products with varied viscosities (chain lengths) are available, to allow the choice of the best suiting raw material for the distinct application.

Fast crystallizing 300 grades

The fast crystallizing 300 grades are giving contact adhesives with high initial strength, high final strength and rapid bond formation. These adhesives are specially useful in industries with fast production cycles like the shoe industry. Due to the high initial strength, production processes following the bonding step can be done at once. The joined substrates can be handled immediately, without waiting for the final cure of the adhesive.

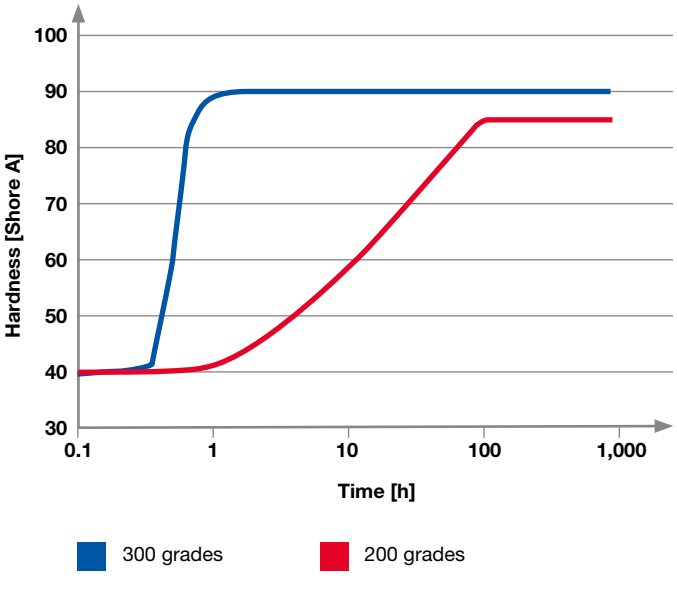
Baypren® ALX can be dissolved directly, without a previous milling step. Most of the grades are delivered in approx. 2 mm chip thickness allowing a quick solvation of the polymer. Polymers with long chain length generally need more time for solvation. To offset the longer solvation times, due to the long chain length, the high viscosity grades B340-2 to B350-2 are produced in 1 mm chip thickness.

If the final application is challenging regarding flow properties of the adhesive, milling of the chips is helpful to reduce viscosity and normal stress of the adhesive formulation. Within the Baypren® ALX portfolio, the thiuram modified grades 321 and 331 are specially suitable for milling and the preparation of smooth, easy-to-apply adhesives. Under unfavorable conditions, e.g. in the presence of certain leather greases or on contact with iron, the use of thiuram modified grades holds the danger of producing a yellowish discoloration. When bonding sensitive, light-colored materials, it is advisable to use the thiuram-free Baypren® ALX grades.

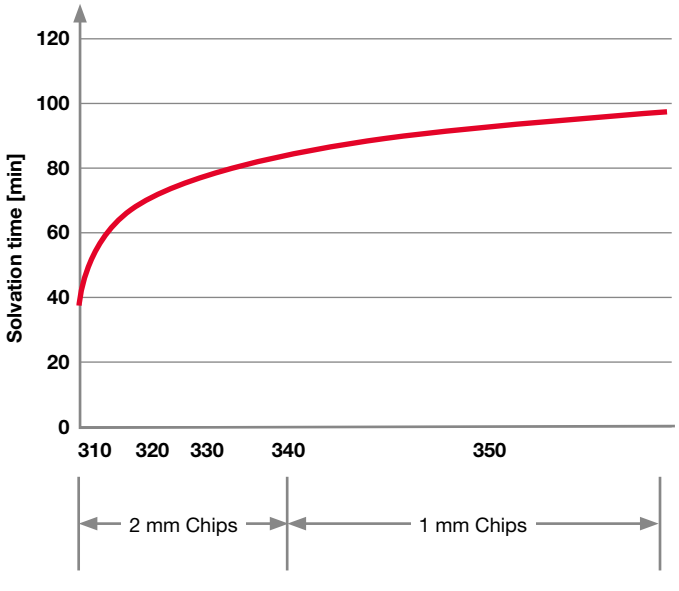
Medium fast crystallizing 200 grades

In cases where high initial bond strength is not needed (e.g. flooring or roofing), use can be made of the medium fast crystallizing Baypren® ALX grades of the 200 range. They prolong the open time of the adhesives, enhancing processing reliability and are giving a softer, more flexible bond line. The medium crystallizing Baypren® ALX grades can be used both on their own or in combination with fast crystallizing Baypren® ALX grades. Additionally blending of grades of different viscosities is no problem, allowing the formulation of an adhesive with well-fitting viscosity and crystallization for the distinct application.

Crystallization of the Baypren® ALX grades



Solvation time of Baypren® ALX 300 grades in toluene (5 wt.-% solutions)



BAYPREN® ALX
ADHESIVES FORMULATION

Baypren® ALX

Choice of solvent

Baypren® ALX adhesive raw materials are soluble in many organic solvents and solvent mixtures. The solvent or solvent mixture used to produce the adhesive is chosen according to both economic and technical considerations. It has to be taken into account, for example, that the solvent can have a considerable influence on:

- the viscosity of the adhesive
- the compatibility of the adhesive with an added crosslinking agent
- the behavior of the adhesive during storage at low temperatures
- the occurrence of phase separation during the storage of resin-containing adhesives
- the wetting of the substrate surface
- the drying of the adhesive film
- the open time of the adhesive film
- the curing rate of the bond

Apart from the influence on the technical properties of the adhesives, the physiological effect of the solvents also has to be considered. The use of certain solvents is subject to restrictions or is completely banned in some countries. Furthermore, attention must be paid to the flammability of many solvents and their ability to form explosive mixtures with air.

Perfectly suited, efficient, economical – Baypren®ALX for adhesives, on which industries such as furniture production rely from experience

Modification of the adhesive formulation with additives

Addition of zinc oxide and magnesium oxide to the adhesive formulation is advisable as these metal oxides are acting as acid scavengers and are increasing the bond strength. In combination with an alkyl phenolic resin magnesium oxide is additionally enhancing the temperature resistance of the bond. Resins in general are added to increase contact bonding time and tack.

If formulated well, adhesives based on Baypren® ALX can be used in combination with isocyanates in two part adhesives, giving adhesives with higher cohesion, heat stability and adhesion to difficult-to-bond substrates.

Products from the 300 grade line are additional suitable for grafting with methyl methacrylate (MMA). By grafting with MMA, the adhesion to plasticized polyvinylchloride (PVC) is enhanced.

High performance adhesives based on Baypren® ALX

BAYPREN® ALX
RANGE OF GRADES

Baypren® ALX

Fast crystallizing Baypren® ALX grades

Grade	Chip-size [mm]	Viscosity [mPa s] 10 wt.-% solution in toluene
Standard grades		
310-1	approx. 2	70 – 220
310-2	approx. 2	220 – 380
320-1	approx. 2	350 – 550
320-2	approx. 2	550 – 810
330-1	approx. 2	700 – 1,000
330-2	approx. 2	900 – 1,400
340-1	approx. 2	1,130 – 1,800
340-2	approx. 1	1,600 – 2,500
350-1	approx. 1	2,200 – 4,000
350-2	approx. 1	2,500 – 5,300
Thiuram modified grades		
321-1	approx. 2	350 – 550
321-2	approx. 2	550 – 810
331-1	approx. 2	700 – 1,000
331-2	approx. 2	900 – 1,400

Medium fast crystallizing Baypren® ALX grades

Grade	Chip-size [mm]	Viscosity [mPa s] 10 wt.-% solution in toluene
Standard grades		
213-1	up to 10	70 – 220
213-2	approx. 2	220 – 380
223-1	approx. 2	350 – 550
223-2	approx. 2	550 – 810
233-1	approx. 2	700 – 1,000
233-2	approx. 2	900 – 1,400
243-1	approx. 2	1,130 – 1,800
243-2	approx. 2	1,600 – 2,500
253-1	approx. 2	2,200 – 4,000
253-2	approx. 2	2,500 – 5,300

Nomenclature of the Baypren® ALX grades

First digit: Indication of the crystallization rate	
2	= medium
3	= fast
Second digit: Indication of the viscosity	
1	= low
2 + 3	= medium
4	= high
5	= very high
Third digit: Indication of special properties	
0 + 3	= standard grades
1	= thiuram modified grades
Fourth digit: Viscosity (subcategory)	
1	= lower range
2	= higher range

Proven supply form: chips

To ensure consistent pourability, the flat ivory colored Baypren® ALX chips are talc coated.

Packed in sacks, wrapped with film

The material is filled in 25 kg multilayered paper bags, inside PE-coated and delivered on a wooden pallet containing 40 bags (net weight per pallet 1000 kg), covered by a PE shrinking film.

Proper storage, trouble-free use

The shelf life is 12 months from date of shipment at temperatures, not exceeding +25 °C during transport and storage under dry conditions. Exposure to light has to be avoided. Open bags and pallets must be protected from light/sunlight. Baypren® ALX chips tend to clump if stored improperly.

Thickness of Baypren® ALX grades (approximate)

8 mm: Baypren® ALX 213-1

2 mm: Baypren® ALX 213-2 to 253-2
Baypren® ALX 310-1 to 340-1

1 mm: Baypren® ALX 340-2 to 350-2

Trial product:
(VP = Versuchsprodukt = trial product). The information contained herein is merely preliminary. Testing as to properties and applications is not final. Further information, including data which could change or add hazards with use, may be developed by the manufacturer, the user or a third-party institute. Such information may be needed to properly evaluate or use this product. Use is undertaken at the sole risk of the user.

Quality & Environmental Management:
Baypren ALX is produced under strict control regarding safety, environmental protection and quality. The whole supply chain, from production to customer service, is covered by ISO 9001 and ISO 14001 certification.

Product Safety:
Relevant safety data and references as well as the possibly necessary warning labels are to be found in the corresponding safety data sheets.

Health and Safety Information:
Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the ARLANXEO products mentioned in this publication. For materials mentioned which are not ARLANXEO products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult us through your ARLANXEO representative or the Health, Safety, Environment and Quality Department (HSEQ) of ARLANXEO.

Regulatory Compliance Information:
Some of the end uses of the products described in this publication must comply with applicable regulations, such as the FDA, BfR, NSF, USDA and CPSC. If you have any questions on the regulatory status of these products, contact your ARLANXEO representative.
The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control.
Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale, which can be found at the ARLANXEO homepage. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information.
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