

Kraton® G SEBS/SEPS

Kraton G SEBS and SEPS polymers are the strongest, the most highly dilutive, and the most compatible with polyolefins and mineral oils of all the styrenic thermoplastic block copolymers. Kraton G polymers are second generation styrenic block copolymers with a hydrogenated midblock of styrene-ethylene/butylene-styrene (SEBS) or styrene-ethylene/propylene-styrene (SEPS). They are intended for use where UV resistance, high service temperature, and processing stability are essential. Kraton G polymers are the material of choice for production of soft, strong compounds for handles and grips, elastic components in diapers, oil gels for telecommunications and medical applications, impact modifiers of engineering thermoplastics, flexibilizers/tougheners for clear polypropylene.

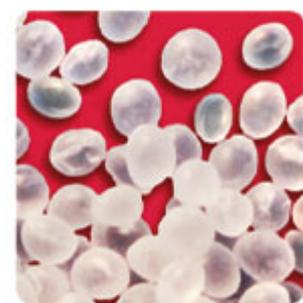
Kraton G (SEBS/SEPS) Selector

Use the dropdown to select your region and click on the arrows to sort the data. Download the Adobe Acrobat Reader. To browse a wider range of Kraton products, visit the Product Selector

Grade	Structure	% Styrene	Hardness	% Diblock	% Oil	Solution Viscosity	Melt Flow	Data Doc	MSDS
E-1820ES	SEBS	32	60	-	0	-	-		
G-1633	SEBS	30	-	-	0	0.3	-		
G-1641	SEBS	34	64	-	0	-	-		
G-1642H	SEBS	34	48	-	0	-	-		
G-1650M	SEBS	30	72	-	0	8	-		
G-1651H	SEBS	33	61	-	0	-	-		
G-1652M	SEBS	30	70	-	0	1.8	-		
G-1654H	SEBS	31	63	-	0	-	-		
G-1657M	SEBS	13	47	29	0	4.2	8		
G-1660H	SEBS	30	72	-	0	8	-		
G-1701M	SEP	37	64	100	0	-	-		
G-1702	SEP	28	41	100	0	-	-		
G-1726M	SEBS	30	70	70	0	0.2	65		
G-7705	G Compnd	-	45	-	-	-	-		-
G-7720	G Compnd	-	60	-	-	-	-		-
G-7820	G Compnd	-	91	-	-	-	-		-

Properties Legend

Property	Units
%Styrene	wt%
Hardness	Shore A
%Diblock	wt%
%Oil	wt%
Solution Viscosity	Pa.s @ 25% in Toluene @ 25C
Melt Flow	grams/10 min @ 200C, 5 kg



K0429
Europe/Africa
September 2007

Kraton[®] E-1820ES Polymer

Data Document

Description

Kraton E1820ES Polymer is a clear copolymer based on styrene and ethylene/butylene, S-E/B-S, with bound styrene of 31.7% mass. It is supplied from Europe as fluffy crumb dusted with amorphous silica.

Kraton E1820ES Polymer is a development grade manufactured in tonnage quantities.

Sales Specifications

Property	Test Method	Units	Sales Specification Range
Bound styrene ^[a]	BMS0407	%mass	30.0 - 33.0
Volatile matter	KM04	%mass	0.5 max.
Ash	BMS045	%m/m	0.3-0.6
Total extractables	KM05	%mass	1.6 max
Antioxidant content ^[b]	KM08	%mass	0.03 min

^[a] Measured on the polymer after the hydrogenation

^[b] Primary phenolic antioxidant

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value
Solution viscosity ^[c]	BMS0380	Pa.s	1.1

^[c] Measured on 10% m/m solution in toluene at 25°C using a Brookfield viscometer LVT model

Packaging

Kraton Polymers are available in a number of different pack types. For information specific to this grade please contact your local Kraton Polymers representative.

End Use Requirements

If the finished article is intended for use in food contact and packaging applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Information on the food packaging clearances of individual products is available from Kraton Polymers.

Medical, Healthcare and Cosmetic Applications and Trademark Usage

Kraton Polymers products should not be used in any devices or materials intended for implantation in the human body as defined by the U.S. Food and Drug Administration under 21 CFR 812.3(d) and 21 CFR 860.3(d).

Kraton Polymers products may, in certain circumstances, be used in the following products or applications with prior written approval for each specific product or application:

(a) Cosmetics (exclusive of packaging or delivery applications).

(b) Drugs and other Pharmaceuticals (exclusive of packaging or delivery applications).

Kraton Polymers trade names, trademarks, logos or other similar identifying characteristics should not be used in the manufacture, sale, or promotion of cosmetics, drugs, and pharmaceutical products or other medical/healthcare applications or materials.

Kraton Polymers has no specific expertise in these markets and applications, and does not intend to perform testing, clinical studies or other investigations of the suitability of its products for specific applications.

Each customer or user of Kraton Polymers products is solely responsible for determining the suitability of the materials it selects for the intended purpose and acknowledges that it has not relied on any representations of Kraton Polymers regarding suitability for use in its intended cosmetics, drugs, pharmaceutical products or materials.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

Safety and Handling Precautions

Read the Safety Data Sheet carefully and thoroughly before beginning any work. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers products can be found in "Health and Safety Aspects of Kraton D and Kraton G Polymers" (Document K0155), available from your local Sales Representative or the company website. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited.

Kraton Polymers products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers products (the neat resin or the base product) are high molecular weight polymers which are non-toxic and biologically inactive.

Warranty

The information contained in this publication is, to the best of Kraton Polymers' knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee or warranty of any kind whatsoever, since the manufacturing conditions to which Kraton Polymers' products will be subject are beyond Kraton Polymers' control. Customers of Kraton Polymers must make their own assessment to determine the suitability of a Kraton Polymers product for a particular purpose. Further, nothing contained herein shall be construed as a recommendation to use any Kraton Polymers product in conflict with existing patents of Kraton Polymers or any third party. All products purchased from or supplied by Kraton Polymers are subject to the terms and conditions of sale set out in the applicable contract, order acknowledgement and/or bill of lading. Kraton Polymers warrants only that its products will meet the specifications designated in any such contract, order acknowledgement or bill of lading.

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K0426 DDb-07E
E-1820ES Polymer

K0465
Europe/Africa
September 2007

Kraton[®] G1633 Polymer

Data Document

Description

Kraton G1633 polymer is a clear linear triblock copolymer based on styrene and ethylene/butylene, S-E/B-S, with bound styrene of 29.5% mass. It is supplied from Europe in two physical forms identified as follows in the grade nomenclature:

- G1633E supplied as undusted fluffy crumb
- G1633ES supplied as fluffy crumb dusted with an amorphous silica

Kraton G1633 polymer is used as a base material for compound formulations and all other applications which require higher temperature performance. The inherent stability of the mid block suggests the use of G1633ES in applications that must withstand weathering and high processing temperatures.

Sales Specifications

Property	Test Method	Units	Sales Specification Range
Bound styrene ^[a]	BMS0407	%mass	28.0 - 31.0
Volatile matter	KM04	%mass	0.5 max. (ES)
Ash	ISO 247A	%m/m	0.3 - 0.5 (ES)
Total extractables	KM05	%mass	1.6 max.
Antioxidant content ^[b]	KM08	%mass	0.03 min.

^[a] Measured on the polymer after the hydrogenation

^[b] Primary phenolic antioxidant

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value
Solution viscosity ^[c]	BMS0380	Pa.s	0.35
Specific gravity	ISO 2781	Mg/m ³	0.91

^[c] Measured on 5% m/m solution in toluene at 25°C using a Brookfield viscometer LVT model

Packaging

Kraton Polymers are available in a number of different pack types. For information specific to this grade please contact your local Kraton Polymers representative.

End Use Requirements

If the finished article is intended for use in food contact and packaging applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

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Safety and Handling Precautions

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Kraton Polymers products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers products should provide a means of dissipating any charges that may develop.

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Kraton Polymers products (the neat resin or the base product) are high molecular weight polymers which are non-toxic and biologically inactive.

Warranty

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K0465 DDa-07E
G1633 Polymer
10/11/2007

K0454
North America
4/3/2007

KRATON[®] G1641H Polymer

Data Document

Identifier : K454DDa07U

Description

Kraton G1641H is a clear, linear triblock copolymer based on styrene and ethylene/butylene with a polystyrene content of 33%. It is supplied from North America in the physical form identified below.

- Kraton G1641H supplied as a powder.

Kraton G1641H is used in compound formulations and as a modifier of thermoplastics. It may also find use in formulating adhesives, sealants, coatings and modified bitumens.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Antioxidant	BAM 929	%w	0.03 TO 0.10	a
Total Extractables	BAM 1206	%w	<= 1.6	
Vis, Sol (Toluene) 15.0%w @25C	BAM 922	cP	500 TO 850	
Volatile Matter	BAM 907	%w	<= 0.5	
Polystyrene Content	BAM 919	%w	32.3 TO 33.7	

a Non-staining phenolic antioxidant.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Melt Index 230°C, 5kg	ASTM D-1238	gms/10 min	no flow	
Tensile Strength	BAM 1245	psi	>2,500	c
300% Modulus	BAM 1245	psi	630	c
Elongation at Break	BAM 1245	%	>800	c
Hardness, Shore A	ASTM D 2240	Shore A (10 sec)	52	d

c Measured on solution cast film from toluene.

d Measured on compression molded sample at 230°C.

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

KRATON POLYMERS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR MEDICAL/HEALTHCARE APPLICATIONS AND DOES NOT INTEND TO PERFORM TESTING, CLINICAL STUDIES OR OTHER INVESTIGATIONS OF THE SUITABILITY OF ITS PRODUCTS FOR THESE SPECIFIC APPLICATIONS. KRATON POLYMERS MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL/HEALTHCARE APPLICATIONS) FOR ITS PRODUCTS.

EACH CUSTOMER OR USER OF KRATON POLYMERS' PRODUCTS IS SOLELY RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE MATERIALS IT SELECTS FOR THE INTENDED PURPOSE. FOR MEDICAL/HEALTHCARE APPLICATIONS, EACH CUSTOMER OR USER MUST CONDUCT ITS OWN STUDIES, REGISTRATIONS, AND OTHER RELATED ACTIVITIES TO ESTABLISH THE SAFETY AND EFFICACY OF ITS PRODUCTS.

Do not use Kraton Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

Read the Material Safety Data Sheet for Kraton Polymers' products carefully and thoroughly before beginning any work with such products. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers' products can be found in the Kraton Polymer HSE Fact Sheet (K0155), available from your local Kraton Polymers Sales Representative. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (www.brma.co.uk).

Kraton Polymers' products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers' products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

The information contained in this publication is, to the best of Kraton Polymers' knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee, since the conditions of use and storage are beyond Kraton Polymers' control. The customer understands that it shall make its own assessment to determine the suitability of a Kraton Polymers' product for a particular purpose. Further, nothing contained herein shall be construed as a recommendation to use any Kraton Polymers product in conflict with existing patents. All products purchased from or supplied by Kraton Polymers are subject to terms and conditions set out in the applicable contract, order acknowledgement and/or bill of lading. Kraton Polymers warrants only that its products will meet those specifications designated therein.

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K0451
North America
2/5/2007

KRATON® G1642H Polymer

Data Document

Identifier : K451DDb07U

Description

Kraton G1642H is used in compound formulations and as a modifier of thermoplastics. It may also find use in formulating adhesives, sealants, coatings and modified bitumens.

- Kraton G1642H supplied as a powder.

KRATON G1642H is a clear copolymer based on styrene and ethylene/propylene with a polystyrene content of 21%. It is supplied from North America in the physical form identified below.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Total Extractables	BAM 1206	%w	≤ 1.6	
Vis, Sol (Toluene) 25.0%w @25C	BAM 922	cP	1100 TO 1600	
Antioxidant	BAM 929	%w	0.03 TO 0.10	a
Volatile Matter	BAM 907	%w	≤ 0.5	
Polystyrene Content	BAM 919	%w	18.5 TO 22.5	d

a Non-staining phenolic antioxidant.

d Measured on the polymer before hydrogenation.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Styrene / Rubber ratio	n/a		21/79	
Hardness, Shore A	ASTM D 2240	Shore A (10 sec)	48	
Elongation at Break	ASTM D 412	%	1200	
Specific Gravity	ASTM D 792	g/cc	0.90	
Melt Index 230°C, 2.16 kg	ASTM D 1238	gms/10 min.	≤ 1	
Tensile Strength	BAM 1245	psi	> 3000	

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

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Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

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K0083
North America
10/6/2006

KRATON[®] G1650M Polymer

Data Document

Identifier : K008DDf06U

Description

KRATONr G1650M is a clear, linear triblock copolymer based on styrene and ethylene/butylene with a polystyrene content of 30%. It is supplied from North America in the physical form identified below.

- Kraton G1650M supplied as a powder.

Kraton G1650M is used in compound formulations and as a modifier of thermoplastics. It may also find use in formulating adhesives, sealants, coatings and modified bitumens.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	28.8 TO 31.6	a
Volatile Matter	BAM 907	%w	≤ 1	
Total Extractables	BAM 1206	%w	≤ 1	
Vis, Sol (Toluene) 20.0%w @25C	BAM 922	cP	1000 TO 1900	
Antioxidant	BAM 929	%w	0.03 TO 0.10	b

a Measured on the polymer before hydrogenation.

b Non-staining phenolic antioxidant

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Styrene / Rubber ratio	n/a		30/70	
Melt index 230°C, 5kg	ASTM D-1238	gms/10 min	<1	
Specific gravity	ASTM D4025	gm/cc	0.91	
Hardness	ASTM 2240	Shore A (10s)	72	
300% Modulus	ASTM D-412	psi	800	
Tensile strength	ASTM D-412	psi	5000	
Elongation at break	ASTM D-412	%	500	
Bulk Density	n/a	lbs/ft ³	14	

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

KRATON POLYMERS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR MEDICAL/HEALTHCARE APPLICATIONS AND DOES NOT INTEND TO PERFORM TESTING, CLINICAL STUDIES OR OTHER INVESTIGATIONS OF THE SUITABILITY OF ITS PRODUCTS FOR THESE SPECIFIC APPLICATIONS. KRATON POLYMERS MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL/HEALTHCARE APPLICATIONS) FOR ITS PRODUCTS.

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Do not use Kraton Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

Read the Material Safety Data Sheet for Kraton Polymers' products carefully and thoroughly before beginning any work with such products. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers' products can be found in the Kraton Polymer HSE Fact Sheet (K0155), available from your local Kraton Polymers Sales Representative. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (www.brma.co.uk).

Kraton Polymers' products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers' products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

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K0371 North America 3/23/2007	KRATON® G1651H Polymer	Data Document
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Identifier : K371DDh06U

Description

Kraton G1651H is a clear, linear copolymer based on styrene and ethylene/butylene with a polystyrene content of 33%. It is supplied from North America in the physical form identified below.

- Kraton G1651H supplied as a powder.

Kraton G1651H is used as a base material for thermoplastic elastomer (TPE) compound formulations for a variety of applications. It is also used as a modifier of thermoplastics and bitumen. The inherent stability of SEBS polymers suggests the use of G1651H in applications that must withstand weathering and high processing temperatures.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	31.2 TO 34.6	b
Volatile Matter	BAM 907	%w	≤ 0.5	
Total Extractables	BAM 1206	%w	≤ 1	
Tensile Strength	BAM 1211	psi	≥ 800	
Antioxidant	BAM 929	%	0.03 TO 0.10	a

a Non-staining phenolic antioxidant

b PSC measured on the polymer before hydrogenation.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Hardness	ASTM 2240	Shore A (10s)	60	c
Specific gravity	ASTM D4025	gm/cc	0.91	
Melt index 230°C, 5kg	ASTM D-1238	gms/10 min	no flow	
Styrene / Rubber ratio	n/a		33/67	

c measured on compression molded sample

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

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Safety and Handling Precautions

Read the Material Safety Data Sheet for Kraton Polymers' products carefully and thoroughly before beginning any work with such products. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers' products can be found in the Kraton Polymer HSE Fact Sheet (K0155), available from your local Kraton Polymers Sales Representative. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (www.brma.co.uk).

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Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

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K0084
North America
3/31/2006

KRATON[®] G1652M Polymer

Data Document

Identifier : K084DDf06U

Description

KRATON G1652M is a translucent, linear triblock copolymer based on styrene and ethylene/butylene (SEBS) with a Styrene / Rubber ratio of 30/70 . It is supplied from North America in the physical form identified below.
Kraton G1652M is used as a modifier of bitumen and polymers. It is also suitable as an ingredient in formulating compounds for footwear applications and may be used in formulating adhesives, sealants, and coatings.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	29.0 TO 30.8	c
Volatile Matter	BAM 907	%w	≤ 0.6	
Total Extractables	BAM 1206	%w	≤ 1	
Vis, Sol (Toluene) 20.0%w @25C	BAM 922	cP	400 TO 525	
Antioxidant	BAM 929	%w	0.03 TO 0.10	d

c Measured on the polymer before hydrogenation.

d Non-staining phenolic antioxidant

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Specific gravity	ASTM D4025	gm/cc	0.91	
Hardness	ASTM 2240	Shore A (10s)	69	
Melt index 230°C, 5kg	n/a	gms/10 min.	5	
Styrene / Rubber ratio	n/a		30/70	
Elongation at break	ASTM D-412	%	500	
Tensile strength	ASTM D-412	psi	4500	
300% Modulus	ASTM D-412	psi	700	

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

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Do not use Kraton Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

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Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

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K0374
North America
11/10/2005

KRATON[®] G1654H Polymer

Data Document

Identifier : K374DDc05U

Description

Kraton G1654H is a linear triblock copolymer based on styrene and ethylene/butylene. It is supplied from North America in their physical form identified below.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	29.5 TO 32.5	c
Volatile Matter	BAM 907	%w	<= 0.4	
Total Extractables	BAM 1206	%w	<= 1.6	
Vis, Sol (Toluene) 10.0%w @25C	BAM 922	cP	285 TO 490	a
Antioxidant	BAM 929	%w	0.04 TO 0.10	b
Tensile Strength	BAM 1211	psi	>= 800	

a 10%wt toluene solution at 25°C

b Non-staining phenolic antioxidant

c Measured on the polymer before hydrogenation.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Melt index 230°C, 5kg	ASTM D-1238	gms/10 min	no flow	
Specific gravity	ASTM D4025	gm/cc	0.92	
Hardness	ASTM 2240	Shore A (10s)	63	
Elongation at Break	BAM 1245	%	>800	
Tensile Strength	BAM 1245	psi	>4000	

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

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Safety and Handling Precautions

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When processing Kraton Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

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K0131
North America
1/31/2007

KRATON[®] G1657M Polymer

Data Document

Identifier : K131DDg07U

Description

Kraton G1657M is a clear, linear triblock copolymer based on styrene and ethylene/butylene with a polystyrene content of 13% . It is supplied from North America in the physical form identified below.

- Kraton G1657M supplied as a dusted pellet

Kraton G1657M is used as a modifier of bitumen or thermoplastics and in compound formulations. It may also find use as an ingredient in formulating adhesives, sealants and coatings. This product is also available as a powder (G).

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	12.3 TO 14.3	b
Dust, Hisil 233	BAM 908	%w	0.02 TO 0.12	
Volatile Matter	BAM 907	%w	≤ 1	
Total Extractables	BAM 905	%w	≤ 1.5	
Vis, Sol (Toluene) 20.0%w @25C	BAM 922	cP	1200 TO 1800	
Antioxidant	BAM 929	%w	0.03 TO 0.1	a

a Non-staining phenolic antioxidant.

b Measured on the polymer before hydrogenation.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Specific gravity	ASTM D4025	gm/cc	0.90	
300% Modulus	ASTM D-412	psi	350	a
Tensile strength	ASTM D-412	psi	3400	a
Diblock content	n/a		30	
Elongation at break	ASTM D-412	%	750	a
Melt index 230°C, 5kg	n/a	gms/10 min.	22	
Hardness	ASTM 2240	Shore A (10s)	47	b
Styrene / Rubber ratio	n/a		13/87	

a Typical properties determined on film cast from toluene solution.

b Typical values on polymer compression molded at 300F.

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

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For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

KRATON POLYMERS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR MEDICAL/HEALTHCARE APPLICATIONS AND DOES NOT INTEND TO PERFORM TESTING, CLINICAL STUDIES OR OTHER INVESTIGATIONS OF THE SUITABILITY OF ITS PRODUCTS FOR THESE SPECIFIC APPLICATIONS. KRATON POLYMERS MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL/HEALTHCARE APPLICATIONS) FOR ITS PRODUCTS.

EACH CUSTOMER OR USER OF KRATON POLYMERS' PRODUCTS IS SOLELY RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE MATERIALS IT SELECTS FOR THE INTENDED PURPOSE. FOR MEDICAL/HEALTHCARE APPLICATIONS, EACH CUSTOMER OR USER MUST CONDUCT ITS OWN STUDIES, REGISTRATIONS, AND OTHER RELATED ACTIVITIES TO ESTABLISH THE SAFETY AND EFFICACY OF ITS PRODUCTS.

Do not use Kraton Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

Read the Material Safety Data Sheet for Kraton Polymers' products carefully and thoroughly before beginning any work with such products. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers' products can be found in the Kraton Polymer HSE Fact Sheet (K0155), available from your local Kraton Polymers Sales Representative. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (www.brma.co.uk).

Kraton Polymers' products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers' products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

The information contained in this publication is, to the best of Kraton Polymers' knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee, since the conditions of use and storage are beyond Kraton Polymers' control. The customer understands that it shall make its own assessment to determine the suitability of a Kraton Polymers' product for a particular purpose. Further, nothing contained herein shall be construed as a recommendation to use any Kraton Polymers product in conflict with existing patents. All products purchased from or supplied by Kraton Polymers are subject to terms and conditions set out in the applicable contract, order acknowledgement and/or bill of lading. Kraton Polymers warrants only that its products will meet those specifications designated therein.

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K0180
North America
1/8/2007

KRATON[®] G1701M Polymer

Data Document

Identifier : K180DDb07U

Description

Kraton G1701M is a clear, linear diblock copolymer based on styrene and ethylene/propylene with a polystyrene content of 37%. It is supplied from North America in the physical form identified below.

- Kraton G1701M supplied as a powder.

Kraton G1701M is used as a modifier of bitumen and polymers. It is also suitable as an ingredient in formulating compounds for footwear applications and may be used in formulating adhesives, sealants, and coatings.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	34.7 TO 38.5	b
Volatile Matter	BAM 907	%w	≤ 1	
Total Extractables	BAM 1206	%w	≤ 3	
Visc,Kin,1.70%w (ENJ404@100C)	BAM 1201	cSt	15 TO 19	
Antioxidant	BAM 929	%w	0.03 TO 0.20	a

a Non-staining phenolic antioxidant.

b Measured on the polymer before hydrogenation.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Styrene / Rubber ratio	n/a		37/63	
Melt Index 230°C, 5 kg	ASTM D 1238	gms/10 min.	1	
Hardness, Shore A	ASTM D 2240	Shore A (10 sec)	64	
Diblock Content	n/a		100%	
Specific Gravity	ASTM D 792	g/cc	.92	
Tensile Strength	ASTM D 412	psi	300	
Elongation at Break	ASTM D 412	%	100%	

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

KRATON POLYMERS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR MEDICAL/HEALTHCARE APPLICATIONS AND DOES NOT INTEND TO PERFORM TESTING, CLINICAL STUDIES OR OTHER INVESTIGATIONS OF THE SUITABILITY OF ITS PRODUCTS FOR THESE SPECIFIC APPLICATIONS. KRATON POLYMERS MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL/HEALTHCARE APPLICATIONS) FOR ITS PRODUCTS.

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Do not use Kraton Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

Read the Material Safety Data Sheet for Kraton Polymers' products carefully and thoroughly before beginning any work with such products. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers' products can be found in the Kraton Polymer HSE Fact Sheet (K0155), available from your local Kraton Polymers Sales Representative. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (www.brma.co.uk).

Kraton Polymers' products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers' products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

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K0133
North America
3/31/2006

KRATON® G1702 Polymer

Data Document

Identifier : K133DDd06U

Description

KRATON G1702 is a clear, linear diblock copolymer based on styrene and ethylene/propylene with a polystyrene content of 28%. It is supplied from North America in the physical form identified below.

- Kraton G1702 supplied as a powder.

Kraton G1702 is used as a modifier of bitumen and polymers. It is also suitable as an ingredient in formulating compounds for footwear applications and may be used in formulating adhesives, sealants, and coatings.

Sales Specifications

Property	Test Method	Units	Sales Specification Range	Notes
Polystyrene Content	BAM 919	%w	26.2 TO 29.0	e
Volatile Matter	BAM 907	%w	≤ 0.4	
Visc,Kin,1.23%w (ENJ404@100C)	BAM 1201	cSt	18.0 TO 22.0	b
Antioxidant	BAM 929	%w	0.03 TO 0.20	a

- a** Non-staining phenolic antioxidant
- b** Kinematic Viscosity, 1.23%w (ENJ404@100C)
- e** Measured on the polymer before hydrogenation.

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value	Notes
Melt Index 230°C, 5 kg	ASTM D 1238	gms/10 min.	< 1	
Hardness, Shore A	ASTM D 2240	Shore A (10 sec)	41	c
Elongation at Break	ASTM D 412	%	< 100	d
Tensile Strength	ASTM D 412	psi	300	d
Styrene / Rubber ratio	n/a		28/72	
Specific Gravity	ASTM D 792	g/cc	0.91	
Diblock Content	n/a		100%	

- c** Typical values on polymer compression molded at 350F
- d** Measured on films cast from a solution in toluene

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

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End Use Requirements

If the finished article is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from Kraton Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restrictions on Medical/Healthcare Applications

Products or compounds made from Kraton Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). Kraton Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

KRATON POLYMERS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR MEDICAL/HEALTHCARE APPLICATIONS AND DOES NOT INTEND TO PERFORM TESTING, CLINICAL STUDIES OR OTHER INVESTIGATIONS OF THE SUITABILITY OF ITS PRODUCTS FOR THESE SPECIFIC APPLICATIONS. KRATON POLYMERS MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL/HEALTHCARE APPLICATIONS) FOR ITS PRODUCTS.

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Do not use Kraton Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

Read the Material Safety Data Sheet for Kraton Polymers' products carefully and thoroughly before beginning any work with such products. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers' products can be found in the Kraton Polymer HSE Fact Sheet (K0155), available from your local Kraton Polymers Sales Representative. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (www.brma.co.uk).

Kraton Polymers' products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers' products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

The information contained in this publication is, to the best of Kraton Polymers' knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee, since the conditions of use and storage are beyond Kraton Polymers' control. The customer understands that it shall make its own assessment to determine the suitability of a Kraton Polymers' product for a particular purpose. Further, nothing contained herein shall be construed as a recommendation to use any Kraton Polymers product in conflict with existing patents. All products purchased from or supplied by Kraton Polymers are subject to terms and conditions set out in the applicable contract, order acknowledgement and/or bill of lading. Kraton Polymers warrants only that its products will meet those specifications designated therein.

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K0085
North America
June 2005

Kraton® G1726 Polymer

Data Document

Description

Kraton® G1726 is a clear, linear triblock copolymer based on styrene and ethylene/butylene, with a polystyrene content of 30%. It is supplied from North America in the physical form identified below.

- Kraton G1726 supplied as a dusted pellet

Kraton G1726 is used as a modifier of bitumen and polymers. It is also suitable as an ingredient in formulating compounds for footwear applications and may be used in formulating adhesives, sealants, and coatings.

Sales Specifications

Property	Test Method	Units	Sales Specification Range
Polystyrene content	BAM 919	%w	29.2 - 31.6
Volatile matter	BAM 907	%w	1.0 max.
Dust content ^[a]	BAM 908	%w	0.01 - 0.20
Total extractables	BAM 905	%w	1.0 max.
Solution viscosity ^[b]	BAM 922	cps	140 - 220
Antioxidant content ^[c]	BAM 929	%w	0.03 - 0.10
Melt flow rate (190°C/2.16kg)	BAM 903	g/10 min	15 - 23

^[a] Silica

^[b] 25%w toluene solution at 25°C

^[c] Non-staining phenolic antioxidant

Typical Properties (These are typical values and may not routinely be measured on finished product)

Property	Test Method	Units	Typical Value
Styrene / Rubber ratio		%	30/70
Diblock content		%	70
Specific gravity		gm/cc	0.91
Hardness ^[d]		Shore A (10s)	70
Tensile strength ^{[e] [f]}		psi	350
Elongation ^[f]		%	200

^[d] Typical values on polymer compression molded at 300°F

^[e] Measured on films cast from a solution in toluene

^[f] ASTM D-412

Packaging

Kraton Polymers are available in a number of different package types. For information specific to this grade, please contact your local Kraton Polymers representative.

End Use Requirements

If the finished article is intended for use in food contact and packaging applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Information on the food packaging clearances of individual products is available from Kraton Polymers.

Medical, Healthcare and Cosmetic Applications and Trademark Usage

Kraton Polymers products should not be used in any devices or materials intended for implantation in the human body as defined by the U.S. Food and Drug Administration under 21 CFR 812.3(d) and 21 CFR 860.3(d).

Kraton Polymers products may, in certain circumstances, be used in the following products or applications with prior written approval for each specific product or application:

(a) Cosmetics (exclusive of packaging or delivery applications).

(b) Drugs and other Pharmaceuticals (exclusive of packaging or delivery applications).

Kraton Polymers trade names, trademarks, logos or other similar identifying characteristics should not be used in the manufacture, sale, or promotion of cosmetics, drugs, and pharmaceutical products or other medical/healthcare applications or materials.

Kraton Polymers has no specific expertise in these markets and applications, and does not intend to perform testing, clinical studies or other investigations of the suitability of its products for specific applications.

Each customer or user of Kraton Polymers products is solely responsible for determining the suitability of the materials it selects for the intended purpose and acknowledges that it has not relied on any representations of Kraton Polymers regarding suitability for use in its intended cosmetics, drugs, pharmaceutical products or materials.

Please contact your Kraton Polymers Sales Representative for more details before using our products in these specific applications.

Safety and Handling Precautions

Read the Safety Data Sheet carefully and thoroughly before beginning any work. Additional information relating to the health, safety, storage, handling and processing of Kraton Polymers products can be found in "Health and Safety Aspects of Kraton D and Kraton G Polymers" (Document K0155), available from your local Sales Representative or the company website. Kraton Polymers also recommends that customers or users consult other sources of safety information, for example, the current edition of the "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited.

Kraton Polymers products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with Kraton Polymers products should provide a means of dissipating any charges that may develop.

When processing Kraton Polymers products, maintain a fire watch if the material reaches 225°C (437°F) for Kraton IR and Kraton D (polymers and compounds), and 280°C (536°F) for Kraton G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

Kraton Polymers products (the neat resin or the base product) are high molecular weight polymers which are non-toxic and biologically inactive.

Warranty

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K0085 DDe-05U G1726
G1726 Polymer
06/11/2005

Description

KRATON™ G7705 is an easy processing, general purpose 45 Shore A hardness material designed for a wide variety of applications. It is supplied from North America in the physical forms identified below. The product code is N7691 and the Material Safety Data Sheet number is 2460.

- G7705-1 supplied as a natural pellet.
- G7705-9 supplied as a black pellet.

Sales Specifications

Property	Test Method	Units	Sales Specification Range
Hardness	BAM 1013	Shore A	39 - 49
Specific Gravity	BAM 1014	g/cc	1.15 - 1.25

Typical properties (These are typical values and may not routinely be measured on finished product.)

Property	Units	Typical Value
Tensile Strength ^a , ASTM D-412	psi	600
300% Modulus ^a , ASTM D-412	%	300
Elongation ^a , ASTM D-412	%	700
Tear Strength, ASTM D-624, Die C	pli	100
Compression Set, ASTM D395B		
22 hrs/23°C	%	15
22 hrs/70°C	%	38
Heat Aging, 168 hrs/150°C, ASTM D573		
Tensile Strength, % retention	%	+135
Elongation, % retention	%	+125
Hardness, Shore A, change		-2
Ozone Resistance, ASTM D518/1149, 100 pphm/72 hrs/38°C, 7X magnification		No cracking
Brittleness, ASTM D746	°C	-63
Burn Rate ^b , FMVSS302/SAE J369	in/min	2.0

^aMeasured on compression molded slabs
^bDetermined on 4" x 14" x 0.050" plaques

Packaging

KRATON Polymers are available in a number of different pack types. For information specific to this grade please contact your local KRATON Polymers representative.

KRATON, its logo and associated images are trademarks.

Processing

KRATON G7705 can be processed by injection molding, extrusion, thermoforming, and other thermoplastic fabricating techniques.

Typical starting conditions for a reciprocating screw injection molding machine are as follows:

Barrel temperatures, °F	
Rear	380 - 400
Front	400 - 420
Nozzle	420 - 450
Mold temperature, °F	80 - 150
Injection pressure, psig	500 - 700
Back pressure, psi	100 - 200
Injection speed	Medium to Fast

These values are intended only as guidelines, and the optimum conditions will vary from machine to machine.

To achieve the shortest possible cycle times while maintaining optimal molded part properties and good reproducibility, a combination of very fast injection rate injection pressure at the lowest workable temperature is suggested.

Normal mold shrinkage for KRATON G7705 is about 0.017 inch/inch in the direction of flow.

Since KRATON G7705 conducts heat well compared to polyolefins, molded parts cool quickly and relatively short cycle times are obtained. Scrap is 100% recyclable.

Polystyrene, polypropylene, or poly (ethylene-vinyl acetate) color concentrates can be used to color Kraton G7705.

End Use Requirements

If the finished article is intended for use in contact with food or in pharmaceutical applications, toys, and other human contact areas the relevant regulations should be observed. Detailed information is available from the supplier.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with the regulations. It should be noted that some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restriction on Medical/Healthcare Applications

DO NOT USE KRATON™ POLYMERS PRODUCTS IN ANY DEVICES OR MATERIALS INTENDED FOR TEMPORARY OR PERMANENT IMPLANTATION IN THE HUMAN BODY. THE KRATON POLYMERS BUSINESS ALSO RESTRICTS THE USE OF ITS PRODUCTS IN OTHER MEDICAL/HEALTHCARE APPLICATIONS.

Please contact your KRATON Polymers Sales Representative for more details.

THE KRATON POLYMERS BUSINESS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR APPLICATIONS and does not intend to perform testing, clinical studies or other investigations of the suitability of its products for specific medical/healthcare applications. KRATON Polymers products are generally manufactured for use in a variety of commercial applications.

DO NOT USE THE TRADENAMES, TRADEMARKS, LOGOS OR OTHER SIMILAR IDENTIFYING CHARACTERISTICS OF THE KRATON POLYMERS BUSINESS IN THE MANUFACTURE, SALE OR PROMOTION OF MEDICAL DEVICES OR MATERIALS.

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Safety and Handling Precautions

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KRATON Polymers and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Equipment should provide a means of dissipating any charges that may develop. Processing of KRATON Polymers and compounds in high shear equipment can cause the temperature to rise. Do not allow the temperature to exceed 225-230°C (437-446°F) for KRATON D Polymers and compounds and 280-285°C (536-545°F) for KRATON G Polymers and compounds. Maintain a fire watch if these temperatures are reached. KRATON Polymer products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

The information contained in this publication is, to the best of our knowledge, true and accurate, but any recommendations or suggestions which may be made are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

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KRATON G7705 Polymer
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K0090
North America
Issued Jan. 2005

KRATON® G7720 Compound

Data Document

Description

KRATON® G7720 is an easy processing, general purpose 60 Shore A hardness material designed for a wide variety of applications. It is supplied from North America in the physical forms identified below:

- G7720-1000 supplied as an opaque white pellet.
- G7720-9000 supplied as a black pellet.

Sales Specifications

<u>Property</u>	<u>Test Method</u>	<u>Units</u>	<u>Sales Specification Range</u>
Hardness	BAM 1013	Shore A (10 sec)	52 - 62
Specific Gravity	BAM 1014	gm/cc	1.15 - 1.25

Typical properties (These are typical values and may not routinely be measured on finished product.)

<u>Property</u>	<u>Test Method</u>	<u>Units</u>	<u>Typical Value</u>
Shore A Hardness ^a			
Instant			62
10 second			57
Melt Flow, 230°C/5 kg		gm/10 min	10
24hr Mold Shrinkage		in/in	
Machine direction			0.014
Transverse direction			0.008
Tensile Strength ^{a,c}	ASTM D-412	psi	800
100% Modulus ^{a,c}	ASTM D-412	%	200
300% Modulus ^{a,c}	ASTM D-412	%	300
500% Modulus ^{a,c}	ASTM D-412	%	500
Elongation ^{a,c}	ASTM D-412	%	700
Tear Strength ^a	ASTM D-624, Die C	pli	150
Compression Set	ASTM D-395B	%	44
22 hrs/70°C			
Heat Aging ^b , 168 hrs/150°C (7 days)	ASTM D-573		
Tensile Strength, % retention		%	-40
Elongation, % retention		%	+12
Hardness, Shore A, change			-4

^aDetermined on 5.125" x 5.875" x .125" injection molded plaques.
^bThe long term upper service temperature is greater than 125°C
^cMachine direction

Packaging

KRATON Polymers are available in a number of different package types. For information specific to this grade, please contact your local KRATON Polymers representative.

Processing

KRATON G7720 can be processed by injection molding, extrusion, thermoforming, and other thermoplastic fabricating techniques.

Typical starting conditions for a reciprocating screw injection molding machine are as follows:

Barrel temperatures, °F	
Rear	380 – 400
Front	400 – 420
Nozzle	420 – 450
Mold temperature, °F	80 – 150
Injection pressure, psig	500 – 700
Back pressure, psi	100 – 200
Injection speed	Medium to Fast

These values are intended only as guidelines, and the optimum conditions will vary from machine to machine.

Since KRATON G7720 conducts heat well compared to polyolefins, molded parts cool quickly and relatively short cycle times are obtained. Scrap is 100% recyclable.

Polystyrene, polypropylene, or poly (ethylene-vinyl acetate) color concentrates can be used to color KRATON G7720.

End Use Requirements

If the finished article or product is intended for use in food contact applications, toys, or human contact areas, manufacturers of the final product should observe all relevant regulations. Detailed information is available from KRATON Polymers.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with applicable regulations. Some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restriction on Medical/Healthcare Applications

Products or compounds made from KRATON Polymers' products shall not be used in any of the following applications: (a) cosmetics, (b) drugs and other pharmaceuticals, and (c) Class II and Class III Medical Devices, as defined in 21 CFR 860.3 (hereinafter collectively referred to as "Medical/Healthcare Applications"). KRATON Polymers requires that it give its prior written approval before its products are used in such Medical/Healthcare Applications. Please contact your KRATON Polymers Sales Representative for more details before using our products in these specific applications.

KRATON POLYMERS HAS NO SPECIFIC EXPERTISE IN THE MEDICAL/HEALTHCARE MARKET OR MEDICAL/HEALTHCARE APPLICATIONS AND DOES NOT INTEND TO PERFORM TESTING, CLINICAL STUDIES OR OTHER INVESTIGATIONS OF THE SUITABILITY OF ITS PRODUCTS FOR THESE SPECIFIC APPLICATIONS. KRATON POLYMERS MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL/HEALTHCARE APPLICATIONS) FOR ITS PRODUCTS.

EACH CUSTOMER OR USER OF KRATON POLYMERS' PRODUCTS IS SOLELY RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE MATERIALS IT SELECTS FOR THE INTENDED PURPOSE. FOR MEDICAL/HEALTHCARE APPLICATIONS, EACH CUSTOMER OR USER MUST CONDUCT ITS OWN STUDIES, REGISTRATIONS, AND OTHER RELATED ACTIVITIES TO ESTABLISH THE SAFETY AND EFFICACY OF ITS PRODUCTS.

Do not use KRATON Polymers' tradenames, trademarks, logos or other similar identifying characteristics for the manufacture, sale or promotion of products intended for Medical/Healthcare Applications.

Safety and Handling Precautions

Read the Material Safety Data Sheet for KRATON polymer products carefully and thoroughly before beginning any work with such products. Additional information relating to health, safety, storage, handling and processing of KRATON Polymers' products can be found in the KRATON Polymers HSE Fact Sheet (K0155), available from your local KRATON Polymers Sales Representative. KRATON Polymers also recommends that customers or users consult other sources of safety information, for example the current edition of "Code of Practice on the Toxicity and Safe Handling of Rubber Chemicals," British Rubber Manufacturers Association Limited (BRMA) (www.brma.co.uk).

KRATON Polymers' products and compounds can accumulate electrostatic charges when rubbed, chafed or abraded. Processing and storage equipment for use with KRATON Polymers' products should provide a means of dissipating any charges that may develop.

When processing KRATON Polymers' products, maintain a fire watch if the material reaches 225°C (437°F) for KRATON IR and KRATON D (polymers and compounds), and 280°C (536°F) for KRATON G (polymers and compounds). The temperatures listed above are indicated only for safety reasons (risk of fire and product degradation) and are not necessarily recommended for processing. Degradation of the polymer (polymer breakdown) will start at lower temperatures depending on the specific processing conditions. Therefore, operating below these temperatures does not guarantee the absence of product degradation.

KRATON Polymers' products (the neat resin or the base product) are high molecular weight polymers which by all accounts are non-toxic and biologically inactive.

Warranty

The information contained in this publication is, to the best of KRATON Polymers' knowledge, true and accurate, but any recommendations or suggestions that may be made are without guarantee, since the conditions of use and storage are beyond KRATON Polymers' control. The customer understands that it shall make its own assessment to determine the suitability of a KRATON Polymers' product for a particular purpose. Further, nothing contained herein shall be construed as a recommendation to use any KRATON Polymers product in conflict with existing patents. All products purchased from or supplied by KRATON Polymers are subject to terms and conditions set out in the applicable contract, order acknowledgement and/or bill of lading. KRATON Polymers warrants only that its products will meet those specifications designated therein. KRATON POLYMERS MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; OR THAT THE USE OF SUCH INFORMATION OR KRATON POLYMERS PRODUCT WILL NOT INFRINGE ANY PATENT.

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K0090 DDc-05U

KRATON G7720 Compound

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Description

KRATON™ G7820 is an easy processing, general purpose 91 Shore A hardness material designed for a wide variety of applications. It is supplied from North America in the physical form identified below. The product code is N7701 and the Material Safety Data Sheet number is 2039.

- G7820-1 supplied as a natural pellet.
- G7820-9 supplied as a black pellet.

Sales Specifications

Property	Test Method	Units	Sales Specification Range
Hardness	BAM 1013	Shore A	85 - 95
Specific Gravity	BAM 1014	gm/cc	1.11 - 1.17

Typical properties (These are typical values and may not routinely be measured on finished product.)

Property	Units	Typical Value
Tensile Strength ^a , ASTM D-412	psi	1,750
300% Modulus ^a , ASTM D-412	%	900
Elongation ^a , ASTM D-412	%	650
Tear Strength, ASTM D-624, Die C	pli	280
Compression Set, ASTM D395B		
22 hrs/23°C	%	27
22 hrs/70° C	%	64
Heat Aging, 168 hrs/150°C, ASTM D573		
Tensile Strength	% retention	+85
Elongation	% retention	+80
Hardness, Shore A	change	+1
Ozone Resistance, ASTM D518/1149		
100 pphm/72 hrs/38 deg C, 7X magnification		No cracking
Brittleness, ASTM D746	°C	-52
Burn Rate ^b , FMVSS302/SAE J369	in/min	2.2

^aMeasured on compression molded slabs
^bDetermined on 4" x 14" x 0.050" plaques

Packaging

KRATON Polymers are available in a number of different pack types. For information specific to this grade please contact your local KRATON Polymers representative.

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Processing

KRATON G7820 can be processed by injection molding, extrusion, thermoforming, and other thermoplastic fabricating techniques.

Typical starting conditions for a reciprocating screw injection molding machine are as follows:

Barrel temperatures, °F	
Rear	380 - 400
Front	400 - 420
Nozzle	420 - 450
Mold temperature, °F	80 - 150
Injection pressure, psig	500 - 700
Back pressure, psi	100 - 200
Injection speed	Medium to Fast

These values are intended only as guidelines, and the optimum conditions will vary from machine to machine.

To achieve the shortest possible cycle times while maintaining optimal molded part properties and good reproducibility, a combination of very fast injection rate injection pressure at the lowest workable temperature is suggested.

Normal mold shrinkage for KRATON G7820 Compound is about 0.011 inch/inch in the direction of flow.

Since KRATON G7820 compound conducts heat well compared to polyolefins, molded parts cool quickly and relatively short cycle times are obtained.

Scrap is 100% recyclable.

Polystyrene, polypropylene, or poly (ethylene-vinyl acetate) color concentrates can be used to color Kraton G7820 Compound.

End Use Requirements

If the finished article is intended for use in contact with food or in pharmaceutical applications, toys, and other human contact areas the relevant regulations should be observed. Detailed information is available from the supplier.

For food packaging, manufacturers of the final product should ensure that all ingredients used comply with the regulations. It should be noted that some of these regulations require tests to be carried out on the final product, e.g. migration. These are the responsibility of the final product manufacturer.

Restriction on Medical/Healthcare Applications

DO NOT USE KRATON™ POLYMERS PRODUCTS IN ANY DEVICES OR MATERIALS INTENDED FOR TEMPORARY OR PERMANENT IMPLANTATION IN THE HUMAN BODY. THE KRATON POLYMERS BUSINESS ALSO RESTRICTS THE USE OF ITS PRODUCTS IN OTHER MEDICAL/HEALTHCARE APPLICATIONS.

Please contact your KRATON Polymers Sales Representative for more details.

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