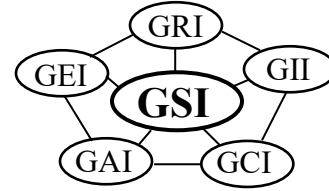


Geosynthetic Institute

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Ms. Sylvie Dalpe
CTT Group (SAGEOS)
3000 Boule Street
ST-HYACINTHE, Quebec
J2S 1H9
CANADA

August 2, 2023 REVISION 2

Re: GAI-LAP Accreditation

Dear Ms. Dalpe,

The Geosynthetic Institute (GSI) is pleased to acknowledge CTT Group (SAGEOS) on its repertoire of Geosynthetic Accreditation Institute's-Laboratory Accreditation Program (GAI-LAP) accredited tests. This letter should serve as notification that CTT Group (SAGEOS) located in St-Hyacinth, Quebec is currently accredited for the following one hundred and twenty-five (125) test methods until June 30, 2024.

1. ASTM D518 Test Method for Steady-State Thermal Transmission Properties
2. ASTM D570 Test Method for Water Absorption of Plastics
3. ASTM D638 Test Method for Tensile Properties of Plastics
4. ASTM D696 Test Method for Coefficient of Linear Thermal Expansion of Plastics
5. ASTM D746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
6. ASTM D751 Test Methods for Coated Fabrics (thickness), (mass/unit area), (tongue tear), (grab), (Hydrostatic resistance), (bonded seam strength)
7. ASTM D790 Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic and Electrical Insulating Materials
8. ASTM D792 Test Method for Specific Gravity (Relative Density) and Density of Plastics by Displacement
9. ASTM D882 Test Methods for Tensile Properties of Thin Plastic Sheeting (strip tensile)
10. ASTM D1004 Test Method for Initial Tear Resistance of Plastic Film and Sheeting
11. ASTM D1203 Test Method for Volatile Loss from Plastic Using Activated Carbon
12. ASTM D1204 Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
13. ASTM D1238 Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer
14. ASTM D1239 Test Method for Resistance of Plastic Films to Extraction by Chemicals
15. ASTM D1388 Test Method for Stiffness of Fabrics
16. ASTM D1593 Specification for Nonrigid Vinyl Chloride Plastic Sheeting (thickness)
17. ASTM D1603 Test Method for Carbon Black in Olefin Plastics
18. ASTM D1621 Test Method for Compressive Properties of Rigid Cellular Plastics
19. ASTM D1693 Test Method for Environmental Stress-Cracking of Ethylene Plastics
20. ASTM D1709 Test Method for Impact Resistance of Plastic Film by Free-Falling Dart Method
21. ASTM D1777 Test Method for Measuring Thickness of Textile Materials
22. ASTM D1790 Test Method for Brittleness Temperature of Plastic Film by Impact

23. ASTM D1922 Standard Test Method for Propagation Tear Resistance of Plastic Film and Thin Sheeting by Pendulum Method
24. ASTM D2136 Test Method for Coated Fabrics-Low Temperature Bend Test
25. ASTM D2240 Test Method for Measuring Durometer Hardness
26. ASTM D2412 Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
27. ASTM D3015 Standard Practice for Microscopic Examination of Pigment Dispersion in Plastic Compounds
28. ASTM D3083 Standard Specification for Flexible Poly Vinyl Chloride Plastic Sheeting for Pond, Canal, and Reservoir Lining (water extraction) and (bonded seam strength)
29. ASTM D3350 Standard Specification for Polyethylene Plastic Pipe and Fitting Materials
30. ASTM D3776 Test Method for Mass Per Unit Area (Weight) or Woven Fabric
31. ASTM D3786 Test Method for Hydraulic Burst Strength of Knitted Goods and Nonwoven Fabrics (Diaphragm Bursting Strength Tester Method)
32. ASTM D3895 Test Methods for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
33. ASTM D4218 Test Methods for Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
34. ASTM D4355 Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
35. ASTM D4491 Test Methods for Water Permeability of Geotextiles by Permittivity
36. ASTM D4533 Test Method for Index Trapezoidal Tearing Strength of Geotextiles
37. ASTM D4595 Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method
38. ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles
39. ASTM D4716 Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
40. ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile
41. ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles and Geomembranes
42. ASTM D4884 Test Method for Seam Strength of Sewn Geotextiles
43. ASTM D4885 Test Method for Determining Performance Tensile Strength of Geomembranes Using Wide Strip Testing
44. ASTM D5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Method)
45. ASTM D5035 Test Method for Breaking Strength and Elongation of Textile Fabrics (Strip Method)
46. ASTM D5101 Test Method for Measuring the Soil-Geotextile System Clogging Potential by the Gradient Ratio
47. ASTM D5199 Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes
48. ASTM D5261 Test Method for Measuring Mass per Unit Area of Geotextiles
49. ASTM D5321 Test Methods for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
50. ASTM D5322 Standard Practice for Immersion Procedures for Evaluating the Chemical Resistance of Geosynthetics to Liquids
51. ASTM D5323 Test Method to Determine 2% Secant Modulus for Polyethylene Geomembranes
52. ASTM D5397 Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes using Notched Constant Tension Load Test
53. ASTM D5493 Test Method for the Permittivity of Geotextiles Under Load
54. ASTM D5514 Test Method for Large Scale Hydrostatic Puncture Testing of Geosynthetics
55. ASTM D5596 Test Methods for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
56. ASTM D5617 Test Methods for Multi-Axial Tension Test for Geosynthetics
57. ASTM D5747 Standard Practice for Tests to Evaluate the Chemical Resistance of Geosynthetics to Liquids
58. ASTM D5721 Standard Practice for Air-Oven Aging of Polyolefin Geomembranes
59. ASTM D5747 Standard Practice to test the Chemical Resistance of Geosynthetics to Liquids
60. ASTM D5884 Test Method for the Tearing Strength of Internally Reinforced Geomembranes
61. ASTM D5885 Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry

62. ASTM D5887 Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter
63. ASTM D5890 Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners
64. ASTM D5891 Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners
65. ASTM D5993 Test Method for Measuring the Mass Per Unit Area of GCL
66. ASTM D5994 Test Method for Measuring the Core Thickness of Textured Geomembranes
67. ASTM D6140 Test Method to Determine Asphalt Retention of Paving Fabrics Used in Asphalt Paving for Full Width Applications
68. ASTM D6241 Test Method for the Static Puncture Strength of Geotextiles and Geotextile Related Products Using a 50-mm Probe
69. ASTM D6243 Test Method for Determine the Internal and Interface Shear Resistance of Geosynthetic Clay Liners by the Direct Shear Method
70. ASTM D6364 Test Method for Determine the Short-Term Compression Behavior of Geosynthetics
71. ASTM D6392 Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Method
72. ASTM D6454 Test Method for Determining the Short Term Compression Behavior of Turf Reinforcement Mats (TRMs)
73. ASTM D6475 Test Method for Measuring Mass Per Unit Area of Erosion Control Blanket
74. ASTM D6496 Test Method for Determining the Average Bonding Peel Strength Between Top and Bottom Layers of Needle-Punched Geosynthetic Clay Liners
75. ASTM D6524 Test Method for Measuring the Resiliency of Turf Reinforcement Mats (TRMs)
76. ASTM D6525 Test Method for Measuring Nominal Thickness of Permanent Erosion Control Products
77. ASTM D6566 Test Method for Measuring Mass per Unit Area of Turf Reinforcement Mats (TRMs)
78. ASTM D6567 Test Method for Measuring Light Penetration of Turf Reinforcement Mat (TRM)
79. ASTM D6574 Test Method for Determining In-Plane Hydraulic Transmissivity of Geosynthetic by Radial flow
80. ASTM D6575 Test Method for Determining Stiffness of Geosynthetics used as Turf Reinforcement Mats (TRMs)
81. ASTM D6637 Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method
82. ASTM D6693 Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes
83. ASTM D6766 Test Method for Evaluation of Hydraulic Properties of Geosynthetic Clay Liners Permeated with Potentially Incompatible Liquids
84. ASTM D6768 Test Method for Tensile Strength of Geosynthetic Clay Liners
85. ASTM D6818 Test Method for Ultimate Tensile Properties of Turf Reinforcement Mats
86. ASTM D6992 Test Method for Time-Temperature Superposition Using Stepped Isothermal Method
87. ASTM D7003 Test Method for Strip Tensile Properties of Reinforced Geomembranes
88. ASTM D7004 Test Method for Grab Tensile Properties of Reinforced Geomembranes
89. ASTM D7005 Test Method for Determining the Bond Strength (Ply Adhesion) of Geocomposites
90. ASTM D7056 Standard Test Method for Determining the Tensile Shear Strength of Pre-Fabricated Bituminous Geomembrane Seams
91. ASTM D7179 Test Method for Determining Geonet Breaking Force
92. ASTM D7238 Standard Test Method for Effect of Exposure of Unreinforced Polyolefin Geomembrane Using Fluorescent UV Condensation Apparatus
93. ASTM D7272 Test Method for Determining the Integrity of Seams Used in Joining Geomembranes by Pre-manufactured Taped Methods
94. ASTM D7275 Test Method for Tensile Properties of Bituminous Geomembranes (BGM)
95. ASTM D7361 Standard Test Method for Accelerated Compressive Creep of Geosynthetic Materials Based on Time-Temperature Superposition Using the Stepped Isothermal Method
96. ASTM D7466 Test Method for Measuring the Asperity Height of Textured Geomembrane
97. ASTM D7737 Standard Test Method for Individual Geogrid Junction Strength
98. ASTM D7747 Standard Test Method for Determining Integrity of Seams Produced Using Thermo-Fusion Methods for Reinforced Geomembranes by the Strip Tensile Method
99. ASTM D7748 Test Method for Flexural Rigidity of Geogrids, Geotextiles and Related Products

- 100.ASTM D7749 Standard Test Method for Determining Integrity of Seams Produced Using Thermo-Fusion Methods for Reinforced Geomembranes by the Grab Method
- 101.ASTM D8117 Test Method for Oxidative Induction Time by Differential Scanning Calorimetry
- 102.ASTM E96 Test Method for Water Vapor Transmission of Materials
- 103.ASTM E794 Test Method for Melting And Crystallization Temperatures By Thermal Analysis
- 104.ASTM E831 Test Method for Linear Thermal Expansion of materials by Thermomechanical Analysis
- 105.ASTM F1249 Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheetting Using a Modulated Infrared Sensor
- 106.ASTM F2136 Standard Test Method for Notched, Constant Ligament-Stress (NCLS) Test to Determine Slow-Crack-Growth Resistance of HDPE Resins or HDPE Corrugated Pipe
- 107.ASTM G154 Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
- 108.ASTM G155 Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
- 109.ASTM G160 Evaluating Microbial Susceptibility of Nonmetallic Materials by Laboratory Soil Burial
- 110.FTM STD. No. 101c (method 2065-82), Puncture Resistance and Elongation Test (1/8 in. radius probe)
- 111.ISO 527 Plastics – Determination of Tensile properties – Part 1 and Part 3
- 112.ISO 00811 Wettability using Hydrostatic Pressure Test
- 113.ISO 01133-1 Melt Flow index
- 114.ISO 01183-1 Density
- 115.ISO 09864 Determination of Mass Per Unit Area
- 116.ISO 10319 Wide Width Tensile Test of Geotextiles and Geogrids
- 117.ISO 11058 Determination of Water Permeability Characteristics Normal to the Plane, Without Load
- 118.ISO 12224 Determination of Resistance to Weathering of Geotextiles
- 119.ISO 12236 Determination of Static CBR Puncture Test
- 120.ISO 12956 Determination of Characteristic Opening Size
- 121.ISO 12958 Determination of Water Flow Capacity in their Plane
- 122.ISO 13433 Geotextiles and geotextiles - related products – Dynamic perforation test (cone drop test)
- 123.ISO 13438 Geotextiles and geotextiles - related products – Screening test method for determining the resistance to oxidation
- 124.ISO 14414 Geosynthetics- Screening Test Method for determining Chemical Resistance for Landfill Applications
- 125.CAN/CGSB-148.1–10 Filtration Opening Size of Geotextiles by Hydrodynamic Sieving

A certificate to this affect has been enclosed, signed and sealed. Any questions regarding your accreditation should be directed to George Koerner at (610) 522-8440. Once again congratulation and thank you for participating in the GAI-LAP.

Best Regards,



George R. Koerner, Ph.D., P.E. & CQA
Director