

# DURAFLEX™ 250 SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 250 SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 250 SBS is a granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a heavy-duty, high-performance non-woven polyester mat with a high tensile strength and puncture resistance. DuraFlex™ 250 SBS is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraFlex™ 250FR SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type II, Grade G and exceeds the performance values of ASTM D 6162 Type I.

**Product Data:** DuraFlex™ 250FR SBS (typical)

Thickness: 4.5 mm (177 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 II Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	165/125	100 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	162/105	70 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	57/65	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	61/78	50%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	65/80	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	186/125	70 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.5%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.5g	< 2 g

All values given are approximate and are subject to change without notice. There is no implied or express warranty given through these values or statements, nor are there any assertions that the product purchased has been individually tested to conform to these standards. Testing is performed on a random basis by "in-house" and independent "third party" evaluation for the purpose of classification and or approval. Acceptance, purchase and selection of these products are the sole responsibility of the buyer or buyer's representative.

***U.S. PLY, INC.***

A DANNY ADAIR COMPANY

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April 2007

# DURAFLEX™ 250S SBS BASE

## Technical Data Sheet

**Product Name:** DuraFlex™ 250S SBS Base

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 250S SBS Base is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a heavy-duty, high performance non-woven polyester mat for higher tear strength and puncture resistance. DuraFlex™ 250S SBS Base is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a base sheet in modified bitumen and built-up roof systems or as a cap sheet when surfaced with a flood coat of asphalt and gravel.

**Application Method:** DuraFlex™ 250S SBS Base is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type II, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 250S SBS Base (typical)

Thickness: 3.0 mm (120 mils)

Weight: 88 lbs/roll (40 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 II Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	165/125	100 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	162/105	70 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	57/65	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	61/78	50%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	65/80	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	186/125	70 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.5%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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May 2008

# DURAFLEX™ 90TG SBS BASE

## Technical Data Sheet

**Product Name:** DuraFlex™ 90TG SBS BASE

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 90TG SBS BASE is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) torch applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a base sheet or interply sheet in modified bitumen torch applied SBS roof systems.

**Application Method:** DuraFlex™ 90TG SBS BASE is applied using torch heat welding techniques.

**Approvals:** Meets ASTM D 6163 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 90TG SBS BASE (typical)

Thickness: 3.0 mm (120 mils)

Weight: 85 lbs/roll (38.5 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 1 square applied.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/110	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/75	30 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%	2%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/7	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	105/85	35 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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April 2007

# DURAFLEX™ DUAL CAP FR SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ Dual Cap FR SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ Dual Cap FR SBS is a fire-resistant, granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a heavy-duty, high-performance composite polyester/fiberglass scrim mat that is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraFlex™ Dual Cap FR SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6162 Type II, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ Dual Cap FR SBS (typical)

Thickness: 4.0 mm (160 mils)

Weight: 115 lbs/roll (51.8 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6162 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	150/110	75 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	135/105	75 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	3/3	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	4/4	2%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	150/125	65 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.5%	0.5%
High Temperature Stability, (°F)	225°F (107°C)	225°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.5g	< 2 g

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April 2007

# DURAFLEX™ G4-FR SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ G4-FR SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ G4-FR SBS is a fire-resistant, granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and built-up roof systems.

**Application Method:** DuraFlex™ G4-FR SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6163 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ G4-FR SBS (typical)

Thickness: 4.0 mm (157 mils)

Weight: 90 lbs/roll (41 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 34' 2" (1m x 10m). Each roll is approximately 1 square applied.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength, 0°F, (MD/XMD)	95 lbf/in	70 lbf/in
Tensile Strength, 73°F, (MD/XMD)	70 lbf/in	30 lbf/in
Elongation (Max Load), 0°F, (MD/XMD)	2%	1%
Elongation (Max Load), 73°F, (MD/XMD)	3%	2%
Tear Strength, (MD/XMD), 73°F, minimum	65 lbf	35 lbf
Low Temperature Flexibility, (°F), maximum	-13°F (-25°C)	0°F
Dimensional Stability, %, maximum	< 0.5%	1%
High Temperature Stability, (°F)	250°F (120°C)	215°F

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July 2004

# DURAFLEX™ G4M SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ G4M SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ G4M SBS is a granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and built-up roof systems.

**Application Method:** DuraFlex™ G4M SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6163 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ G4M SBS (typical)

Thickness: 4.0 mm (157 mils)

Weight: 102 lbs/roll (45.3 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 1 square applied.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/110	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/75	30 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%	2%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/7	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	105/85	35 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> avg. loss	1.3	2g

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April 2007

# DURAFLEX™ G4S SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ G4S SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ G4S SBS is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a base or interply sheet in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraFlex™ G4S SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6163 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ G4S SBS (typical)

Thickness: 3.0 mm (120 mils)

Weight: 90 lbs/roll (41 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 1 square applied.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/110	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/75	30 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%	2%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/7	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	105/85	35 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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April 2007

# DURAFLEX™ 190FR SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 190FR SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 190FR SBS is a fire-resistant, granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a non-woven polyester mat for high tear strength and puncture resistance. DuraFlex™ 190FR SBS is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraFlex™ 190FR SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 190FR SBS (typical)

Thickness: 4.3 mm (170 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	118/97	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/78	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	30/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	55/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	116/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.2 g	< 2 g

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April 2007

# DURAFLEX™ 190FRTG SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 190FRTG SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 190FRTG SBS is a fire-resistant, granule surfaced, premium SBS (Styrene-Butadiene-Styrene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen torch applied SBS roof systems.

**Application Method:** DuraFlex™ 190FRTG SBS is applied using torch heat welding techniques.

**Approvals:** Meets ASTM D 6164 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 190FRTG SBS (typical)

Thickness: 4.0 mm (160 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	118/97	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/78	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	30/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	55/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	116/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.2 g	< 2 g

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April 2007

# DURAFLEX™ 190 SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 190 SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 190 SBS is a granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a non-woven polyester mat and a fiberglass strand for enhanced dimensional stability, high tear strength and puncture resistance. DuraFlex™ 190 SBS is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and built-up roof systems and as a finished base flashing membrane.

**Application Method:** DuraFlex™ 190 SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 190 SBS (typical)

Thickness: 4.2 mm (165 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 1 square applied

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	118/97	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/78	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	30/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	55/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	116/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.2 g	< 2 g

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April 2007

# DURAFLEX™ 190S SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 190S SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 190S SBS is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a non-woven polyester mat for high tear strength and puncture resistance. DuraFlex™ 190S SBS is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a base sheet in modified bitumen and built-up roof systems or as a cap sheet when surfaced with a flood coat of asphalt and gravel.

**Application Method:** DuraFlex™ 190S SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 190S SBS (typical)

Thickness: 3.0 mm (120 mils)

Weight: 88 lbs/roll (40 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	108/87	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	103/74	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	35/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	46/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	115/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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January 2007

# DURAFLEX™ 190S TG SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 190S TG SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 190S TG SBS is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a base sheet or an interply sheet in modified bitumen SBS torch applied roof systems.

**Application Method:** DuraFlex™ 190S TG SBS is applied using torch heat welding techniques.

**Approvals:** Meets ASTM D 6164 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 190S TG SBS (typical)

Thickness: 3.0 mm (120 mils)

Weight: 90 lbs/roll (41 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	108/87	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	103/74	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	35/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	46/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	115/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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April 2007

# DURAFLEX™ 190TG SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 190TG SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 190 SBS is a granule surfaced, premium SBS (Styrene-Butadiene-Styrene) torch applied membrane. Manufactured with a non-woven polyester mat and a fiberglass strand for enhanced dimensional stability, high tear strength and puncture resistance. DuraFlex™ 190 SBS is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet and for flashing membrane in modified bitumen torch applied SBS roof systems.

**Application Method:** DuraFlex™ 190TG SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 190TG SBS (typical)

Thickness: 4.0 mm (157 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	118/97	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/78	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	30/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	55/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	116/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.2 g	< 2 g

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April 2007

# DURAFLEX™ 250FR SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ 250FR SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 250FR SBS is a fire-resistant, granule surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a heavy-duty, high-performance non-woven polyester mat with a high tensile strength and puncture resistance. DuraFlex™ 250FR SBS is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraFlex™ 250FR SBS is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type II, Grade G and exceeds the performance values of ASTM D 6162 Type I. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 250FR SBS (typical)

Thickness: 4.5 mm (177 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 II Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	165/125	100 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	162/105	70 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	57/65	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	61/78	50%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	65/80	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	186/125	70 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.5%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.5g	< 2 g

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April 2007

# DURAFLEX™ ALUM SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ ALUM SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ ALUM SBS is a fire-resistant, embossed aluminum, premium SBS (Styrene-Butadiene-Styrene) torch applied flashing membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a flashing sheet in modified bitumen and built-up roof systems.

**Application Method:** DuraFlex™ ALUM SBS is applied using torch heat welding techniques.

**Approvals:** Meets ASTM D 6298. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ ALUM SBS (typical)

Thickness: 3.5 mm (140 mils)

Weight: 103 lbs/roll (47 kg/m<sup>2</sup>)

Roll Dimensions: 39 ½" x 33' 4" (1m x 10m). Each roll is approximately 1 square applied.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6298 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	178/198	160 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	108/109	85 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	5/5	3%
Elongation (% @ Max Load), 73°F, (MD/XMD)	9/12	5%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	55/64	25%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	168/196	120 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.15%	0.2%
High Temperature Stability, (°F)	225°F (107°C)	225°F

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April 2007

# DURAFLEX™ G4FR TG SBS

## Technical Data Sheet

**Product Name:** DuraFlex™ G4FR TG SBS

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ G4FR TG SBS is a fire-resistant, granule surfaced, premium SBS (Styrene-Butadiene-Styrene) torch applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a cap sheet in in modified bitumen torch applied SBS roof systems.

**Application Method:** DuraFlex™ G4FR TG SBS is applied using torch heat welding techniques.

**Approvals:** Meets ASTM D 6163 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ G4FR TG SBS (typical)

Thickness: 4.0 mm (157 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 1 square applied.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/110	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	105/75	30 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%	2%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/7	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	105/85	35 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> avg. loss	1.3	2g

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April 2007

# DURAFLEX™ 30 SBS BASE SHEET

## Technical Data Sheet

**Product Name:** DURAFLEX™ 30 SBS BASE SHEET

**Classification:** SBS Modified Bitumen Base Sheet; UL Type G2

**Product Description:** DuraFlex™ 30 SBS Base Sheet is manufactured with a heavyweight, select fiberglass mat designed and constructed to be strong, while remaining wrinkle resistant. The strong glass mat is saturated with a high quality SBS polymer and asphaltic bitumen for a strong, durable yet uniformly consistent in roll out for ease of application. Designed for use as an underlayment for nailable tiles, metal roofs, shingles, and wood shakes and as a mechanically fastened or adhered base ply in hot mop, cold applied and torch applied roofing applications and specifications requiring ASTM D-4601 Type II base sheet.

**Application Method:** DuraFlex™ 30 SBS Base Sheet is applied using mechanical fasteners, hot asphalt in hot mop techniques or adhered in DuraFlex™ #901 Premium SBS Adhesive.

**Approvals:** Meets the requirements of ASTM D 4601 Type II. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM).

Contact U.S. Ply, Inc. for specific/applicable codes and approvals.

Meets ASTM D4869 Shower Test and exceeds the tensile strength requirements of ASTM D 226

**Product Data:** DuraFlex™ 30 SBS Base Sheet (typical)

UL Designation: UL Type G2

Roll Width: 36" +/- 0.7%

Area of roll ft<sup>2</sup>: 3 squares (324 ft<sup>2</sup>).

Weight: 82 lbs/roll (37.2 kg/m<sup>2</sup>)

Rolls per pallet: 20 per pallet

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April 2007

# DURAFLEX™ 60 SBS BASE

## Technical Data Sheet

**Product Name:** DuraFlex™ 60 SBS Base

**Classification:** SBS Modified Bitumen Base Sheet

**Product Description:** DuraFlex™ 60 SBS Base is a tough smooth surfaced, SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a base sheet or interply sheet in modified bitumen and built-up roof systems.

**Application Method:** DuraFlex™ 60 SBS Base is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6163 Type I, Grade S. DuraFlex™ 60 SBS Base is UL Classified with Underwriter's Laboratories (UL) and Factory Mutual (FM) Approved. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 60 SBS Base (typical)

Thickness: 2.4 mm (94 mils)

Weight: 94 lbs/roll (43 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 49' 1" (1m x 15m). Each roll is approximately 160 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	108/105	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	97/67	30 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%	2%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/7	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	100/75	35 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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April 2007

# DURAFLEX™ 60TG SBS BASE

## Technical Data Sheet

**Product Name:** DuraFlex™ 60TG SBS BASE

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ 60TG SBS BASE is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) torch applied membrane. Manufactured with a fiberglass mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a base sheet or interply sheet in modified bitumen torch applied SBS roof systems.

**Application Method:** DuraFlex™ 60TG SBS BASE is applied using torch heat welding techniques.

**Approvals:** Meets ASTM D 6163 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ 60TG SBS BASE (typical)

Thickness: 2.4 mm (94 mils)

Weight: 95 lbs/roll (43 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 49' 1" (1m x 15m). Each roll is approximately 164 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6163 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	108/105	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	97/67	30 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%	1%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%	2%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/7	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	100/75	35 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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April 2007

# DURAFLEX™ SBS POLY BASE

## Technical Data Sheet

**Product Name:** DuraFlex™ SBS Poly Base

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** DuraFlex™ SBS Poly Base is a smooth surfaced, premium SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a non-woven polyester mat and a fiberglass strand for enhanced dimensional stability, high tear strength and puncture resistance. DuraFlex™ SBS Poly Base is saturated and coated with a premium quality, asphaltic bitumen and SBS elastomers for a highly durable, flexible and easily maintainable membrane. It is designed for use as a base or interlayer sheet in modified bitumen and built-up roof systems.

**Application Method:** DuraFlex™ SBS Poly Base is applied using compatible hot asphalt or SBS cold adhesive.

**Approvals:** Meets ASTM D 6164 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraFlex™ SBS Poly Base (typical)

Thickness: 2.4 mm (94 mils)

Weight: 95 lbs/roll (43 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 49' 1" (1m x 15m). Each roll is approximately 161 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	100/85	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	98/72	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	32/24	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/55	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	110/92	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F

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***U.S. PLY, INC.***

A DANNY ADAIR COMPANY

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April 2007

# DURAWELD™ 4M APP

## Technical Data Sheet

**Product Name:** DuraWeld™ 4M APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** DuraWeld™ 4M APP is a durable mineral surfaced, premium APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. It is designed for use as a cap membrane in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraWeld™ 4M APP is applied using propane torch welding techniques.

**Approvals:** Meets ASTM D 6222 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraWeld™ 4M APP (typical)

Thickness: 4.3 mm (170 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39'-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	135/115	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	114/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/56	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	47/47	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	52/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	134/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%
Granule Embedment, g, maximum	< 2.0 g	< 2.0 g

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April 2007

# DURAWELD™ 4MFR APP

## Technical Data Sheet

**Product Name:** DuraWeld™ 4MFR APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** DuraWeld™ 4MFR APP is a durable, fire-resistant mineral surfaced, premium APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with a mixture of premium quality non-blown asphaltic bitumen, fire-resistant additives and APP resins for a durable, fire-resistant and heat resistant, flexible and easily maintainable membrane. It is designed for use as a cap membrane in modified bitumen and hybrid built-up roof systems.

**Application Method:** DuraWeld™ 4MFR APP is applied using propane torch welding techniques.

**Approvals:** Meets ASTM D 6222 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraWeld™ 4MFR APP (typical)

Thickness: 4.3 mm (170 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	135/115	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	114/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/56	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	47/47	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	52/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	134/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%
Granule Embedment, g, maximum	< 2.0 g	< 2.0 g

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April 2007

# DURAWELD™ 4S APP

## Technical Data Sheet

**Product Name:** DuraWeld™ 4S APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** DuraWeld™ 4S APP is a durable smooth surfaced, premium APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. It is designed for use as a cap or interply membrane in modified bitumen and as a cap in hybrid built-up roof systems when surfaced.

**Application Method:** DuraWeld™ 4S APP is applied using propane torch welding techniques.

**Approvals:** Meets ASTM D 6222 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraWeld™ 4S APP (typical)

Thickness: 3.8 mm (150 mils)

Weight: 88 lbs/roll (40 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	135/115	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	114/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/56	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	47/47	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	52/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	134/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%

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April 2007

# DURAWELD™ 5S APP

## Technical Data Sheet

**Product Name:** DuraWeld™ 5S APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** DuraWeld™ 5S APP is a durable smooth surfaced, premium APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. It is designed for use as a cap or interply membrane in modified bitumen and as a cap in hybrid built-up roof systems when surfaced.

**Application Method:** DuraWeld™ 5S APP is applied using propane torch welding techniques.

**Approvals:** Meets ASTM D 6222 Type I, Grade S. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** DuraWeld™ 5S APP (typical)

Thickness: 4.8 mm (189 mils)

Weight: 100 lbs/roll (40 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	135/115	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	114/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/56	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	47/47	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	52/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	134/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%

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April 2007



## READI-BASE Technical Data Sheet

**Product Name:** RapidGRIP™ READI-BASE Self-Adhering Membrane

**Classification:** SBS Modified Bitumen Self-Adhering Membrane

**Product Description:** RapidGRIP™ READI-BASE is a sand surfaced, SBS (Styrene-Butadiene-Styrene) self-adhering membrane. Manufactured with a strong fiberglass mat that is saturated and coated with a premium quality, “high tack” asphaltic bitumen that is combined with durable SBS elastomers and protected by a poly release film for easy installation. RapidGRIP™ READI-BASE is specifically formulated as a base layer for use over USP™ ISO-CA, AC-Foam-III, SecuRock™ Roof Board, and DensDeck DuraGuard®. It is ideal for temporary dry-in of roofs or as an underlayment under shingles, tile and slate. May be installed direct to primed or unprimed plywood or primed OSB. RapidGRIP™ READI-BASE can be utilized as a base layer in SBS cold applied, SBS torch applied and SBS mop applied assemblies where applicable. Contact the U.S. Ply Technical Services for specific details.

**Approvals:** Meets ASTM D 1970 and tested to ASTM D 5147.

**Product Data:** RapidGRIP™ READI-BASE (typical)

Thickness: 2 mm (80 mils)

Weight: 88 lbs/roll (40 kg)

Roll Dimensions: 39.37” x 49’ 6” (150 sq. ft.).

### Physical Properties (ASTM D 5147):

### Test Results

Tensile Strength, @ 75°F (MD/XMD)

MD=66 lbf/in / XMD=55 lbf/in

Elongation @ 75°F, (MD/XMD)

5%

Low Temperature Flexibility, (°F), maximum

-8°F (-22°C)

Water Vapor Permeability,

0.1 U.S. Perms or less

High Temperature Stability, (°F)

239°F (115°C)

**Application Method:** RapidGRIP™ READI-BASE is applied by removing the poly release film and adhering the membrane by direct pressure contact to the desired substrate. Warm weather conditions and exposure to direct sunlight are essential for good adhesion. Application should be made when ambient temperatures are 50°F (10°C) or higher. Deck must be clean, dry and free of voids. For re-cover applications, only primed asphaltic based roofing membranes in good condition will provide a suitable roofing base. Prime concrete/masonry and other absorbent type surfaces. Not recommended for standard polyisocyanurate or gypsum board surfaces, except SecuRock™ or DensDeck DuraGuard®. Cut RapidGRIP™ into manageable lengths before installation. Peel back 1 to 2 feet of the release film and stick the membrane directly over the roof deck or insulation, unroll membrane and realign at opposite end. Once set, the film can be removed. Press membrane into substrate to make full contact. Best results are achieved with a weighted roller. Side laps must be a minimum of 3 inches and end laps a minimum of 6 inches.

**Underlayment Method:** Align membrane with the gutter edge and extend coverage at least 3 feet inside the exterior wall or the highest point of damming. When covering the entire roof deck with RapidGRIP™, the roof system must include proper ventilation, including both ridge and soffit venting. All installed RapidGRIP™ READI-BASE must be covered and not left exposed for more than 90 days.

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January 2006

# SAFEWELD™ 180FR APP

## Technical Data Sheet

**Product Name:** SAFEWELD™ 180FR APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ 180FR APP is a durable fire-resistant, granule surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The bottom surface of the sheet is lightly sanded to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams. It is designed for use as a cap membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ 180FR APP is applied using SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams.

**Approvals:** Meets ASTM D 6222 Type I, Grade G. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ 180FR APP (typical)

Thickness: 4.3 mm (170 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	128/114	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	96/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/54	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/45	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	51/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	128/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Granule Embedment, g, maximum	< 2.0 g	< 2.0 g

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April 2007

# SAFEWELD™ 180M APP

## Technical Data Sheet

**Product Name:** SAFEWELD™ 180M APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ 180M APP is a durable, granule surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The bottom surface of the sheet is lightly sanded to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams. It is designed for use as a cap membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ 180M APP is applied using SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams.

**Approvals:** Meets ASTM D 6222 Type I, Grade G. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ 180M APP (typical)

Thickness: 4.3 mm (170 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	128/114	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	96/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/54	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/45	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	51/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	128/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Granule Embedment, g, maximum	< 2.0 g	< 2.0 g

All values given are approximate and are subject to change without notice. There is no implied or express warranty given through these values or statements, nor are there any assertions that the product purchased has been individually tested to conform to these standards. Testing is performed on a random basis by "in-house" and independent "third party" evaluation for the purpose of classification and or approval. Acceptance, purchase and selection of these products are the sole responsibility of the buyer or buyer's representative.

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April 2007

# SAFEWELD™ 180S APP

## Technical Data Sheet

**Product Name:** SAFEWELD™ 180S APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ 180S APP is a durable smooth surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The top and the bottom surfaces of the sheet are lightly talced to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams. It is designed for use as a base, interply or cap membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ 180S APP is applied using SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams.

**Approvals:** Meets ASTM D 6222 Type I, Grade S. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ 180S APP (typical)

Thickness: 3.8 mm (150 mils)

Weight: 90 lbs/roll (41 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	128/114	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	96/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/54	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/45	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	51/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	128/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)

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April 2007

# SAFEWELD™ APP BASE

## Technical Data Sheet

**Product Name:** SAFEWELD™ APP BASE

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ APP BASE is a durable smooth surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a strong fiberglass mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The top and the bottom surfaces of the sheet are lightly talced to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams or by mechanical fasteners where appropriate. It is designed for use as a base or interply membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ APP BASE is applied using SAFEWELD™ APP Modified Adhesive or by mechanical fasteners where appropriate.

**Approvals:** Meets ASTM D 6509. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ APP BASE (typical)

Thickness: 2.4 mm (94 mils)

Weight: 80 lbs/roll (36.2 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 49' 1" (1m x 15m). Each roll is approximately 160 sq. ft.

### Physical Properties (ASTM D 5147):

### Test Results

Tensile Strength (lbf/in), 0°F, (MD/XMD)	100/90
Tensile Strength, 73°F, (MD/XMD)	87/72
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/6
Tear Strength, (MD/XMD), 73°F, minimum	95/80
Low Temperature Flexibility, (°F), maximum	32°F (0°C)
Dimensional Stability, % , maximum	< 0.5%
High Temperature Stability, (°F)	230°F (110°C)
Water Absorption, %, maximum	< 0.5%
Moisture Content, %, maximum	< 0.5%

All values given are approximate and are subject to change without notice. There is no implied or express warranty given through these values or statements, nor are there any assertions that the product purchased has been individually tested to conform to these standards. Testing is performed on a random basis by "in-house" and independent "third party" evaluation for the purpose of classification and or approval. Acceptance, purchase and selection of these products are the sole responsibility of the buyer or buyer's representative.

***U.S. PLY, INC.***

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April 2007

# SAFEWELD™ X4FR APP

## Technical Data Sheet

**Product Name:** SAFEWELD™ X4FR APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ X4FR APP is a durable fire-resistant, granule surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a heavyweight polyester composite and fiberglass mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The bottom surface of the sheet is lightly sanded to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams. It is designed for use as a cap membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ X4FR APP is applied using SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams.

**Approvals:** Meets ASTM D 6223, Type II Grade G. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ X4FR APP (typical)

Thickness: 4.5 mm (177 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

### Physical Properties (ASTM D 5147):

### Test Results

### Physical Properties (ASTM D 5147):

### Test Results

Tensile Strength (lbf/in), 0°F, (MD/XMD)

202/200

Tensile Strength (lbf/in), 73°F, (MD/XMD)

157/150

Elongation (% @ Max Load), 0°F, (MD/XMD)

5/5

Elongation (% @ Max Load), 73°F, (MD/XMD)

4/4

Tear Strength (lbf), (MD/XMD), 73°F, minimum

185/180

Low Temperature Flexibility, (°F), maximum

32°F (0°C)

Dimensional Stability, %, maximum

<0.5%

High Temperature Stability, (°F)

230°F (110°C)

Water Absorption, %, maximum

<0.5%

Moisture Content, %, maximum

<0.5%

Granule Embedment, g, maximum

< 2 grams

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April 2007

# SAFEWELD™ X4M APP

## Technical Data Sheet

**Product Name:** SAFEWELD™ X4M APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ X4M APP is a durable granule surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a heavyweight polyester composite and fiberglass mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The bottom surface of the sheet is lightly sanded to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams. It is designed for use as a cap membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ X4M APP is applied using SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams.

**Approvals:** Meets ASTM D 6223, Type II Grade G. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ X4M APP (typical)

Thickness: 4.5 mm (177 mils)

Weight: 105 lbs/roll (48 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

### Physical Properties (ASTM D 5147):

Tensile Strength (lbf/in), 0°F, (MD/XMD)

Tensile Strength (lbf/in), 73°F, (MD/XMD)

Elongation (% @ Max Load), 0°F, (MD/XMD)

Elongation (% @ Max Load), 73°F, (MD/XMD)

Tear Strength (lbf), (MD/XMD), 73°F, minimum

Low Temperature Flexibility, (°F), maximum

Dimensional Stability, %, maximum

High Temperature Stability, (°F)

Water Absorption, %, maximum

Moisture Content, %, maximum

Granule Embedment, g, maximum

### Test Results

202/200

157/150

5/5

4/4

185/180

32°F (0°C)

<0.5%

230°F (110°C)

<0.5%

<0.5%

< 2 grams

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April 2007

# SAFEWELD™ X4S APP

## Technical Data Sheet

**Product Name:** SAFEWELD™ X4S APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** SAFEWELD™ X4S APP is a durable smooth surfaced, premium APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a heavyweight polyester composite and fiberglass mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The top and the bottom surfaces of the sheet are lightly talced to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams. It is designed for use as a base, interply or cap membrane in cold applied APP modified bitumen roof systems.

**Application Method:** SAFEWELD™ X4S APP is applied using SAFEWELD™ APP Modified Adhesive with hot-air heat welded seams.

**Approvals:** Meets ASTM D 6223, Type II Grade S. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** SAFEWELD™ X4S APP (typical)

Thickness: 4 mm (160 mils)

Weight: 90 lbs/roll (40.8 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

### Physical Properties (ASTM D 5147):

Tensile Strength (lbf/in), 0°F, (MD/XMD)

Tensile Strength (lbf/in), 73°F, (MD/XMD)

Elongation (% @ Max Load), 0°F, (MD/XMD)

Elongation (% @ Max Load), 73°F, (MD/XMD)

Tear Strength (lbf), (MD/XMD), 73°F, minimum

Low Temperature Flexibility, (°F), maximum

Dimensional Stability, %, maximum

High Temperature Stability, (°F)

Water Absorption, %, maximum

Moisture Content, %, maximum

### Test Results

202/200

157/150

5/5

4/4

185/180

32°F (0°C)

<0.5%

230°F (110°C)

<0.5%

<0.5%

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April 2007

# USP™ SBS 160M

## Technical Data Sheet

**Product Name:** USP™ SBS 160M

**Classification:** SBS Modified Bitumen Roof Membrane

**Product Description:** USP™ SBS 160M is a tough mineral surfaced, SBS (Styrene-Butadiene-Styrene) mop or cold applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with high quality, asphaltic bitumen and SBS elastomers for a durable, flexible and easily maintainable membrane. It is designed for use as a cap membrane in modified bitumen and hybrid built-up roof systems.

**Application Method:** USP™ SBS 160M is applied using compatible hot asphalt or SBS cold adhesive.

**Warranty:** USP™ SBS 160M is eligible for a Ten (10) year Material Only Warranty. See USP 160 Application Spec Book for details.

**Approvals:** Meets ASTM D 6164 Type I, Grade G. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ SBS 160M (typical)

Thickness: 4 mm (157 mils)

Weight: 98 lbs/roll (44.5 kg/m<sup>2</sup>)

Roll Dimensions: 39 3/8" x 32' 9" (1m x 10m). Each roll is approximately 107.6 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6164 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	110/92	70 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	100/73	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	30/26	20%
Elongation (% @ Max Load), 73°F, (MD/XMD)	55/57	35%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	57/68	38%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	112/88	55 lbf
Low Temperature Flexibility, (°F), maximum	0°F (-18°C)	0°F
Dimensional Stability, %, maximum	< 0.2%	1%
High Temperature Stability, (°F)	215°F (101°C)	215°F
Granule Embedment, g/m <sup>2</sup> , avg loss	<1.2 g	< 2 g

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April 2007

# USP™ 160SCA APP

## Technical Data Sheet

**Product Name:** USP™ 160SCA APP

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** USP™ 160SCA APP is a tough smooth surfaced, APP (Atactic Polypropylene) cold adhesive applied/hot-air weld membrane. Manufactured with a polyester mat that is saturated and coated with premium quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. The top and the bottom surfaces of the sheet are lightly talced to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive or adhered using torch welding techniques. It is designed for use as a base, interply or cap membrane in cold applied or torch applied APP modified bitumen roof systems.

**Application Method:** USP™ 160SCA APP is applied using SAFEWELD™ APP Modified Adhesive or propane torch welding techniques.

**Approvals:** Meets ASTM D 6222 Type I, Grade S. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ 160SCA APP (typical)

Thickness: 3.5 mm (140 mils)

Weight: 80 lbs/roll (41 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/100	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	100/75	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/54	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/45	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	51/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	122/116	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%

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April 2007

# USP APP 160M

## Technical Data Sheet

**Product Name:** USP™ APP 160M

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** USP™ APP 160M is a tough mineral surfaced, APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with high quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. It is designed for use as a cap membrane in modified bitumen and hybrid built-up roof systems.

**Application Method:** USP™ APP 160M is applied using propane torch welding techniques.

**Warranty:** USP™ APP 160M is eligible for a Ten (10) year Material Only Warranty. See USP 160 Application Spec Book for details.

**Approvals:** Meets ASTM D 6222 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ APP 160M (typical)

Thickness: 4.0 mm (157 mils)

Weight: 102 lbs/roll (46 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	135/115	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	114/85	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/56	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	47/47	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	52/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	134/122	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	3.2%
Moisture Content, %, maximum	pass	1%
Granule Embedment, g, maximum	<2.0 g	<2.0 g

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April 2007

# USP APP 160S PLUS

## Technical Data Sheet

**Product Name:** USP™ APP 160S PLUS

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** USP™ APP 160S is a tough smooth surfaced, APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with high quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. It is designed for use as a base, interplay or cap membrane in modified bitumen roof systems.

**Application Method:** USP™ APP 160S is applied using propane torch welding techniques.

**Warranty:** USP™ APP 160S is eligible for a Ten (10) year Material Only Warranty when coated. See USP 160 Application Spec Book for details.

**Approvals:** Meets ASTM D 6222 Type I, Grade S.

**Product Data:** USP™ APP 160S PLUS (typical)

Thickness: 4.0 mm (157 mils)

Weight: 100 lbs/roll (45.4 kg/m<sup>2</sup>)

Roll Dimensions: 39'-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

Physical Properties (ASTM D 5147):	Test Results	ASTM D 6222 Minimum
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/100	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	100/75	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/54	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/45	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	51/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	122/116	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%

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April 2007

# USP APP 160S

## Technical Data Sheet

**Product Name:** USP™ APP 160S

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** USP™ APP 160S is a tough smooth surfaced, APP (Atactic Polypropylene) torch applied membrane. Manufactured with a non-woven polyester mat that is saturated and coated with high quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible and easily maintainable membrane. It is designed for use as a base, interplay or cap membrane in modified bitumen roof systems.

**Application Method:** USP™ APP 160S is applied using propane torch welding techniques.

**Warranty:** USP™ APP 160S is eligible for a Ten (10) year Material Only Warranty when coated. See USP 160 Application Spec Book for details.

**Approvals:** Meets ASTM D 6222 Type I, Grade S. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ APP 160S (typical)

Thickness: 3.5 mm (140 mils)

Weight: 84 lbs/roll (38 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 32' 9" (1m x 10m). Each roll is approximately 108 sq. ft.

<b>Physical Properties (ASTM D 5147):</b>	<b>Test Results</b>	<b>ASTM D 6222 Minimum</b>
Tensile Strength (lbf/in), 0°F, (MD/XMD)	120/100	60 lbf/in
Tensile Strength (lbf/in), 73°F, (MD/XMD)	100/75	50 lbf/in
Elongation (% @ Max Load), 0°F, (MD/XMD)	52/54	10%
Elongation (% @ Max Load), 73°F, (MD/XMD)	45/45	23%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	51/53	3%
Tear Strength (lbf), (MD/XMD), 73°F, minimum	122/116	70 lbf
Low Temperature Flexibility, (°F), maximum	32°F (0°C)	32°F (0°C)
Dimensional Stability, %, maximum	<0.5%	1%
High Temperature Stability, (°F)	230°F (110°C)	230°F (110°C)
Water Absorption, %, maximum	pass	< 3.2%
Moisture Content, %, maximum	pass	< 1%

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April 2007

# USP™ APP BASE

## Technical Data Sheet

**Product Name:** USP™ APP BASE

**Classification:** APP Modified Bitumen Roof Membrane

**Product Description:** USP™ APP BASE is a tough smooth surfaced, APP (Atactic Polypropylene) torch applied membrane. Manufactured with a strong fiberglass mat that is saturated and coated with high quality, non-blown asphaltic bitumen and APP resins for a durable, heat resistant, flexible modified base sheet. The top and the bottom surfaces of the sheet are lightly talced to enable the membrane to be applied with SAFEWELD™ APP Modified Adhesive or torch applied where appropriate. It is designed for use as a base or interply membrane in cold applied APP modified bitumen roof systems or as a base or interply membrane in torch applied APP modified bitumen roof systems.

**Application Method:** USP™ APP BASE is applied using SAFEWELD™ APP Modified Adhesive or by using propane torch welding techniques where appropriate.

**Approvals:** Meets ASTM D 6509. Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ APP BASE (typical)

Thickness: 2.4 mm (94 mils)

Weight: 80 lbs/roll (36.2 kg/m<sup>2</sup>)

Roll Dimensions: 39-3/8" x 49' 1" (1m x 15m). Each roll is approximately 160 sq. ft.

### Physical Properties (ASTM D 5147):

### Test Results

Tensile Strength (lbf/in), 0°F, (MD/XMD)	100/90
Tensile Strength, 73°F, (MD/XMD)	87/72
Elongation (% @ Max Load), 0°F, (MD/XMD)	4%
Elongation (% @ Max Load), 73°F, (MD/XMD)	3%
Elongation (% @ 5%, Max Load), 73°F, (MD/XMD)	5/6
Tear Strength, (MD/XMD), 73°F, minimum	95/80
Low Temperature Flexibility, (°F), maximum	32°F (0°C)
Dimensional Stability, % , maximum	< 0.5%
High Temperature Stability, (°F)	230°F (110°C)
Water Absorption, %, maximum	< 0.5%
Moisture Content, %, maximum	< 0.5%

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***U.S. PLY, INC.***

A DANNY ADAIR COMPANY

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April 2007

# USP™ BASE SHEET

## USP™ BASE (M)

### Technical Data Sheet

**Product Name:** USP™ BASE SHEET; USP™ BASE (M)

**Classification:** Fiberglass BUR Roof Membrane; UL Type G2

**Product Description:** USP™ Base Sheet/USP™ Base (M) is manufactured with a heavyweight, select fiberglass mat designed and constructed to be strong, while remaining wrinkle resistant. The strong glass mat is saturated with a high quality, non-filled asphaltic bitumen for a strong, durable yet uniformly consistent in roll out for ease of application. Designed for use as a base ply in hot mop, cold applied and torch applied roofing applications and specifications requiring ASTM D-4601 Type I/II base sheet.

**Application Method:** USP™ Base Sheet/USP™ Base (M) is applied using mechanical fasteners or hot asphalt in hot mop techniques.

**Fastening Pattern:** Fastening patterns vary according to desired uplift resistance. Always contact the U.S. Ply, Inc. Technical Services department to verify fastening pattern meets desired uplift resistance. Note: The fastening patterns and lay lines are different between USP™ Base Sheet and USP™ Base (M) because of the difference in product width. To avoid confusion, these products should not be mixed.

**Approvals:** Meets the requirements of ASTM D 4601 Type I/II. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ Base Sheet (typical)  
UL Designation: UL Type G2  
Roll Dimensions: 108' x 36" (32.9m x 1m)  
Area of roll ft<sup>2</sup>: 3 squares (324 ft<sup>2</sup>).  
Weight: 80 lbs/roll (36.2 kg/m<sup>2</sup>)  
Rolls per pallet: 20 per pallet  
Lap Lines: 2", 4", 17"

**Product Data:** USP™ Base (M) (typical)  
UL Designation: UL Type G2  
Roll Dimensions: 97'-6" x 39-3/8" ((29.7m x 1m)  
Area of roll ft<sup>2</sup>: 3 squares (319.8 ft<sup>2</sup>)  
Weight: 71 lbs/roll (32.3 kg/m<sup>2</sup>)  
Rolls per pallet: 25 per pallet  
Lap lines: 2"; 9-5/16"; 12-7/16; 18-11/16"

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May 2007

# USP™ NVB

## USP™ NVB (M)

### (NAILABLE VENTING BASE)

#### Technical Data Sheet

**Product Name:** USP™ NVB (Nailable Venting Base); USP™ NVB (M)

**Classification:** Fiberglass Venting Base Sheet; UL Type G2

**Product Description:** USP™ NVB (Nailable Venting Base)/USP™ NVB (M) is manufactured with a heavyweight, select fiberglass mat designed and constructed to be strong and wrinkle resistant. The glass mat is saturated with a high quality, non-filled asphaltic bitumen and coated on the underside with a ceramic granule to allow for lateral venting. USP™ NVB/USP™ NVB (M) is designed for use as a base sheet for hot mopped, cold applied and torch applied roofing applications where additional venting is desired in specifications requiring an ASTM D-4897 Type II fiberglass venting base sheet.

**Application Method:** USP™ NVB (Nailable Venting Base) is applied with mechanical fasteners.

**Fastening Pattern:** Fastening patterns vary according to desired uplift resistance. Always contact the U.S. Ply, Inc. Technical Services department to verify fastening pattern meets desired uplift resistance. Note: The fastening patterns and lay lines are different between USP™ Base Sheet and USP™ Base (M) because of the difference in product width. To avoid confusion, these products should not be mixed.

**Approvals:** Meets the requirements of ASTM D 4897 Type II. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ NVB (typical)  
UL Designation: UL Type G2  
Roll Dimensions: 36' x 36" (10.9m x 0.91m)  
Area of roll ft<sup>2</sup>: 1 square (108 ft<sup>2</sup>).  
Weight: 72 lbs/roll (32.7 kg/m<sup>2</sup>)  
Rolls per pallet: 28 per pallet  
Lay Lines: 2"

**Product Data:** USP™ NVB (M) (typical)  
UL Designation: UL Type G2  
Roll Dimensions: 32'-11" x 39-3/8" (10m x 1m)  
Area of roll ft<sup>2</sup>: 1 square (107.9 ft<sup>2</sup>)  
Weight: 86 lbs/roll (39.0 kg/m<sup>2</sup>)  
Rolls per pallet: 20 per pallet  
Lay Lines: 2"; 4"

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May 2007

# USP™ TYPE IV GLASS PLY SHEET

## USP™ TYPE IV (M) GLASS PLY SHEET

### Technical Data Sheet

**Product Name:** USP™ TYPE IV GLASS PLY SHEET; USP™ TYPE IV (M) GLASS PLY SHEET

**Classification:** Fiberglass BUR Roof Membrane; UL Type G1

**Product Description:** USP™ TYPE IV/USP™ TYPE IV (M) Glass Ply Sheet is manufactured with a tough fiberglass mat containing heat-cured resinous binders. The high strength glass mat is saturated with a high quality, non-filled asphaltic bitumen for a strong, durable yet uniformly porous sheet for ease of application. Designed for use in hot mop roofing applications as a basic ply sheet in specifications requiring ASTM D-2178 Type IV felt.

**Application Method:** USP™ TYPE IV/USP™ TYPE IV (M) Glass Ply Sheet is applied using hot asphalt in hot mop techniques.

**Alignment:** Lay line distances are different between USP™ Type IV Glass Ply Sheet (English dimension) and USP™ Type IV (M) Glass Ply Sheet (Metric dimension) because of the width difference. Although the alignment principles are the same, to avoid confusion, these products should not be mixed.

**Approvals:** Meets the requirements of ASTM D 2178 Type IV. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ TYPE IV Glass Ply Sheet

UL Designation: UL Type G1

Roll Dimensions: 180' x 36" (54.8m x 0.91m)

Area of roll ft<sup>2</sup>: 5 squares (540 ft<sup>2</sup>).

Weight: 45 lbs/roll (20.4 kg/m<sup>2</sup>)

Rolls per pallet: 20 per pallet

Lay Lines: 2"; 8-1/2"; 11-1/4"; 17"

**Product Data:** USP™ TYPE IV (M) Glass Ply Sheet

UL Designation: UL Type G1

Roll Dimensions: 161'-9" x 39-3/8" (49.3m x 1m)

Area of roll ft<sup>2</sup>: 5 squares (530.54 ft<sup>2</sup>)

Weight: 31.8 lbs/roll (14.4 kg/m<sup>2</sup>)

Rolls per pallet: 25 per pallet

Lay Lines: 2"; 9-5/16"; 12-7/16; 18-11/16"

**Typical Physical Properties:**

Tensile Strength  
(@ 77°F; 2 in/min)

MD = 44 lbf  
XMD = 44 lbf

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# USP™ WALKBOARD

## Technical Data Sheet

**Product Name:** USP™ WALKBOARD

**Classification:** Walkboard

**Product Description:** USP™ WALKBOARD is a composite adhered modified bitumen sheet consisting of a smooth underside and a granule top side. Each layer is manufactured with a heavyweight polyester mat designed and constructed to be strong, while remaining wrinkle resistant. The USP™ WALKBOARD is available in APP modified bitumen polymer or SBS polymer and asphaltic bitumen for a strong, durable sheet. Designed for use as a designated walkway for built-up and modified bitumen roofs.

**Application Method:** USP™ APP WALKBOARDS are designed to be torch applied. USP™ SBS WALKBOARDS may be mopped or adhered with SBS adhesive.

**Product Data:** USP™ WALKBOARD (typical)

Sheet Size: 36" x 36" +/- 0.7%

Area of sheet ft<sup>2</sup>: 9 sq. ft.

Weight: 18 lbs/sheet (8.1 kg/m<sup>2</sup>)

Sheets per pallet: 100 per pallet

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January 2006

# USP™ MINERAL CAP SHEET

## Technical Data Sheet

**Product Name:** USP™ MINERAL CAP SHEET

**Classification:** Fiberglass BUR Cap Membrane; UL Type G3

**Product Description:** USP™ Mineral Cap Sheet is manufactured with a heavyweight, select fiberglass mat designed and constructed to be strong and protect against UV, weathering and physical damage. The glass mat is saturated with a high quality, non-filled asphaltic bitumen and coated with a ceramic granule surface for a strong, durable cap sheet. Designed for use as a mineral cap sheet in hot mop applied roofing applications and specifications requiring ASTM D-3909 cap sheet.

**Application Method:** USP™ Mineral Cap Sheet is applied using hot asphalt in hot mop techniques.

**Approvals:** Meets the requirements of ASTM D 3909. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ Mineral Cap Sheet (typical)

UL Designation: UL Type G3

Roll Width: 36" +/- 0.7%

Area of roll ft<sup>2</sup>: 1 squares (108 ft<sup>2</sup>).

Weight: 72 lbs/roll (32.6 kg/m<sup>2</sup>)

Rolls per pallet: 28 per pallet (TX) / 30 per pallet West Coast

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April 2007

# USP™ TYPE VI PREMIUM GLASS PLY SHEET USP™ TYPE VI (M) PREMIUM GLASS PLY SHEET

## Technical Data Sheet

**Product Name:** USP™ TYPE VI/ USP™ TYPE VI (M) PREMIUM GLASS PLY SHEET

**Classification:** Fiberglass BUR Roof Membrane; UL Type G1

**Product Description:** USP™ TYPE VI/USP™ Type VI (M) Premium Glass Ply Sheet is manufactured with a heavyweight, premium fiberglass mat containing heat-cured resinous binders. The high strength glass mat is saturated with a high quality, non-filled asphaltic bitumen for a strong, durable yet uniformly porous sheet for ease of application. Designed for use in hot mop roofing applications as a premium ply sheet in specifications requiring ASTM D-2178 Type VI felt.

**Application Method:** USP™ TYPE VI/USP™TYPE VI (M) Premium Glass Ply Sheet is applied using hot asphalt in hot mop techniques.

**Alignment:** Lay line distances are different between USP™ Type VI Premium Glass Ply Sheet (English dimension) and USP™ Type VI (M) Premium Glass Ply Sheet (Metric dimension) because of the width difference. Although the alignment principles are the same, to avoid confusion, these products should not be mixed.

**Approvals:** Meets the requirements of ASTM D 2178 Type VI. U.S. Ply products are listed or approved with Underwriter's Laboratories (UL) and Factory Mutual (FM). Contact U.S. Ply, Inc. for specific/applicable codes.

**Product Data:** USP™ TYPE VI Premium  
UL Designation: UL Type G1  
Roll Dimensions: 180' x 36" (54.8m x 0.91m)  
Area of roll ft<sup>2</sup>: 5 squares (540 ft<sup>2</sup>).  
Weight: 50 lbs/roll (22.7 kg/m<sup>2</sup>)  
Rolls per pallet: 20 per pallet  
Lay Lines: 2", 8-1/2"; 11-1/4"; 17"

**Product Data:** USP™ TYPE VI (M) Premium  
UL Designation: UL Type G1  
Roll Dimensions: 161'-9" x 39-3/8" (49.3m x 1m)  
Area of roll ft<sup>2</sup>: 5 squares (530.54 ft<sup>2</sup>)  
Weight: 39.5 lbs/roll (17.9 kg/m<sup>2</sup>)  
Rolls per pallet: 20 per pallet  
Lay Lines: 2"; 9-5/16"; 12-7/16; 18-11/16"

**Typical Physical Properties:**

Tensile Strength  
(@ 77°F; 2 in/min)

MD = 73 lbf  
XMD = 68 lbf

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May 2007