

Appendix I

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Appendix I.1

Résumés of Installation Personnel



GILBERTO BELLO
PROJECT SUPERINTENDENT

Gilberto has been active in the geosynthetics installation industry since 1992. He has 22 years experience as a Project Superintendent. He is responsible for day to day site management, quality, safety, production and personnel training. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience satisfying all the criteria required to be rated as a Superintendent, Master Welder, QC Technician and Equipment Operator. Gilberto has successfully supervised 138 million square feet of geosynthetics throughout his outstanding career. Gilberto has completed numerous complex liner installation projects across the United States and internationally, including several Hazardous Waste Disposal Facilities.

Gilberto is up to date on the following trainings such as; MSHA (Part 48), OSHA (30), Access Rope and holds Safety Certifications in (CPR, First Aid and Forklift Driver).

Components Installed

- HDPE (Textured & Smooth)
- LLDPE (Textured & Smooth)
- Hypalon
- XR 5
- Polypropylene
- Geotextiles
- Geocomposites
- PVC
- GCL
- Geo-Net
- HDPE Sumps
- Pipe Boots
- Batten Systems

Applications

- Landfill Cells (including Haz)
- Landfill Closures
- Leachate Ponds
- Waste Water Lagoons
- Potable Water Reservoirs
- Evaporation Ponds
- Leach Pads
- Process Ponds
- Tank Liners
- Tailings Impoundments
- Floating Covers
- Secondary Containment
- Methane Barriers

The Superintendent is the direct contact between the Project Manager and the craftsmen performing installation tasks. His job is to implement the plans, budget and monitor the progress on a daily basis as well as assist with updates on critical path schedules. The Superintendent and Project Manager work together as a team to ensure that each project is delivered on-time, within budget and at the highest quality.



EFREN OLEA
FOREMAN / MASTER SEAMER

Efren Olea has 25 years of experience in installation and seaming of a variety of synthetic liners and components. He is qualified to serve as an assistant to the on site Superintendent. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer, QC Technician, Installer, and Equipment Operator. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, QC Technicians, Equipment Operator and Installers.

Components Installed

- HDPE (Textured & Smooth)
- LLDPE (Textured & Smooth)
- Hypalon
- XR 5
- Polypropylene
- Geotextiles
- Geocomposites
- PVC
- GCL
- Geo-Net
- HDPE Sumps
- Pipe Boots
- Batten Systems

Applications

- Landfill Cells (including Haz)
- Landfill Closures
- Leachate Ponds
- Waste Water Lagoons
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- Methane Barriers



JUAN DELGADO
QUALITY CONTROL TECHNICIAN

Juan Delgado has 21 years of experience in installation, inspection and quality control of a variety of synthetic liners and components. He is qualified to serve as an assistant to the onsite superintendent. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Geomembrane Welder and Installer. He has a Geomembrane Master Welder rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders and Installers.

Components Installed

- HDPE (Textured & Smooth)
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- Hypalon
- XR 5
- Polypropylene
- Geotextiles
- Geocomposites
- PVC
- GCL
- Geo-Net
- HDPE Sumps
- Pipe Boots
- Batten Systems

Applications

- Landfill Cells (including Haz)
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**PEDRO LOPEZ
MASTER SEAMER**

Pedro Lopez has 9 years of experience in installation and seaming of a variety of synthetic liners and components. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer, and Installer. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, and Installers.

Components Installed

- HDPE (Textured & Smooth)
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- Hypalon
- XR 5
- Polypropylene
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- Geocomposites
- PVC
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ABRAHAM ROBLES CAMPOS
MASTER SEAMER

Abraham Robles Campos has 22 years of experience in installation and seaming of a variety of synthetic liners and components. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer, Equipment Operator and Installer. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, Equipment Operator, and Installers.

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LIBRADO DOMINGUEZ
MASTER SEAMER

Librado Dominguez has 8 years of experience in installation and seaming of a variety of synthetic liners and components. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer and Installer. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, and Installers.

Components Installed

- HDPE (Textured & Smooth)
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- XR 5
- Polypropylene
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JOEL DOMINGUEZ
MASTER SEAMER

Joel Dominguez has 8 years of experience in installation and seaming of a variety of synthetic liners and components. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer and Installer. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, and Installers.

Components Installed

- HDPE (Textured & Smooth)
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- Hypalon
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ADRIAN VARONA
MASTER SEAMER

Adrian Porcayo has 5 years of experience in installation and seaming of a variety of synthetic liners and components. He is qualified to serve as an assistant to the on site Superintendent. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer, QC Technician, and Installer. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, QC Technicians, and Installers.

Components Installed

- HDPE (Textured & Smooth)
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- XR 5
- Polypropylene
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OSCAR TORRES
FOREMAN / MASTER SEAMER

Oscar Torres has 21 years of experience in installation and seaming of a variety of synthetic liners and components. He is qualified to serve as an assistant to the on site Superintendent. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer, QC Technician, Installer, and Equipment Operator. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders, QC Technicians, Operators and Installers.

Components Installed

- HDPE (Textured & Smooth)
- LLDPE (Textured & Smooth)
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- XR 5
- Polypropylene
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**JOSE LUIS TORRES
MASTER SEAMER**

Jose Luis Torres has 15 years of experience in installation and seaming of a variety of synthetic liners and components. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Master Seamer, Equipment Operator and Installer. He has a Master Seamer rating which requires a minimum of five million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders and Installer.

Components Installed

- HDPE (Textured & Smooth)
- LLDPE (Textured & Smooth)
- Hypalon
- XR 5
- Polypropylene
- Geotextiles
- Geocomposites
- PVC
- GCL
- Geo-Net
- HDPE Sumps
- Pipe Boots
- Batten Systems

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JOSE RAMIREZ
SEAMING TECHNICIAN

Jose Ramirez has 20 years of experience in installation and seaming of a variety of synthetic liners and components. He has assisted in all aspects of lining system installation and has had in-house training and hands on experience that has met all the criteria required to be rated as a Seamer and Installer. He has a Seamer rating which requires a minimum of two million square feet of hands on welding experience with all currently utilized machines and methods. He is also qualified to assist in the training of Geomembrane Welders and Installers.

Components Installed

- HDPE (Textured & Smooth)
- LLDPE (Textured & Smooth)
- Hypalon
- XR 5
- Polypropylene
- Geotextiles
- Geocomposites
- PVC
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Appendix I.2

Secondary (100-mil LLDPE SSMS) Geomembrane Site Inventory Control

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Secondary (100-mil LLDPE SSMS) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14B053034	CDN810200	23	325	7,475	X	X	X	3/10/2014
F14B054035	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054036	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054037	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054038	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054039	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054040	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054041	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054042	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054043	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054044	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054045	CDN810200	23	325	7,475		X	X	3/10/2014
F14B054046	CDN810200	23	325	7,475		X	X	3/12/2014
F14B054047	CDN810200	23	325	7,475		X	X	3/12/2014
F14B054048	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055049	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055050	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055051	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055052	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055053	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055054	CDN810200	23	325	7,475	X	X	X	3/12/2014
F14B055055	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055056	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055057	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055058	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055059	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055060	CDN810200	23	325	7,475		X	X	3/12/2014
F14B055061	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056062	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056063	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056064	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056065	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056066	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056067	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056068	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056069	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056070	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056071	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056072	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056073	CDN810200	23	325	7,475		X	X	3/12/2014
F14B056074	CDN810200	23	325	7,475	X	X	X	3/12/2014
F14B056075	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057076	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057077	CDN810200	23	325	7,475		X	X	3/12/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Secondary (100-mil LLDPE SSMS) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14B057078	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057079	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057080	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057081	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057082	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057083	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057084	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057085	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057086	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057087	CDN810200	23	325	7,475		X	X	3/12/2014
F14B057088	CDN810200	23	325	7,475		X	X	3/12/2014
F14B061001	CDN810200	23	325	7,475		X	X	3/12/2014
F14B061002	CDN810200	23	325	7,475		X	X	3/12/2014
F14B061003	CDN810200	23	325	7,475		X	X	3/12/2014
F14B061005	CDN810200	23	325	7,475		X	X	3/12/2014
F14B061006	CDN810200	23	325	7,475		X	X	3/12/2014
F14B061007	CDN810200	23	325	7,475	X	X	X	3/31/2014
F14B061008	CDN810200	23	325	7,475		X	X	3/31/2014
F14B061009	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066079	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066080	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066081	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066082	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066083	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066084	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066085	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066086	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066087	CDN810200	23	325	7,475		X	X	3/31/2014
F14B066088	CDN810200	23	325	7,475		X	X	3/13/2014
F14B066089	CDN810200	23	325	7,475		X	X	3/13/2014
F14B066090	CDN810200	23	325	7,475		X	X	3/13/2014
F14B066091	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067092	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067093	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067094	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067095	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067096	CDN810200	23	325	7,475	X	X	X	3/13/2014
F14B067097	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067098	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067099	CDN810200	23	325	7,475		X	X	3/13/2014
F14B067100	CDN810200	23	325	7,475		X	X	3/15/2014
F14B067101	CDH812030	23	325	7,475		X	X	3/15/2014
F14B067102	CDH812030	23	325	7,475		X	X	3/15/2014
F14B067103	CDH812030	23	325	7,475		X	X	3/15/2014

Cripple Creek Victor Mining Company
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Secondary (100-mil LLDPE SSMS) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14B067104	CDH812030	23	325	7,475		X	X	3/15/2014
F14B067105	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071001	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071002	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071003	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071004	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071005	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071006	CDH812030	23	325	7,475		X	X	3/15/2014
F14B071007	CDH812030	23	325	7,475		X	X	3/29/2014
F14B071008	CDH812030	23	325	7,475		X	X	3/29/2014
F14B071009	CDH812030	23	325	7,475		X	X	3/29/2014
F14B071010	CDH812030	23	325	7,475		X	X	3/29/2014
F14B071011	CDH812030	23	325	7,475	X	X	X	3/29/2014
F14B071012	CDH812030	23	325	7,475		X	X	3/29/2014
F14B071013	CDH812030	23	325	7,475		X	X	3/29/2014
F14B072014	CDH812030	23	325	7,475		X	X	3/29/2014
F14B072015	CDH812030	23	325	7,475		X	X	3/29/2014
F14B072016	CDH812030	23	325	7,475		X	X	3/29/2014
F14B072017	CDH812030	23	325	7,475		X	X	3/29/2014
F14B072019	CDH812030	23	325	7,475		X	X	3/29/2014
F14B072020	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072021	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072022	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072023	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072024	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072025	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072026	CDH812030	23	325	7,475		X	X	4/1/2014
F14B072027	CDH812030	23	325	7,475		X	X	4/1/2014
F14B073028	CDH812030	23	325	7,475		X	X	4/1/2014
F14B073029	CDH812030	23	325	7,475		X	X	4/1/2014
F14B073030	CDH812030	23	325	7,475		X	X	4/1/2014
F14B073031	CDH812030	23	325	7,475		X	X	4/1/2014
F14B073032	CDH812030	23	325	7,475	X	X	X	3/15/2014
F14B073033	CDH812030	23	325	7,475		X	X	3/15/2014
F14B073034	CDH812030	23	325	7,475		X	X	3/15/2014
F14B073035	CDH812030	23	325	7,475		X	X	3/15/2014
F14B073036	CDH812030	23	325	7,475		X	X	3/15/2014
F14B073037	CDH812030	23	325	7,475		X	X	3/15/2014
F14B073038	CDH812030	23	325	7,475		X	X	3/15/2014
F14B073039	CDH810210	23	325	7,475		X	X	3/15/2014
F14B073040	CDH810210	23	325	7,475		X	X	3/15/2014
F14B074041	CDH810210	23	325	7,475		X	X	3/15/2014
F14B074042	CDH810210	23	325	7,475		X	X	3/15/2014
F14B074043	CDH810210	23	325	7,475		X	X	3/15/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Secondary (100-mil LLDPE SSMS) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14B074044	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074045	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074046	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074047	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074048	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074049	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074050	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074051	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074052	CDH810210	23	325	7,475	X	X	X	3/17/2014
F14B074053	CDH810210	23	325	7,475		X	X	3/17/2014
F14B074054	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075055	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075056	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075057	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075058	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075059	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075060	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075061	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075062	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075063	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075064	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075065	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075066	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075067	CDH810210	23	325	7,475		X	X	3/17/2014
F14B075068	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076069	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076070	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076071	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076072	CDH810210	23	325	7,475	X	X	X	4/4/2014
F14B076073	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076074	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076075	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076076	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076077	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076078	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076079	CDH810210	23	325	7,475		X	X	4/4/2014
F14B076080	CDH810210	23	325	7,475		X	X	3/20/2014
F14B076081	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077082	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077083	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077084	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077085	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077086	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077087	CDH810210	23	325	7,475		X	X	3/20/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Secondary (100-mil LLDPE SSMS) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14B077088	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077089	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077090	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077091	CDH810210	23	325	7,475		X	X	3/20/2014
F14B077092	CDH810210	23	325	7,475	X	X	X	4/4/2014
F14B077093	CDH810210	23	325	7,475		X	X	4/4/2014
F14B077094	CDH810210	23	325	7,475		X	X	4/4/2014
F14B077095	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081001	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081002	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081003	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081004	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081005	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081006	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081007	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081008	CDH810210	23	325	7,475		X	X	4/4/2014
F14B081009	CDH810210	23	325	7,475		X	X	4/2/2014
F14B081010	CDH810210	23	325	7,475		X	X	4/2/2014
F14B081011	CDH810210	23	325	7,475		X	X	4/2/2014
F14B081012	CDH810210	23	325	7,475		X	X	4/2/2014
F14B081013	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082014	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082015	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082016	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082017	CDH810210	23	325	7,475	X	X	X	4/2/2014
F14B082018	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082019	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082020	CDH810210	23	325	7,475		X	X	4/2/2014
F14B082021	CDH810210	23	325	7,475		X	X	4/8/2014
F14B082022	CDH810210	23	325	7,475		X	X	4/8/2014
F14B082023	CDH810210	23	325	7,475		X	X	4/8/2014
F14B082024	CDH810210	23	325	7,475		X	X	4/8/2014
F14B082025	CDH810210	23	325	7,475		X	X	4/8/2014
F14B082026	CDH810210	23	325	7,475		X	X	4/8/2014
F14B082027	CDH810210	23	325	7,475		X	X	4/8/2014
F14B083028	CDH810210	23	325	7,475		X	X	4/8/2014
F14B083029	CDH810210	23	325	7,475		X	X	4/8/2014
F14B083030	CDH810210	23	325	7,475		X	X	4/8/2014

Total Area (feet²) 1,599,650
Total Number of Rolls 214

Appendix I.3

Primary (100-mil LLDPE Smooth) Geomembrane Site Inventory Control

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Primary (100-mil LLDPE Smooth) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14C042031	CDH811430	23	335	7,705	X	X	X	3/3/2014
F14C042032	CDH811430	23	335	7,705		X	X	3/3/2014
F14C042033	CDH811430	23	335	7,705		X	X	3/3/2014
F14C042034	CDH811430	23	335	7,705		X	X	3/3/2014
F14C042035	CDH811430	23	335	7,705		X	X	3/3/2014
F14C042036	CDH811430	23	335	7,705		X	X	3/3/2014
F14C042037	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043039	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043040	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043041	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043042	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043043	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043044	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043045	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043046	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043047	CDH811430	23	335	7,705		X	X	3/3/2014
F14C043048	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043049	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043052	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043053	CDH812050	23	335	7,705	X	X	X	3/3/2014
F14C043054	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043055	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043056	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043057	CDH812050	23	335	7,705		X	X	3/3/2014
F14C043058	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044059	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044060	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044061	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044062	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044063	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044064	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044065	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044066	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044067	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044068	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044069	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044070	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044071	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044072	CDH812050	23	335	7,705	X	X	X	3/3/2014
F14C044073	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044074	CDH812050	23	335	7,705		X	X	3/3/2014
F14C044075	CDH812050	23	335	7,705		X	X	3/3/2014
F14C045078	CDH812050	23	335	7,705		X	X	3/3/2014
F14C045079	CDH812050	23	335	7,705		X	X	3/3/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Primary (100-mil LLDPE Smooth) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14C045080	CDH812050	23	335	7,705		X	X	3/3/2014
F14C045081	CDH812050	23	335	7,705		X	X	3/3/2014
F14C045082	CDH812050	23	335	7,705		X	X	3/3/2014
F14C045083	CDH812050	23	335	7,705		X	X	3/3/2014
F14C045084	CDH812050	23	335	7,705		X	X	2/26/2014
F14C045085	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046086	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046087	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046088	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046089	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046090	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046091	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046092	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046093	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046094	CDH812050	23	335	7,705	X	X	X	2/26/2014
F14C046095	CDH812050	23	335	7,705		X	X	2/26/2014
F14C046096	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046097	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046098	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046099	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046100	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046101	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046102	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046103	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046104	CDH812050	23	335	7,705		X	X	3/4/2014
F14C046105	CDH812050	23	335	7,705		X	X	3/4/2014
F14C047106	CDH812050	23	335	7,705		X	X	3/4/2014
F14C047107	CDH812050	23	335	7,705		X	X	3/4/2014
F14C047108	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047109	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047110	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047111	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047112	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047113	CDH812050	23	335	7,705	X	X	X	2/28/2014
F14C047114	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047115	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047116	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047117	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047118	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047119	CDH812050	23	335	7,705		X	X	2/28/2014
F14C047120	CDH812050	23	335	7,705		X	X	3/3/2014
F14C047121	CDH812050	23	335	7,705		X	X	3/3/2014
F14C047122	CDH812050	23	335	7,705		X	X	3/3/2014
F14C047123	CDH812050	23	335	7,705		X	X	3/3/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Primary (100-mil LLDPE Smooth) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14C047124	CDH812050	23	335	7,705		X	X	3/3/2014
F14C047125	CDH812050	23	335	7,705		X	X	3/3/2014
F14C051001	CDH812050	23	335	7,705		X	X	3/3/2014
F14C051002	CDH812050	23	335	7,705		X	X	3/3/2014
F14C051003	CDH812050	23	335	7,705		X	X	3/3/2014
F14C051004	CDH812020	23	335	7,705		X	X	3/3/2014
F14C051005	CDH812020	23	335	7,705		X	X	3/3/2014
F14C051006	CDH812020	23	335	7,705		X	X	3/3/2014
F14C051007	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051008	CDH812020	23	335	7,705	X	X	X	2/28/2014
F14C051009	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051010	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051011	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051012	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051013	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051014	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051015	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051016	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051017	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051018	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051019	CDH812020	23	335	7,705		X	X	2/28/2014
F14C051020	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052021	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052022	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052023	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052024	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052025	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052026	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052027	CDH812020	23	335	7,705	X	X	X	2/28/2014
F14C052028	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052029	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052030	CDH812020	23	335	7,705		X	X	2/28/2014
F14C052031	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052032	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052033	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052034	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052035	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052036	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052037	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052038	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052039	CDH812020	23	335	7,705		X	X	3/3/2014
F14C052040	CDH812020	23	335	7,705		X	X	3/3/2014
F14C053041	CDH812020	23	335	7,705		X	X	3/3/2014
F14C053042	CDH812020	23	335	7,705		X	X	3/3/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Primary (100-mil LLDPE Smooth) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14C053043	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053044	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053045	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053046	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053047	CDH812020	23	335	7,705	X	X	X	2/27/2014
F14C053048	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053049	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053050	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053051	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053052	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053053	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053054	CDH812020	23	335	7,705		X	X	2/27/2014
F14C053055	CDH812020	23	335	7,705		X	X	2/28/2014
F14C053056	CDH812020	23	335	7,705		X	X	2/28/2014
F14C053057	CDH812020	23	335	7,705		X	X	2/28/2014
F14C053058	CDH812020	23	335	7,705		X	X	2/28/2014
F14C053059	CDH812020	23	335	7,705		X	X	2/28/2014
F14C053060	CDH812020	23	335	7,705		X	X	2/28/2014
F14C054061	CDH812020	23	335	7,705		X	X	2/28/2014
F14C054062	CDH812020	23	335	7,705		X	X	2/28/2014
F14C054063	CDH812020	23	335	7,705		X	X	2/28/2014
F14C054064	CDH812020	23	335	7,705		X	X	2/28/2014
F14C054065	CDH812020	23	335	7,705		X	X	2/28/2014
F14C054066	CDH812020	23	335	7,705	X	X	X	2/28/2014
F14C054067	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054068	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054069	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054070	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054071	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054072	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054073	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054074	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054075	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054076	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054077	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054078	CDH812020	23	335	7,705		X	X	2/27/2014
F14C054079	CDH812020	23	335	7,705		X	X	2/26/2014
F14C055083	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055084	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055085	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055086	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055087	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055088	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055089	CDH812030	23	335	7,705	X	X	X	2/26/2014

Cripple Creek Victor Mining Company
Squaw Gulch VLF Pregnant Solution Storage Area
Primary (100-mil LLDPE Smooth) Geomembrane
Site Inventory Control



Roll Number	Resin Lot	Width (feet)	Length (feet)	Area (feet ²)	Conformance Test	Agru QC Cert	Resin Cert	Recv'd Onsite
F14C055090	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055091	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055092	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055093	CDH812030	23	335	7,705		X	X	2/26/2014
F14C055094	CDH812030	23	335	7,705		X	X	3/4/2014
F14C055095	CDH812030	23	335	7,705		X	X	3/4/2014
F14C055096	CDH812030	23	335	7,705		X	X	3/4/2014
F14C055097	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056098	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056099	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056100	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056101	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056102	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056103	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056104	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056105	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056106	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056107	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056108	CDH812030	23	335	7,705	X	X	X	3/4/2014
F14C056109	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056110	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056111	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056112	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056113	CDH812030	23	335	7,705		X	X	3/4/2014
F14C056114	CDH812030	23	335	7,705		X	X	3/4/2014
F14C057115	CDH812030	23	335	7,705		X	X	3/4/2014
F14C057116	CDH812030	23	335	7,705		X	X	3/4/2014
F14C057117	CDH812030	23	335	7,705		X	X	3/4/2014
F14C057118	CDH812030	23	335	7,705		X	X	7/11/2014
F14C057119	CDH812030	23	335	7,705		X	X	7/11/2014
F14C057120	CDH812030	23	335	7,705		X	X	7/11/2014
F14C057121	CDH812030	23	335	7,705		X	X	7/11/2014
F14C057122	CDH812030	23	335	7,705		X	X	4/8/2014
F14C057123	CDH812030	23	335	7,705		X	X	4/8/2014

Total Area (feet²) 1,618,050
Total Number of Rolls 210

Appendix I.4

Secondary (100-mil LLDPE SSMS) Geomembrane Roll Quality Control Certificates



quality certificate

ROLL # **F14B053034**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.45 mm	96 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	29 mil	AVE:	2.62 mm	103 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.24
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	74 N/mm	425 ppi	4,118 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	717.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	326.9 N	73.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	596.0 N	134 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	791.7 N	178 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:.....**1/29/14**.....Signature.....
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054035**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.54 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.76 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	30 mil	AVE:	2.63 mm	104 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.24
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	75 N/mm	426 ppi	4,118 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	717.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	326.9 N	73.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	596.0 N	134 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	791.7 N	178 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:.....**1/30/14**.....Signature.....
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054036**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.47 mm	97 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.77 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	25 mil	AVE:	2.67 mm	105 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.24
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	76 N/mm	433 ppi	4,118 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	717.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	326.9 N	73.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	596.0 N	134 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	791.7 N	178 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:.....**1/30/14**.....Signature.....
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054037**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.71 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	35 mil	AVE:	2.60 mm	102 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	74 N/mm	422 ppi	4,118 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	717.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	326.9 N	73.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	596.0 N	134 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	791.7 N	178 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:.....**1/30/14**.....Signature.....
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054038**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.52 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.79 mm	110 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	36 mil AVE:	2.67 mm	105 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	76 N/mm	433 ppi	4,118 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	717.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	326.9 N	73.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	596.0 N	134 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	791.7 N	178 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date: **1/30/14**Signature: 
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054039**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	24 mil	AVE:	2.63 mm	104 mil		

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity	Density	g/cc	.936
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.22
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	69 N/mm	392 ppi	3,785 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%		687.0	
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N		76.500 lbs	

Puncture Resistance	Load	618.3 N		139 lbs	
FTMS 101 Method 2065 (Modified)					

Puncture Resistance	Load	809.5 N		182 lbs	
ASTM D4833 (Modified)					

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **1/30/14**Signature.....
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054040**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE:	2.62 mm	103 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.22
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	390 ppi	3,785 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	687.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date: **1/30/14**Signature: 
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054041**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.73 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.63 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.40
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	392 ppi	3,785 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	687.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **1/30/14**Signature.....
Quality Control Department60LLSSMS.FRM
REV 02
12/23/05



quality certificate

ROLL # **F14B054042**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.47 mm	97 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.67 mm	105 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	35 mil	AVE:	2.58 mm	102 mil	OIT(Standard) ASTM D3895 minutes 202	
						TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.40
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	384 ppi	3,785 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	687.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **1/30/14**Signature.....
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ROLL # **F14B054043**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.77 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	25 mil	AVE:	2.66 mm	105 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.40
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	396 ppi	3,785 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	687.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B054044**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.74 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil	AVE:	2.63 mm	104 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity	Density	g/cc	.936
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.11
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	68 N/mm	388 ppi	3,752 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%		675.5	
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs		

Puncture Resistance	Load	618.3 N	139 lbs
FTMS 101 Method 2065 (Modified)			

Puncture Resistance	Load	809.5 N	182 lbs
ASTM D4833 (Modified)			

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B054045**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.68 mm	106 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	25 mil AVE:	2.60 mm	102 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.11
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	384 ppi	3,752 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	675.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B054046**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement			METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99	mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109	mil	Width.....	7.01 m;	23.0 feet
Asperity ASTM D7466:	26 mil	AVE:	2.67 mm	105 mil	TEST RESULTS		
OIT(Standard) ASTM D3895 minutes							

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.11
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	394 ppi	3,752 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	675.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B054047**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.73 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE:	2.65 mm	104 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.35
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	391 ppi	3,752 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	675.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	618.3 N	139 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	809.5 N	182 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B054048**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.55 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.74 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil	AVE:	2.62 mm	103 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity	Density	g/cc	.936
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.35
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	68 N/mm	387 ppi	3,752 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%		675.5	
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	340.3 N	76.500 lbs		

Puncture Resistance	Load	618.3 N	139 lbs
FTMS 101 Method 2065 (Modified)			

Puncture Resistance	Load	809.5 N	182 lbs
ASTM D4833 (Modified)			

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B055049**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.83 mm	111 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.68 mm	106 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.14
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	386 ppi	3,662 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	659.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B055050**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.53 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	27 mil	AVE:	2.63 mm	104 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.14
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	66 N/mm	379 ppi	3,662 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	659.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B055051**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.54 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.71 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil	AVE: 2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.14
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	66 N/mm	378 ppi	3,662 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	659.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B055052**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE:	2.65 mm	104 mil		

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.05
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	382 ppi	3,662 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	659.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B055053**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.44 mm	96 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.68 mm	106 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	30 mil	AVE:	2.58 mm	102 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity	Density	g/cc	.935
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.05
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	65 N/mm	372 ppi	3,662 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%		659.0	
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs		

Puncture Resistance	Load	640.5 N	144 lbs
FTMS 101 Method 2065 (Modified)			

Puncture Resistance	Load	836.2 N	188 lbs
ASTM D4833 (Modified)			

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B055054**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.70 mm	106 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE: 2.60 mm	102 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	381 ppi	3,720 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	682.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B055055**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.70 mm	106 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil	AVE:	2.61 mm	103 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	382 ppi	3,720 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	682.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B055056**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.65 mm	104 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil AVE:	2.58 mm	102 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	66 N/mm	378 ppi	3,720 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	682.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B055057**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	26 mil	AVE:	2.65 mm	104 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.24
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	388 ppi	3,720 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	682.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B055058**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.70 mm	106 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil AVE:	2.60 mm	102 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.24
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	381 ppi	3,720 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	682.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	353.6 N	79.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	640.5 N	144 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B055059**

Lot #: **CDN810200**

Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)	METRIC MIN: 2.51 mm MAX: 2.66 mm AVE: 2.57 mm	ENGLISH 99 mil 105 mil 101 mil	Thickness..... 2.54 mm Length..... 99.061 m Width..... 7.01 m;	100 mil 325.0 feet 23.0 feet
Asperity ASTM D7466: 28 mil	OIT(Standard) ASTM D3895 minutes 202			
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min		.34
Carbon Black Content ASTM D4218	Range	%		2.31
Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1		
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	63 N/mm	357 ppi	3,528 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		642.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-.35
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs	
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs	
Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs	
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B055060**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)	METRIC MIN: 2.54 mm MAX: 2.76 mm AVE: 2.64 mm	ENGLISH 100 mil 109 mil 104 mil	Thickness..... 2.54 mm Length..... 99.061 m Width..... 7.01 m;	100 mil 325.0 feet 23.0 feet
Asperity ASTM D7466:	28 mil		OIT(Standard) ASTM D3895 minutes 202	TEST RESULTS
Specific Gravity ASTM D792	Density		g/cc	.934
MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g		g/10 min	.34
Carbon Black Content ASTM D4218	Range		%	2.31
Carbon Black Dispersion ASTM D5596	Category			10 IN CAT 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break		64 N/mm 367 ppi	3,528 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%	642.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%	-.35
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance		349.2 N	78.500 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load		600.5 N	135 lbs
Puncture Resistance ASTM D4833 (Modified)	Load		774.0 N	174 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures		1500 hrs	CERTIFIED

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B055061**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.74 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil AVE:	2.64 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.31
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	64 N/mm	367 ppi	3,528 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	642.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B056062**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.52 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.71 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	64 N/mm	364 ppi	3,528 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	642.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B056063**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.74 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.17
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	64 N/mm	364 ppi	3,528 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	642.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B056064**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	27 mil	AVE:	2.63 mm	104 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.30
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	387 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	669.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B056065**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.73 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	28 mil AVE:	2.61 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.30
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	384 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	669.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B056066**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.76 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil	AVE:	2.66 mm	105 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.30
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	391 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	669.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B056067**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE: 2.64 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.28
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	388 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	669.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056068**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.47 mm	97 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.69 mm	106 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.61 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.28
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	384 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	669.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	600.5 N	135 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	774.0 N	174 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056069**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.53 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.61 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.21
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	399 ppi	3,881 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	700.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056070**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.81 mm	111 mil	Width.....	7.01 m;	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.67 mm	105 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.21
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	71 N/mm	408 ppi	3,881 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	700.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056071**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.46 mm	97 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	28 mil	AVE:	2.61 mm	103 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.21
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	399 ppi	3,881 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	700.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056072**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.67 mm	105 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	25 mil	AVE:	2.58 mm	102 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.28
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	394 ppi	3,881 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	700.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056073**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.80 mm	110 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.68 mm	106 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.28
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	72 N/mm	409 ppi	3,881 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	700.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B056074**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.41 mm	95 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil AVE:	2.61 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.29
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	392 ppi	3,813 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	653.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B056075**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.74 mm	108 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	29 mil	AVE:	2.60 mm	102 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.29
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	390 ppi	3,813 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	653.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B057076**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.48 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.79 mm	110 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	26 mil	AVE:	2.66 mm	105 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.29
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	399 ppi	3,813 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	653.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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Destination **Cripple Creek, CO**

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ROLL # **F14B057077**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.81 mm	111 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil AVE:	2.67 mm	105 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.22
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	401 ppi	3,813 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	653.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **2/2/14**Signature.....
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ROLL # **F14B057078**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.45 mm	96 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE:	2.63 mm	104 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.22
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	395 ppi	3,813 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	653.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	627.2 N	141 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	827.3 N	186 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **2/2/14**Signature.....
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ROLL # **F14B057079**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.42 mm	95 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil AVE:	2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.23
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	385 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	683.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B057080**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.87 mm	113 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	30 mil	AVE:	2.67 mm	105 mil	OIT(Standard) ASTM D3895 minutes	202

TEST RESULTS

Specific Gravity	Density	g/cc	.935
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.23
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength				
ASTM D6693				
ASTM D638 (Modified)	Average Strength @ Break	69 N/mm	393 ppi	3,737 psi
(2 inches / minute)				

Elongation ASTM D6693			
ASTM D638 (Modified)			
(2 inches / minute)	Average Elongation @ Break	%	683.5
Lo = 1.3" Yield			
Lo = 2.0" Break			

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance			
ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs

Puncture Resistance	Load	631.6 N	142 lbs
FTMS 101 Method 2065 (Modified)			

Puncture Resistance	Load	831.8 N	187 lbs
ASTM D4833 (Modified)			

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
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ROLL # **F14B057081**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.77 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.65 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.23
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	390 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	683.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B057082**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.55 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m;	23.0 feet

Asperity ASTM D7466:	28 mil	AVE:	2.64 mm	104 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.22
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	388 ppi	3,737 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	683.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B057083**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.54 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	28 mil AVE:	2.69 mm	106 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity	Density	g/cc	.935
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE: 7104			

Carbon Black Content	Range	%	2.22
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	69 N/mm	396 ppi	3,737 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%	683.5		
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs		

Puncture Resistance	Load	631.6 N	142 lbs
FTMS 101 Method 2065 (Modified)			

Puncture Resistance	Load	831.8 N	187 lbs
ASTM D4833 (Modified)			

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
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ROLL # **F14B057084**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.73 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	30 mil AVE:	2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.20
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	400 ppi	3,880 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	715.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B057085**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.54 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.73 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE: 2.61 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.20
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	399 ppi	3,880 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	715.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B057086**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	30 mil	AVE:	2.68 mm	106 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.20
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	72 N/mm	409 ppi	3,880 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	715.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B057087**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.54 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE: 2.65 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.11
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	71 N/mm	405 ppi	3,880 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	715.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B057088**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.55 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.73 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil	AVE:	2.63 mm	104 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity ASTM D792	Density	g/cc	.935
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.11
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	402 ppi	3,880 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	715.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	346.9 N	78.000 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	631.6 N	142 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	831.8 N	187 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B061001**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.50 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.80 mm	110 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	26 mil AVE:	2.67 mm	105 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.26
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	386 ppi	3,668 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	668.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B061002**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.52 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.67 mm	105 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.26
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	386 ppi	3,668 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	668.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **2/3/14**Signature.....
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ROLL # **F14B061003**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.45 mm	96 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.74 mm	108 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	31 mil	AVE:	2.61 mm	103 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.26
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	66 N/mm	377 ppi	3,668 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	668.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B061005**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.79 mm	110 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	28 mil	AVE:	2.66 mm	105 mil		

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity	Density	g/cc	.934
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.06
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	67 N/mm	384 ppi	3,668 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%		668.5	
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N		78.500 lbs	

Puncture Resistance	Load	658.3 N		148 lbs	
FTMS 101 Method 2065 (Modified)					

Puncture Resistance	Load	836.2 N		188 lbs	
ASTM D4833 (Modified)					

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B061006**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.52 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.77 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.65 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.06
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	383 ppi	3,668 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	668.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B061007**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.43 mm	96 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.77 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.33
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	67 N/mm	385 ppi	3,730 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	689.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B061008**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.54 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE: 2.67 mm	105 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.33
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	392 ppi	3,730 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	689.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B061009**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.53 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	28 mil	AVE: 2.63 mm	104 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.934
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.33
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	386 ppi	3,730 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	689.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	349.2 N	78.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	658.3 N	148 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	836.2 N	188 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B066079**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.52 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	27 mil	AVE: 2.61 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.35
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	387 ppi	3,767 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	686.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	645.0 N	145 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

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ROLL # **F14B066080**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.51 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	25 mil	AVE:	2.57 mm	101 mil	TEST RESULTS	
OIT(Standard) ASTM D3895 minutes						202

Specific Gravity	Density	g/cc	.936
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.34
COND. E			
GRADE:	7104		

Carbon Black Content	Range	%	2.35
ASTM D4218			

Carbon Black Dispersion	Category	10 IN CAT 1
ASTM D5596		

Tensile Strength					
ASTM D6693					
ASTM D638 (Modified)	Average Strength @ Break	67 N/mm	381 ppi	3,767 psi	
(2 inches / minute)					

Elongation ASTM D6693					
ASTM D638 (Modified)					
(2 inches / minute)	Average Elongation @ Break	%		686.0	
Lo = 1.3" Yield					
Lo = 2.0" Break					

Dimensional Stability	Average Dimensional change	%	-.35
ASTM D1204 (Modified)			

Tear Resistance					
ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N		77.500 lbs	

Puncture Resistance	Load	645.0 N		145 lbs	
FTMS 101 Method 2065 (Modified)					

Puncture Resistance	Load	840.7 N		189 lbs	
ASTM D4833 (Modified)					

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B066081**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.47 mm	97 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.80 mm	110 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	29 mil AVE:	2.60 mm	102 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.35
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	68 N/mm	386 ppi	3,767 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	686.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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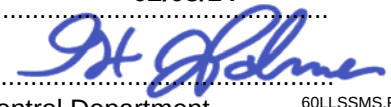
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	645.0 N	145 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B066082** Lot #: **CDN810200** Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.55 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.83 mm	111 mil	Width.....	7.01 m;	23.0 feet

Asperity ASTM D7466: **30** mil AVE: **2.67** mm **105** mil OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.30
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	396 ppi	3,767 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	686.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	645.0 N	145 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B066083**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.52 mm	99 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.76 mm	109 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	31 mil	AVE:	2.64 mm	104 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.30
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	392 ppi	3,767 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	686.0
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	645.0 N	145 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
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ROLL # **F14B066084**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.75 mm	108 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	34 mil	AVE:	2.62 mm	103 mil		

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.27
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	396 ppi	3,837 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	705.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	440.4 N	99 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
PO: **13012 CC & VMLE2 Squaw Gulch ph1**
Destination **Cripple Creek, CO**

Date:..... **02/08/14**Signature.....
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ROLL # **F14B066085**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.53 mm	100 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.81 mm	111 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	32 mil AVE:	2.68 mm	106 mil			

OIT(Standard) ASTM D3895 minutes **202**

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.27
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	71 N/mm	405 ppi	3,837 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	705.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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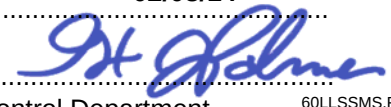
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	440.4 N	99 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B066086**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.78 mm	109 mil	Width.....	7.01 m	23.0 feet

Asperity ASTM D7466:	31 mil	AVE:	2.64 mm	104 mil	OIT(Standard) ASTM D3895 minutes	202	TEST RESULTS
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Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.27
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Carbon Black Dispersion ASTM D5596	Category	10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	70 N/mm	399 ppi	3,837 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	705.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	440.4 N	99 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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ROLL # **F14B066087**Lot #: **CDN810200**Liner Type: **SS MICROSPIKE™ LLDPE**

Measurement		METRIC	ENGLISH	Thickness.....	2.54 mm	100 mil
ASTM D5994	MIN:	2.49 mm	98 mil	Length.....	99.061 m	325.0 feet
(Modified)	MAX:	2.72 mm	107 mil	Width.....	7.01 m	23.0 feet
Asperity ASTM D7466:	28 mil AVE:	2.62 mm	103 mil			

OIT(Standard) ASTM D3895 minutes **202** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.936
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MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min	.34
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Carbon Black Content ASTM D4218	Range	%	2.08
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Carbon Black Dispersion ASTM D5596	Category		10 IN CAT 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	69 N/mm	396 ppi	3,837 psi
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Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	705.5
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Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-.35
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	344.7 N	77.500 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	440.4 N	99 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	840.7 N	189 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Customer: **Erosion Control Applications**
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