DuPont™ Hytrel® RS Thermoplastic Elastomers

RENEWABLY SOURCED MATERIAL SOLUTIONS

DUPONT®

The miracles of science™

DuPont™ Hytrel® RS
renewably sourced™ thermoplastic elastomer*

INTRODUCING
DuPont™ Hytrel® RS Thermoplastic Elastomers

Hytrel® RS thermoplastic elastomers bridge the gap between rubber and rigid plastics, and provide all the performance characteristics of traditional Hytrel® materials, while offering a more environmentally friendly solution than petroleum-based products. Containing between 20% and 60% renewably-sourced material, Hytrel® RS thermoplastic elastomers are made using Cerenol™ - a renewably-sourced polyol derived from corn.

Easily processed by conventional thermoplastic methods like injection moulding, blow moulding, calendaring, rotational moulding, extrusion, and melt casting, Hytrel® thermoplastic elastomers have many applications. These include hoses and tubing for automotive and industrial uses, boots for CV joints, air bag doors, and energy dampers.

Hytrel® RS offers comparable performance to standard grades of Hytrel®. New grades of Hytrel® RS are being developed to provide the performance required for specific applications.

Benefits of Hytrel® RS

Properties

- Excellent flex fatigue
- Low temperature flexibility
- Continuous range from -40° to +130°C
- Good chemical and oil resistance
- High mechanical properties

Potential Applications

- Automotive components
- Electrical/Electronic parts
- Industrial consumer products
- Office furniture
- Sporting goods

From Corn to Monomers and Plastics

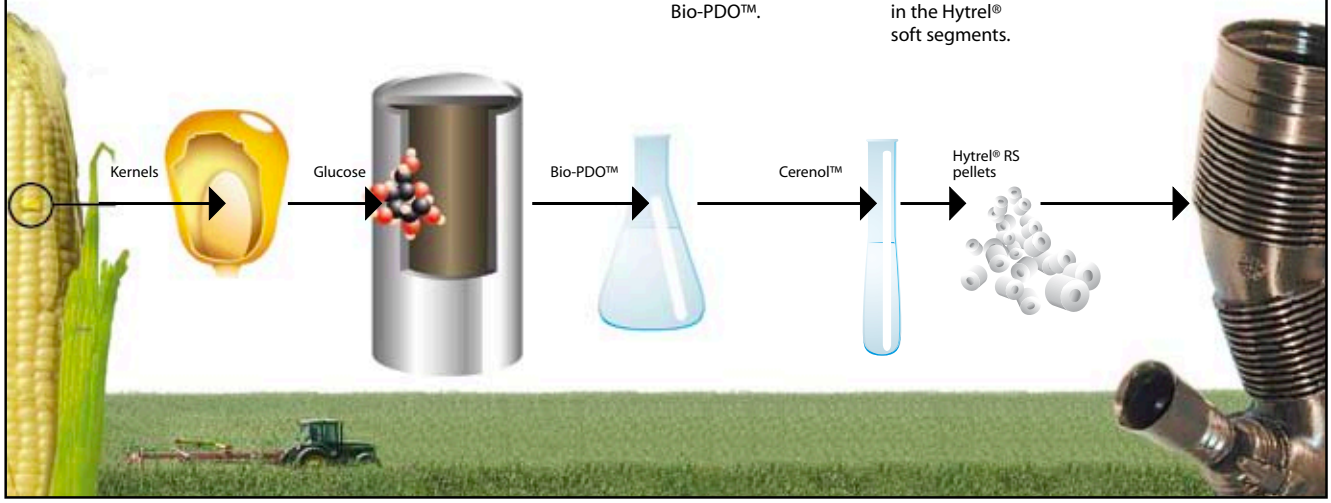
From seeds to feedstocks to the proprietary fermentation and chemical processes that convert agricultural products into the key building blocks of the advanced products we use every day, DuPont brings nature and science together in harmony.

TYPICAL PROPERTIES OF HYTREL® AND HYTREL® RS

Property	Test method	Units	Hytrel® 5556	Hytrel® RS 55P5 NC010	Hytrel® 6356	Hytrel® RS 63P5 NC010
Tensile Properties:						
Stress @ break	ISO 527 (5A bar @ 50mm/min)	MPa	30	29	35	33
Strain @ break	ISO 527 (5A bar @ 50mm/min)	%	380	360	350	320
Stress @ 5% strain	ISO 527 (5A bar @ 50mm/min)	MPa	7,5	6,7	10	10
Stress @ 10% strain	ISO 527 (5A bar @ 50mm/min)	MPa	11	10	15	14
Tensile modulus	ISO 527 (5A bar @ 1mm/min)	MPa	180	160	270	260
Hardness, Shore D	ISO 868 - 1 s		52	50	59	57
	ISO 868 - 15 s		50	48	56	54
Melting Point	ISO 11357-3	°C	201	208	211	215
Density	ISO 1183	g/cm^3	1,19	1,21	1,22	1,23
Melt mass-flow rate	ISO 1133	g/10min	9 @ 2.16kg/220°C	12 @ 2.16kg/230°C	10 @ 2.16kg/230°C	11 @ 2.16kg/240°C
Renewably sourced content		wt %	-	36	-	27

From Corn to Monomers and Plastics

1. Harvesting the corn.
2. Getting sugar from the corn.
3. The fermenter: Turning sugar into Bio-PDO™ by fermentation.
4. Creating Cerenol™ polyols by direct polymerisation of Bio-PDO™.
5. Cerenol™ replaces petrochemical based polyols in the Hytrel® soft segments.
6. Parts are formed from Hytrel® RS in extrusion, injection or blow moulding processes.



DuPont Renewably Sourced Materials* ...

- Cerenol™ polyols
- Hytrel® RS thermoplastic elastomers
- Biomax® RS renewably sourced resins
- Pro-Cote® soy polymers
- Selar® VP barrier resins
- Sorona® polymers
- Susterra™** propanediol
- Zemea™ propanediol

...an idea whose time has come

DuPont Renewably Sourced Materials—an idea whose time has come

DuPont renewably sourced materials are ideal substitutes for products that today are based solely on petroleum. Through DuPont innovation, key building blocks for many of the materials we use every day can now be derived from renewable resources – creating a much smaller environmental footprint than their petroleum-based predecessors with no compromise in performance. Either as a fuel or as an ingredient in the production of products, Renewably Sourced Materials are an idea whose time has come.

CHINA
DuPont (China)
R&D and Management Co Ltd
Zhangjiang Hi-Tech Park
600 Cailun Road,
Pudong New District
Shanghai 201203
Tel: +86 21 2892-1000
Fax: +86 21 2892-1151

JAPAN
DuPont Kabushiki Kaisha
Sanno Park Tower, 11-1
Nagata-cho 2-chome
Chiyoda-ku
Tokyo 100-6111
Tel: +81 3 5521-8500
Fax: +81 3 5521-2595

EUROPE
DuPont Engineering Polymers
2, chemin du Pavillon
CH-1218 Le Grand-Saconnex
Geneva
Switzerland
Tel: +41 22 717 5111
Fax: +41 22 717 6966

USA
DuPont Engineering Polymers
4417 Lancaster Pike
Chestnut Run Plaza 713
Wilmington, DE 19805
Tel: 800-441-0575
Tel: +1 302-999-4592
Fax: +1 302-999-4358

For more information about DuPont Renewably Sourced Materials, visit **renewable.dupont.com**

For more information about DuPont™ Hytrel® RS Thermoplastic Elastomer, visit **plastics.dupont.com**

** DuPont™ Hytrel® RS contains a minimum of 20% renewably sourced ingredients by weight.*

*** Susterra™ is produced and sold through the DuPont Tate and Lyle BioProducts joint venture.*

L-14169-00 06/08

DUPONT®

The miracles of science™