

CHEMISTRY THAT MATTERS™



# NORYL™ AP2001G POLYOL: ENHANCING TDI CAST ELASTOMERS

SABIC'S SPECIALTIES BUSINESS



# IMPROVING PERFORMANCE IN CAST POLYURETHANE SYSTEMS IN TDI FORMULATIONS

SABIC's NORYL™ AP2001G polyol supports formulators of cast polyurethanes (PU) in developing products that require improved toughness and modulus while maintaining or improving elongation. This new material can partially replace PPG (polyether glycol) and/or PTMG (poly(tetramethylene ether)glycol) in cast PU formulations.

Potential benefits include enhanced hydrolytic and chemical resistance, improved heat resistance and thermo-oxidative stability, increased abrasion and tear resistance and electric insulation properties.



## ACHIEVING A UNIQUE BALANCE OF PROPERTIES IN A MODEL CAST POLYURETHANE FORMULATION WITH SABIC'S NORYL AP2001G POLYOL



Improved toughness  
and reduced abrasion



Higher temperature  
resistance



Increased tensile  
strength and elongation



Improved chemical  
resistance in alkaline,  
acid, water and oil



Improved  
modulus



Improved adhesion  
to steel



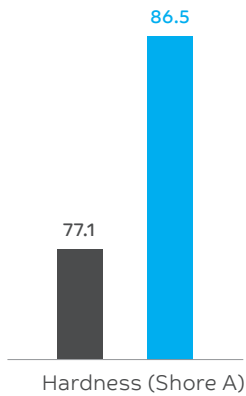
## POTENTIAL APPLICATIONS

Hot cast elastomer solutions may benefit applications that require more durability and better performance at high temperatures and under hydrolytic conditions. Potential applications include print rollers, protective coatings on pipes for slurry pumping applications, PU wheels, seals and gaskets, tires and mining screens.

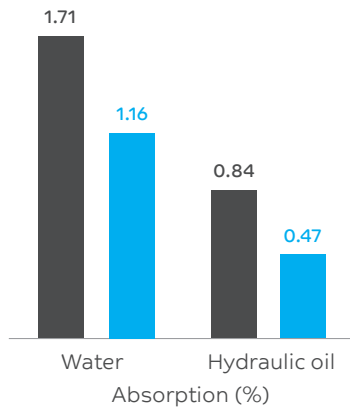
# PERFORMANCE COMPARISON DATA

## COMPARISON OF ELASTOMERS WITH PPG AND A NORYL™ AP2001G POLYOL - PPG BLEND

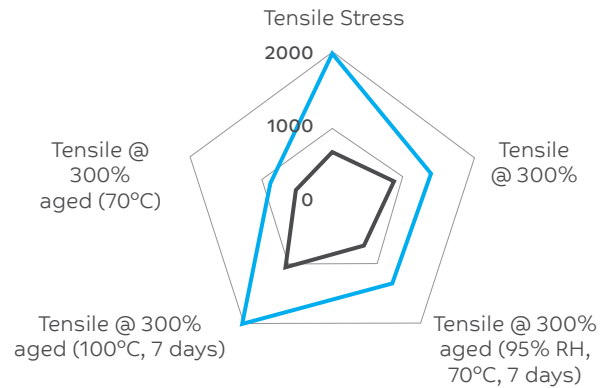
Increases  
hardness



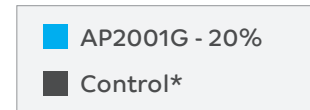
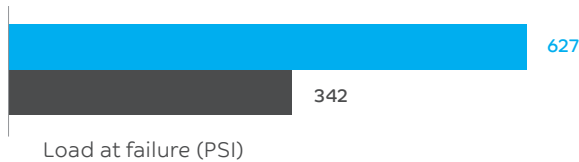
Lowers  
chemical absorption



Improves modulus (psi) and retains elasticity  
in various environments

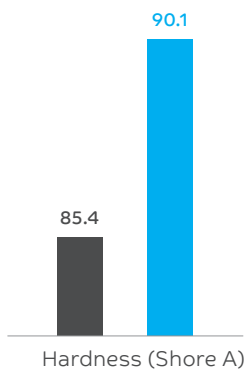


Improves adhesion

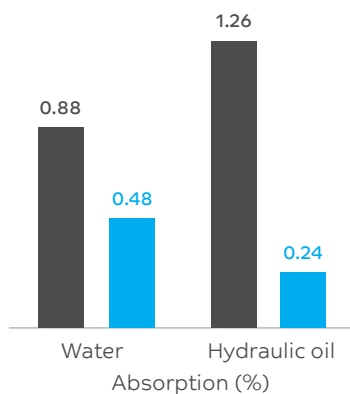


## COMPARISON OF ELASTOMERS WITH PTMG AND A NORYL™ AP2001G POLYOL - PTMG BLEND

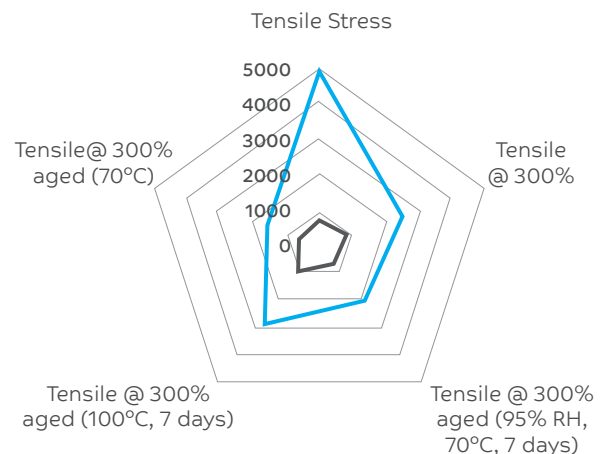
Increases  
hardness



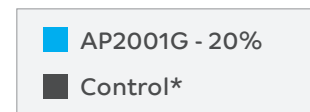
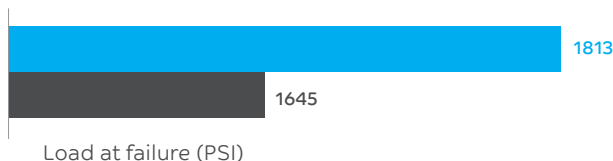
Lowers  
chemical absorption



Improves modulus (psi) and retains elasticity  
in various environments



Improves adhesion

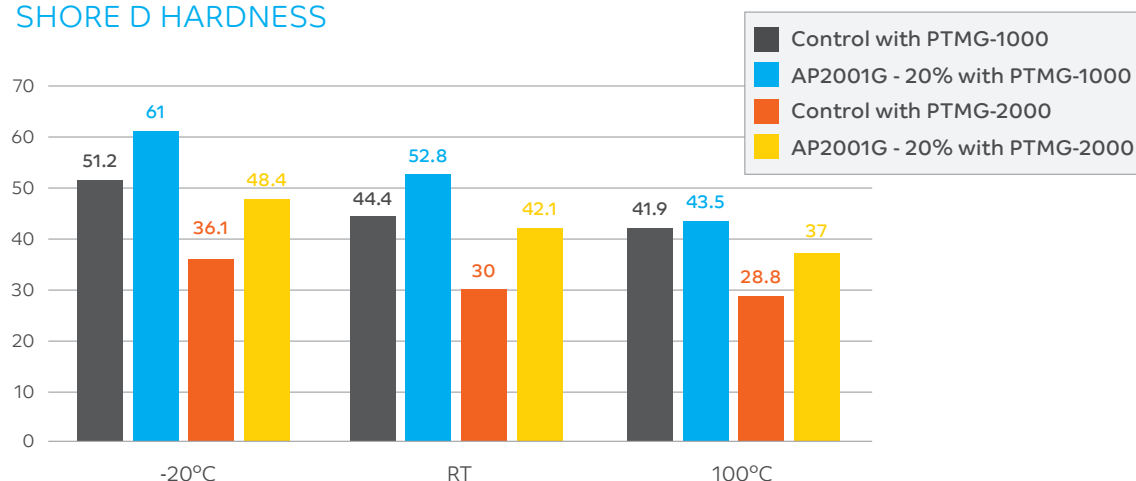


\* Prepolymers were prepared with a 3.5% NCO

# COMPARISON OF ELASTOMER HARDNESS OVER A TEMPERATURE RANGE

The increased hardness of the formulation containing NORYL AP2001G polyol is retained over a wide temperature range.

## SHORE D HARDNESS



With testing at -20°C, RT and 100°C:

- In PTMG 1000, 20% AP2001G brings 19%, 18% and 4% increases in hardness
- In PTMG 2000, 20% AP2001G brings 34%, 40% and 28% increases in hardness

## CONTACT DETAILS:

### AMERICAS

**SABIC Americas**  
2500 City West Boulevard  
Suite 100  
Houston, TX 77042  
USA  
T: 1-800-845-0600  
E: [productinquiries@sabic.com](mailto:productinquiries@sabic.com)

### EUROPE

**SABIC Europe**  
Plasticslaan 1  
4612 PX Bergen op Zoom  
The Netherlands  
T: +31 164 292 911  
E: [webinquiries@sabic.com](mailto:webinquiries@sabic.com)

### ASIA PACIFIC

**SABIC Shanghai**  
2550 Xiupu Road, Pudong  
Shanghai 201319  
China  
T: +86 21 2037 8118  
E: [asiaproductinquiries@sabic.com](mailto:asiaproductinquiries@sabic.com)

DISCLAIMER: THE MATERIALS, PRODUCTS AND SERVICES OF SAUDI BASIC INDUSTRIES CORPORATION (SABIC) OR ITS SUBSIDIARIES OR AFFILIATES (SELLER "TM") ARE SOLD SUBJECT TO SELLER'S STANDARD CONDITIONS OF SALE, WHICH ARE AVAILABLE UPON REQUEST. INFORMATION AND RECOMMENDATIONS CONTAINED IN THIS DOCUMENT ARE GIVEN IN GOOD FAITH. HOWEVER, SELLER MAKES NO EXPRESS OR IMPLIED REPRESENTATION, WARRANTY OR GUARANTEE (i) THAT ANY RESULTS DESCRIBED IN THIS DOCUMENT WILL BE OBTAINED UNDER END USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN OR APPLICATION INCORPORATING SELLER'S MATERIALS, PRODUCTS, SERVICES OR RECOMMENDATIONS. UNLESS OTHERWISE PROVIDED IN SELLER'S STANDARD CONDITIONS OF SALE, SELLER SHALL NOT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS, SERVICES OR RECOMMENDATIONS DESCRIBED IN THIS DOCUMENT. Each user is responsible for making its own determination as to the suitability of Seller's materials, products, services or recommendations for the user's particular use through appropriate end use and other testing and analysis. Nothing in any document or oral statement shall be deemed to alter or waive any provision of Seller's Standard Conditions of Sale or this Disclaimer, unless it is specifically agreed to in a writing signed by Seller. Statements by Seller concerning a possible use of any material, product, service or design do not, are not intended to, and should not be construed to grant any license under any patent or other intellectual property right of Seller or as a recommendation for the use of any material, product, service or design in a manner that infringes any patent or other intellectual property right.

SABIC and brands marked with TM are trademarks of SABIC or its subsidiaries or affiliates, unless otherwise noted.  
©2022 Saudi Basic Industries Corporation (SABIC). All Rights Reserved.

Any brands, products or services of other companies referenced in this document are the trademarks, service marks and/or trade names of their respective holders.