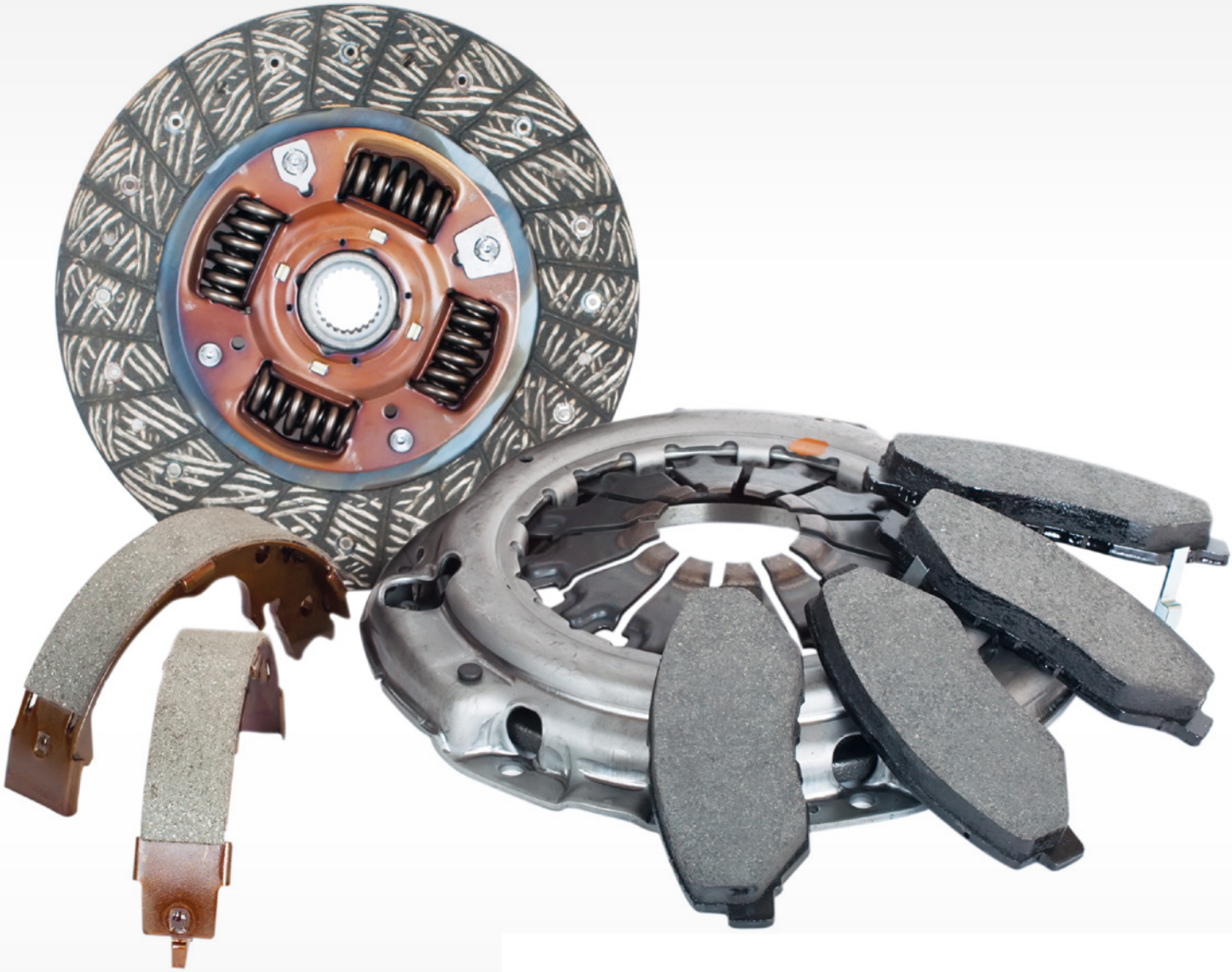
ARLANXEO

Performance Elastomers



BAYMOD® N XL 38.43

HIGH PERFORMANCE MODIFIER FOR FRICTION PARTS

Baymod® N

nbr.arlanxeo.com

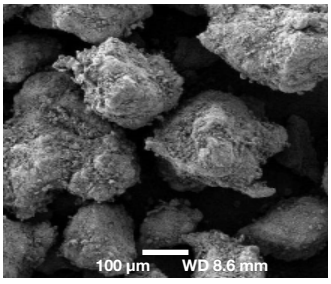
BAYMOD® N XL 38.43
HIGH PERFORMANCE MODIFIER FOR FRICTION PARTS

ARLANXEO is a leading supplier of powder products for the modification of parts for friction applications.
Baymod® N XL 38.43 is a polar pre-crosslinked acrylonitrile-butadiene copolymer in very fine powder form, which was especially developed and tailor-made for the modification of phenolic resins and the improvement of friction articles such as brake pads and clutch facings.

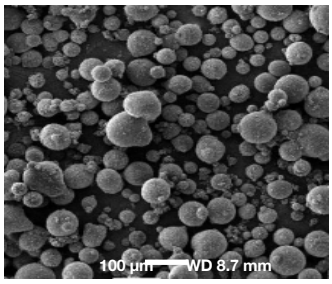
Baymod® N XL 38.43	
Pre-crosslinked spray-dried NBR	
Mooney viscosity (1+4) 100 °C	115 MU
ACN content	38%
Average particle size	100 µm
Partitioning agent	$CaCO_3$
Partitioning agent content	10%

The exceptionally fine powder form of Baymod® N XL 38.43 (the lowest particle size powder in the NBR powder market), together with the regular spherical shape of the particles, enable, in dry processes, a very homogeneous mix with phenolic resins and other ingredients used in friction compounds, which consequently gives outstanding properties to the final articles.

The shape and size of the particles is a result of the spray-drying technology used to produce Baymod® N XL 38.43. Microscopic comparison with standard ground NBR powder confirms these differences.



Ground NBR powder



Baymod® N XL 38.43

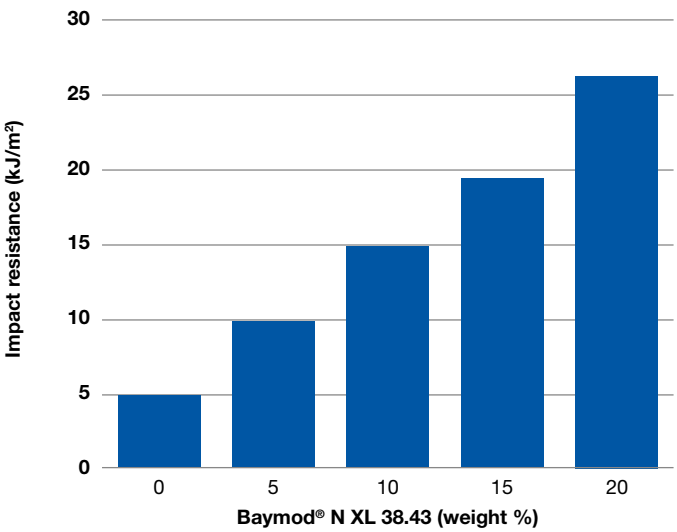
The particle size allows an effective distribution, low heat build-up during mixing and shorter mixing times.

The excellent free flowing properties of Baymod® N XL 38.43 allows automatic metering and processing.

The pre-crosslinked structure of Baymod® N XL 38.43 allows a significant reduction or even the complete removal of the sulfur-curing step, which means less handling of chemicals, and therefore a safer working environment, better storage stability of pre-mixes and savings through the reduction of production stages (even all-in-one mixes are possible).

Baymod® N XL 38.43 serves as a ready-to-use modifier which brings elasticity and improves the impact resistance of the final product. Consequently, fade (stopping power reduction) and noise are reduced, while grip and thus coefficient of friction are improved, and service lifetime is increased.

Improvement of the impact resistance of phenolic resins by adding Baymod® N XL 38.43



The main purpose of a friction material is to stop the vehicle by converting mechanical energy smoothly and in a controlled fashion into heat. In practice, brake units can heat up to such an extent that heat dissipation may become a problem. Friction materials should have a stable coefficient of friction suitable for the application. This should remain constant throughout the material's life under all conditions of temperature and pressure. The coefficient of friction is the key property of friction linings and pads. Baymod® N XL 38.43 increases the coefficient of friction in the temperature range of 50 °C to 200 °C, where most braking action starts to take place.

Product benefits

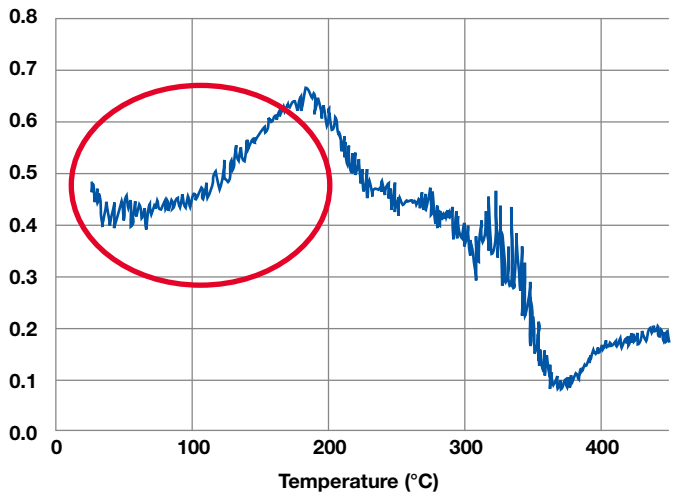
- Perfect compatibility and miscibility with phenolic resins
- Best impact (+40%) and heat (+20°C) resistance, compared to SBR, standard NBR, BR and tire scrap
- Flexibility, grip and coefficient of friction improved
- Increased resistance to grease, oil, fuel, tear and wear
- Chloride-free product
- Fade and noise reduction
- Increased service life and quality of friction safety parts

Process benefits

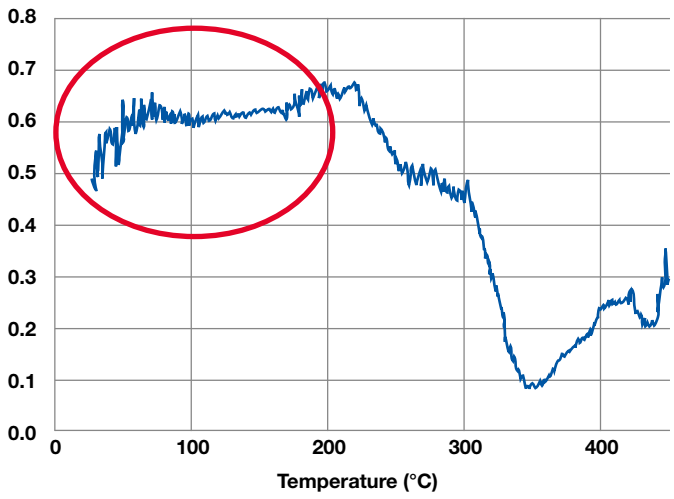
- Enables automatic, short and all-in-one mixes
- Low heat build-up and waste level
- Lower consumption of energy and cooling water
- High green strength and storage stability of premixed compounds
- Less (or even no) handling of sulfur curing chemicals
- Fewer production stages and costs savings

Coefficient of friction

No NBR



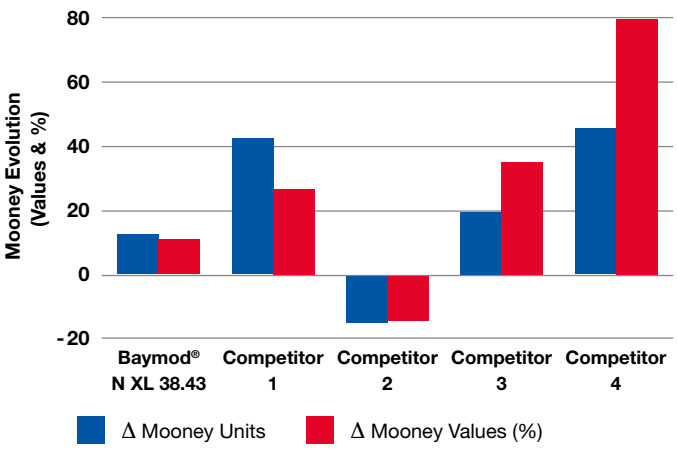
With NBR



Safety and reliability are key requirements for brake and clutch lining applications for which acrylonitrile-butadiene copolymers are essential components in mixtures containing phenolic resins and various other inorganic and organic ingredients. Baymod® N XL 38.43 is an effective co-binder, providing, among all rubber materials, the best chemical compatibility and miscibility with phenolic resins, to increase the flexibility of friction materials. Rubber is also effective as a material that encapsulates the abrasive powders, thereby decreasing wear of the metal rotor.

The outstanding ageing resistance of Baymod® N XL 38.43 compared with other powdered NBR products on the market gives an improved retention of safety critical properties for friction materials operating at high temperatures, leading to a more constant service life performance.

Ageing behavior after 2 days @ 110 °C



ARLANXEO

Performance Elastomers

Edition 2019

© 2019 ARLANXEO. All rights reserved.

EMEA

ARLANXEO Deutschland GmbH
High Performance Elastomers
Dormagen, Germany
nbr.emea@arlanxeo.com

APAC

ARLANXEO High Performance Elastomers
(Changzhou) Co. Ltd. Shanghai Branch
High Performance Elastomers
Shanghai, P.R. China
nbr.apac@arlanxeo.com

NAFTA

ARLANXEO USA LLC
High Performance Elastomers
Pittsburgh PA, USA
nbr.nafta@arlanxeo.com

LATAM

ARLANXEO Brasil S.A.
High Performance Elastomers
São Paulo, Brazil
nbr.latam@arlanxeo.com

Quality & Environmental Management:
ARLANXEO NBR is produced under strict control regarding safety, environmental protection and quality. The supply chain, from production to customer service, is covered by ISO 9001, ISO 14001 and ISO 50001 certification.

Product Safety:
Relevant safety data and references as well as the necessary hazard warning labels can be found in the Material Safety Data Sheet.

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 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. 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.
Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.