

# Pinova Gum Base Resins

Selection Guide



# Pinova Resins for Gum Base

Used by the world's best known brands

## A century of sustainable business

For over a century, Pinova has manufactured its portfolio of performance specialty resins from natural and renewable resources to meet the exacting standards of customers worldwide.

The concepts of renewable resources and sustainable practices are an integral part of our business philosophy. Pinova extracts its natural wood rosin from longleaf and slash pinewood stumps harvested from managed pine forests located throughout the southeastern United States. Removing stumps after the timber has been harvested benefits the landowner and the land by facilitating reforestation.

Reforestation ensures our feedstock reserves will extend far into the future. Wood rosin is the basic raw material used to manufacture numerous food and functional resins. Rosin resins and polyterpene resins enjoy broad global clearances for use in numerous regulated applications.

## A leader in gum base chemistry

We maintain a leadership position in gum base resin chemistry through our dedication to innovation, sustainability, enduring quality and customer service. Pinova's innovation created the first resins suitable for use in premium sugar-free gum formulations. And our gum base resins remain world renowned for their consistent quality and long safety history.

Sustainability is an essential and integral component of our business. Pinova specializes in resin chemistry that utilizes several different types of renewable feedstocks:

- **Rosin Resins** are produced through the modification of wood rosin extracted from pine stump wood and gum rosin collected from living pine trees.
- **Polyterpene Resins** are produced through the polymerization of monomer feedstocks that are derived from crude sulfate turpentine (CST) generated by the kraft paper pulping process or from citrus peels and extracts from juice processing.

Pinova is the technology leader in rosin hydrogenation and esterification reactions, offering a full spectrum of resins with the neutral taste and low odor characteristics preferred by consumers. Our new sensory applications laboratory expands our innovation and development capabilities to support customers as they explore Pinova's wide range of resins in existing or new gum base formulations. Our applications team is staffed with experts in chewing gum and confectionery formulations and can provide support to meet your specialized chewing gum needs

## ROSIN RESINS FOR CHEWING GUM APPLICATIONS

Product	Softening Point <sup>ab</sup>	Polarity* °C	Maximum Color <sup>cd</sup>	Shelf-Life (Days)	Resin Feedstock	USFDA CFR 172.615 Classification
<b>Staybelite® Ester 5</b>	79-88 <sup>b</sup>	-35	N <sup>d</sup>	180	Wood Rosin	Glycerol ester of partially hydrogenated gum or wood rosin
<b>** Recommended Application:</b> Good compatibility with SBR and PVAc. Good compatibility with PIB.						
<b>Staybelite® Ester 5-A</b>	79-88 <sup>b</sup>	-35	N <sup>d</sup>	180	Gum Rosin	Glycerol ester of partially hydrogenated gum or wood rosin
<b>** Recommended Application:</b> Good compatibility with SBR and PVAc. Good compatibility with PIB.						
<b>Ester Gum 8D-A</b>	88-96 <sup>b</sup>	-35	WG <sup>d</sup>	90	Gum Rosin	Glycerol ester of gum rosin
<b>** Recommended Application:</b> Good compatibility with SBR and PVAc. Moderate compatibility with PIB.						
<b>Hercolyn® D</b>	Liquid	-35	6 <sup>c</sup>	730	Rosin	Methyl ester of rosin, partially hydrogenated
<b>** Recommended Application:</b> Excellent compatibility with PIB. Good compatibility with SBR and other rubber types.						
<b>Pentalyn® H</b>	102-110 <sup>b</sup>	-35	M <sup>d</sup>	180	Wood Rosin	Pentaerythritol ester of partially hydrogenated gum or wood rosin
<b>** Recommended Application:</b> Good compatibility with SBR and PVAc. Moderate compatibility with PIB.						
<b>Pentalyn® H-A</b>	102-110 <sup>b</sup>	-35	M <sup>d</sup>	180	Gum Rosin	Pentaerythritol ester of partially hydrogenated gum or wood rosin
<b>** Recommended Application:</b> Good compatibility with SBR and PVAc. Moderate compatibility with PIB.						
<b>Pentalyn® A</b>	109-116 <sup>b</sup>	-35	M <sup>d</sup>	180	Wood Rosin	Pentaerythritol ester of gum or wood rosin
<b>** Recommended Application:</b> Good compatibility with SBR and PVAc. Moderate compatibility with PIB						

## POLYTERPENE RESINS FOR CHEWING GUM APPLICATIONS

Product	Softening Point <sup>ab</sup>	Polarity* °C	Maximum Color <sup>cd</sup>	Shelf-Life (Days)	Resin Feedstock	USFDA CFR 172.615 Classification
<b>Picolylte® C85</b>	82-88 <sup>a</sup>	45	4 <sup>c</sup>	456	d-Limonene	Synthetic Resin
<b>** Recommended Application:</b> Excellent compatibility with butyl. Excellent compatibility with PIB. Low compatibility with SBR.						
<b>Picolylte® C105</b>	102-108 <sup>a</sup>	45	4 <sup>c</sup>	456	d-Limonene	Synthetic Resin
<b>** Recommended Application:</b> Excellent compatibility with butyl. Excellent compatibility with PIB. Low compatibility with SBR.						
<b>Picolylte® C115</b>	112-118 <sup>a</sup>	45	4 <sup>c</sup>	456	d-Limonene	Synthetic Resin
<b>** Recommended Application:</b> Excellent compatibility with butyl. Excellent compatibility with PIB. Low compatibility with SBR.						
<b>Picolylte® C125</b>	122-128 <sup>a</sup>	47	4 <sup>c</sup>	456	d-Limonene	Synthetic Resin
<b>** Recommended Application:</b> Excellent compatibility with butyl. Excellent compatibility with PIB. Low compatibility with SBR.						
<b>Picolylte® F105 FG</b>	102-108 <sup>a</sup>	35	4 <sup>c</sup>	270	α/β-Pinene	Synthetic Resin
<b>** Recommended Application:</b> Good compatibility with butyl. Good compatibility with PIB. Good compatibility with SBR.						
<b>Picolylte® F115 FG</b>	112-118 <sup>a</sup>	37	4 <sup>c</sup>	270	α/β-Pinene	Synthetic Resin
<b>** Recommended Application:</b> Good compatibility with butyl. Good compatibility with PIB. Good compatibility with SBR.						

a – Ring & Ball Softening Point Method  
b – Pinova Drop Softening Point Method  
c – Gardner Color @ 50% Solids  
d – USDA Rosin Color Scale

Abbreviations:  
PIB – polyisobutylene  
SBR – styrene-butadiene rubber  
PVAc – polyvinyl acetate

\* Polarity measured using Diacetone Alcohol Cloud Point (DACP) Method. The lower the DACP value, the higher the resin polarity.

\*\* Recommended application assessed using combination of DACP and Mixed Methylcyclohexane-Aniline Point (MMAP) Methods.

## Sustainability | Innovation | Quality | Service

Pinova delivers state-of-the-art specialty ingredients for many of the world's most essential industries and best-known brands. For over a century, Pinova has provided premium performance rosin resins and polyterpene resins to meet the exacting standards of customers worldwide. Customers in over 100 countries use Pinova's quality resins to ensure their products perform consistently in a wide variety of specialized markets, including food and beverage, adhesives, personal care, and agriculture.

At Pinova, we are dedicated to sustainability, innovation, enduring quality, and customer service. Our customers trust us to deliver consistent products that meet regulatory and specification requirements. Our employees understand that attention to detail at every stage of the manufacturing process, from raw material procurement to manufacturing and packaging, contributes to a high-quality end product.

Pinova became a subsidiary of DRT in January 2017. By combining the history of excellence and diverse product portfolio of Pinova with the global presence and technology breadth of DRT, our customers can be assured of exciting new innovations on the horizon.

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