

MANUFACTURING QUALITY CONTROL (MQC)

*For the Manufacture of HDPE and LLDPE Geomembrane &
Weld Rod*



Please Note : *This document is generic only If the document is used as a reference by 3rd or other parties any comments herein which relate to Rowad obligations and actions strictly do not apply unless otherwise agreed to in writing on a project specific basis.. The data sheets enclosed are for reference only and should not be construed as being offered for any quotation or priced bid. Separate offers will be released with Job specific data sheets at the time of quoting.*

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(DOC MS. Dated March 2017)

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1. INTRODUCTION

Quality Statement

Rowad Geo is fully committed to the objective of continuous commitment to quality.

This commitment begins with the sourcing of base resin and masterbatch through to the manufacture of the geomembrane material and ends only when our customer has accepted the liner.

The employees of Rowad Geo, therefore, endorse and pursue a policy of Total Quality. This policy is based on the principle that quality is the fundamental responsibility of every department and is carried out by each person in that department.

Programs and procedures designed to implement this quality principle are developed by the Quality Control Department and are utilized by every employee of the Company.

Rowad Geo laboratories are accredited by the Geosynthetic Accreditation Institute Lab Accreditation Program (GAI-LAP) Rowad Geo Manufacturing and Installation processes are ISO 9001:2008 registered & Rowad were most recently granted the CE-Certificates of Factory Production Control for HDPE and LLDPE for production facilities in Dammam, Saudi Arabia by SKZ Germany

These Certificates prove the compliance of their complete range of products according to the provisions of the European Construction Products Directive (CPD) and the relevant harmonized new European norms.

Organization

Persons performing quality-related functions have sufficient authority and organizational freedom to: (1) identify quality programs; (2) initiate, recommend or provide solutions through designated channels; (3) verify implementation of solutions; (4) control further work when required.

The person responsible for defining and measuring the overall effectiveness of the Quality Program is the Quality Control Manager.

Key personnel include the CEO, General Manager – Operations, General Manager – Engineering, Manufacturing Manager, Quality Control Manager, Product Development Manager, Regional Managers, Project Managers, and the Safety Manager.

Resumes of key personnel are provided when requested or required by project specifications.

2. MANUFACTURING QUALITY ASSURANCE / CONTROL

Rowad has a Quality Assurance laboratory at its manufacturing facility, which has a fully equipped, well-staffed, dedicated & qualified employees with strict procedures to maintain the highest level of quality.

Rowad has a rigorous set of minimum standards and an effective test program to ensure compliance will be achieved at every stage in the program.

These procedure and requirements are frequently reviewed and adjusted to assure compliance with current market demands and/or predetermined project specifications.

All raw material and process parameters are fully controlled to provide finished products and their compliance with Rowad minimum characteristics & regulatory standards.

Geomembrane Products Quality Assurance / Control

Rowad Geo has implemented a strict & thorough Quality Assurance Program for its range of Geomembrane products.

The Rowad geomembrane product range can be divided into two basic primary categories:

Smooth

and

Textured products. (Normal and Enhanced)

The Rowad Quality Assurance Program is below...

1. In line Manufacturing Quality Assurance:

The quality assurance program for finished products begins during the manufacturing process. Each manufacturing line is equipped with state of the art monitoring devices that provide feedback on the physical quality of the material being produced.

Each Production line is equipped with both a thickness gauge & spark testing devices.

a. Thickness Measurement:

As the geomembrane is being produced thickness readings are taken continuously over the length and width of the roll. These data are used to establish the minimum, maximum & average values for each roll and is verified by thickness testing upon sampling of the finished products.

b. Spark Testing:

An electrical spark detector is in place on each Production line. This apparatus provides immediate notification of any discontinuities in the finished products. If a hole is detected, an alarm is triggered and the position is identified. Rolls containing holes are rejected from standard product inventory.

2. Smooth Geomembrane Materials:

Smooth geomembrane products include High Density & Linear Low Density Polyethylene materials with 2-3% carbon black. The geomembrane consists of quality virgin resins designed and manufactured specifically for the purpose of this work, as satisfactorily demonstrated by extensive prior use.

The geomembrane shall be high density polyethylene (HDPE) or linear low density polyethylene (LLDPE). The geomembrane liner will be manufactured from first quality resins containing no plasticizers, fillers, recycled polymers, or extenders. Carbon black is normally added to provide ultraviolet resistance, and other additives to provide thermal stability.

If a color other than black is specified then approved colour pigments and other ultraviolet inhibitors will be added in place of carbon black.

a. Sampling

Geomembrane rolls are sampled for QA testing according to the frequencies specified on the data sheet. An approximate 30cm by roll width sample is cut for quality assurance testing. Test specimens are taken from five positions across the width of the roll. A retained or archive sample approximately A4(30cm x 30cm) is taken one of the five positions on an alternating basis from the laboratory / retained sample is labelled and kept for 3 years for future reference.

b. Evaluation of Results

After testing the geomembrane product, all data are evaluated w.r.to customer given specification. If materials do not meet Rowad minimum requirements and /or customer specifications, the manufacturing personnel will appropriately make the adjustments. Only products meeting Rowad minimum and/or customer specification will be approved for shipment.

c. Reporting

Every roll of material has a quality assurance roll certificate. This report identifies the standards on which the Rowad approval is based along with the actual results demonstrated by the material.

3. Co-extruded Textured Geomembranes (Normal and Enhanced)

“Normal” Textured geomembrane is produced utilizing a round die co extrusion on the Blown Film Process or spike- like Asperities produced “Enhanced Texture “ from special machined rollers with our Flat die technology.

The “Normal” texture is produced in a process in which one or both of the outer layers of a three layer extrusion are blended with nitrogen gas and creating a rough, textured surface, whilst the “Enhanced Textured product” is produced by pressure and resin melt flow between specially machined rollers on the Flat die.

Rowad standard Black/ Black, white/white, white/black geomembranes are all available with textured Normal or Enhanced surfaces.

PRODUCT TECHNICAL DATA SHEET

ROWAD HDPE DOUBLE SMOOTH BLACK:

ROWAD HDPE Geomembranes are produced from prime quality, high molecular weight resins and are specially designed to apply for all containment of fluids in hydraulic structure ■ It has exceptional mechanical properties and outstanding chemical resistance, dimensional stability with high thermal aging characteristics ■ It also has an excellent resistance to UV radiation, environmental stress crack and is highly suitable for exposed applications ■

Rowad geomembrane specification shown below is meet or exceed GRI GM 13 Standards.

Tested Properties	Test Method	Frequency	HD S075	HD S100	HD S150	HD S200	HD S250	HD S300
Thickness, (min. ave) mm	ASTM D 5199	Per roll	0.75	1.00	1.50	2.00	2.50	3.00
Lowest individual reading (-10%)			0.68	0.90	1.35	1.80	2.25	2.70
Density (min ave), g/cm ³	ASTM D 792	90,000 Kgs	0.940	0.940	0.940	0.940	0.940	0.940
Tensile Properties, (min. ave)	ASTM D 6693,							
Strength at Yield, N/mm	Type IV		11	15	22	29	37	44
Strength at Break, N/mm	50mm /min	9,000 Kgs	22	30	45	58	75	85
Elongation at Yield, %	G.L. = 33 mm		12	12	13	13	13	13
Elongation at Break, %	G.L. = 50 mm		700	700	700	700	700	700
Tear Resistance, (min ave) N	ASTM D 1004	20,000 Kgs	93	125	187	249	311	374
Puncture Resistance, (min ave) N	ASTM D 4833	20,000 Kgs	260	360	520	680	840	1000
Carbon Black Content, (range) %	ASTM D1603/4218	9,000 Kgs	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	ASTM D 5596	20,000 Kgs	+Note 1					
Notched Constant Tensile Load, hrs	ASTM D 5397	Per GRIGM10	500	500	500	500	500	500
Oxidative Induction Time, mins	ASTM D 3895	90,000 Kgs	100	100	100	100	100	100
Dimensional Stability, %	ASTM D 1204	Resin batch	±1	±1	±1	±1	±1	±1
Oven Aging at 85°C HP OIT % retained after 90 days	ASTM D 5721 ASTM D 5885	Per formulation	>80	>80	>80	>80	>80	>80
UV Resistance HP OIT % retained after 1600 hrs	GM 11 ASTM D 5885	Per formulation	>50	>50	>50	>50	>50	>50
Standard Roll Dimensions								
Width(m)	RTM	Per Roll	8	8	8	8	7	7
Length(m)	RTM	Per Roll	225	170	110	80	70	50
Area (m ²)	RTM	Per Roll	1800	1360	880	640	490	350

NOTES:

1 : Carbon black Dispersion only applies to near spherical agglomerates, 10 of 10 views in Category 1 or 2.

2: Testing frequencies are rounded the nearest full roll.

3. Roll lengths & widths have a tolerance of ±1%.

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PRODUCT TECHNICAL DATA SHEET

ROWAD HDPE SINGLE TEXTURED BLACK:

ROWAD HDPE Geomembranes are produced from prime quality, high molecular weight resins and are specially designed to apply for all containment of fluids in hydraulic structure ■ It has exceptional mechanical properties and outstanding chemical resistance, dimensional stability with high thermal aging characteristics ■ It also has an excellent resistance to UV radiation, environmental stress crack and is highly suitable for exposed applications ■ Rowad geomembrane specification shown below is meet or exceed GRI GM 13 Standards.

Tested Properties	Test Method	Frequency	HST075	HST100	HST150	HST200	HST250
Thickness, (nominal) mm			0.75	1.00	1.50	2.00	2.50
Thickness, (min. ave) mm	ASTM D5994	Per Roll	0.71	0.95	1.43	1.90	2.37
Lowest individual for 8 out of 10 values			0.68	0.90	1.35	1.80	2.25
Lowest individual of 10 values			0.64	0.85	1.28	1.70	2.13
Asperity Height(min) mm			ASTM D7466	Per Roll	0.40	0.40	0.40
Density(min ave), g/cm ³	ASTM D792	90,000 Kgs	0.940	0.940	0.940	0.940	0.940
Tensile Properties, (min. ave)	ASTM D6693,	9,000 Kgs					
Strength at Yield, N/mm	Type IV						
Strength at Break, N/mm	50mm /min						
Elongation at Yield, %	G.L. = 33 mm						
Elongation at Break, %	G.L. = 50 mm						
Tear Resistance, (min ave) N	ASTM D1004	20,000 Kgs	93	125	187	249	311
Puncture Resistance, (min ave) (N)	ASTM D4833	20,000 Kgs	240	305	440	575	710
Carbon Black Content, (range) %	ASTM D1603/4218	9,000 Kgs	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	ASTM D5596	20,000 Kgs	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D5397	Per GRI GM10	500	500	500	500	500
Oxidative Induction Time, mins	ASTM D3895	90,000 Kgs	100	100	100	100	100
Dimensional Stability, %	ASTM D1204	Resin batch	±1	±1	±1	±1	±1
Oven Aging at 85°C	ASTM D 5721	Per formulation	>80	>80	>80	>80	>80
HP OIT % retained after 90 days	ASTM D 5885						
UV Resistance	GM 11	Per formulation	>50	>50	>50	>50	>50
HP OIT % retained after 1600 hrs	ASTM D5885						
Standard Roll Dimensions							
Width(m)	RTM	Per Roll	8	8	8	8	7
Length(m)	RTM	Per Roll	200	150	100	80	60
Area (m ²)	RTM	Per Roll	1600	1200	800	640	420

NOTES:

1 : Carbon black Dispersion only applies to near spherical agglomerates, 10 of 10 views in Category 1 or 2.

2: Testing frequencies are rounded the nearest full roll.

3. Roll lengths & widths have a tolerance of ±1%.

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ROWAD HDPE DOUBLE TEXTURED BLACK:

ROWAD HDPE Geomembranes are produced from prime quality, high molecular weight resins and are specially designed to apply for all containment of fluids in hydraulic structure ■ It has exceptional mechanical properties and outstanding chemical resistance, dimensional stability with high thermal aging characteristics ■ It also has an excellent resistance to UV radiation, environmental stress crack and is highly suitable for exposed applications ■ Rowad geomembrane specification shown below is meet or exceed GRI GM 13 Standards.

Tested Properties	Test Method	Frequency	HDT100	HDT150	HDT200	HDT250
Thickness, (nominal) mm			1.00	1.50	2.00	2.50
Thickness, (min. ave) mm	ASTM D 5994	Per Roll	0.95	1.43	1.90	2.37
Lowest individual for 8 out of 10 values			0.90	1.35	1.80	2.25
Lowest individual of 10 values			0.85	1.28	1.70	2.13
Asperity Height (min) mm			ASTM D7466	Per Roll	0.40	0.40
Density (min ave), g/cm ³	ASTM D 792	90,000 Kgs	0.940	0.940	0.940	0.940
Tensile Properties, (min. ave)	ASTM D 6693,					
Strength at Yield, N/mm	Type IV		15	22	29	37
Strength at Break, N/mm	50mm /min	9,000 Kgs	16	25	35	45
Elongation at Yield, %	G.L. = 33 mm		12	12	12	12
Elongation at Break, %	G.L. = 50 mm		400	400	400	400
Tear Resistance, (min ave) N	ASTM D 1004	20,000 Kgs	125	187	249	311
Puncture Resistance, (min ave) N	ASTM D 4833	20,000 Kgs	305	440	575	710
Carbon Black Content, (range) %	ASTM D1603/4218	9,000 Kgs	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	ASTM D 5596	20,000 Kgs	+Note 1	+Note1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397	Per GRI GM13	500	500	500	500
Oxidative Induction Time, mins	ASTM D 3895	90,000 kg	100	100	100	100
Dimensional Stability, %	ASTM D 1204	Resin batch	±1	±1	±1	±1
Oven Aging at 85°C	ASTM D 5721	Per				
HP OIT % retained after 90 days	ASTM D 5885	formulation	>80	>80	>80	>80
UV Resistance	GM 11	Per				
HP OIT % retained after 1600 hrs	ASTM D 5885	formulation	>50	>50	>50	>50
Standard Roll Dimensions						
Width(m)	RTM	Per Roll	8	8	8	7
Length(m)	RTM	Per Roll	125	90	70	50
Area (m ²)	RTM	Per Roll	1000	720	560	350

NOTES:

- 1 : Carbon black Dispersion only applies to near spherical agglomerates, 10 of 10 views in Category 1 or 2.
 - 2: Testing frequencies are rounded the nearest full roll.
 3. Roll lengths & widths have a tolerance of ±1%.
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PRODUCT TECHNICAL DATA SHEET

ROWAD LLDPE DOUBLE SMOOTH BLACK:

ROWAD LLDPE Geomembranes are produced from prime quality, high molecular weight resins and are specially designed to apply for all containment of fluids in hydraulic structure ■ It has exceptional mechanical properties and outstanding chemical resistance, dimensional stability with high thermal aging characteristics ■ It also has an excellent resistance to UV radiation, environmental stress crack and is highly suitable for exposed applications ■

Rowad geomembrane specification shown below is meet or exceed GRI GM 17 Standards.

Tested Properties	Test Method	Frequency	LD S075	LDS100	LDS150	LDS200	LDS250
Thickness, (min. ave) mm	ASTM D5199	Per Roll	0.75	1.00	1.50	2.00	2.50
Lowest individual reading (-10%)			0.68	0.90	1.35	1.80	2.25
Density(min ave), g/cm ³	ASTM D792	90,000 Kgs	0.939	0.939	0.939	0.939	0.939
Tensile Properties (min. ave)	ASTM D6693,	9,000 Kgs	20	27	40	53	66
Strength at Break, N/mm	50mm /min						
Elongation at Break, %	G.L. = 50 mm						
2% Modulus (max) N/mm	ASTM D5323	Per formulation	370	420	630	840	1050
Tear Resistance, (min ave) N	ASTM DT004	20,000 Kgs	70	100	150	200	250
Puncture Resistance, (min ave) N	ASTM D4833	20,000 Kgs	230	290	410	540	660
Carbon Black Content, (range) %	ASTM D1603/4218	9,000 Kgs	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	ASTM D5596	20,000 Kgs	+Note 1				
Oxidative Induction Time, mins	ASTM D3895	90,000 Kgs	100	100	100	100	100
Axi-symmetric Break Resistance Strain %	ASTM D5617	Per formulation	30	30	30	30	30
Dimensional Stability, %	ASTM D1204	Resin batch	±1	±1	±1	±1	±1
Oven Aging at 85°C HP OIT % retained after 90 days	ASTM D 5721 ASTM D5885	Per formulation	>60	>60	>60	>60	>60
UV Resistance HP OIT % retained after 1600 hrs	GM 11 ASTM D5885	Per formulation	>35	>35	>35	>35	>35
Standard Roll Dimensions							
Width(m)	RTM	Per Roll	8	8	8	8	7
Length(m)	RTM	Per Roll	225	170	110	80	70
Area (m ²)	RTM	Per Roll	1800	1360	880	640	490

NOTES:

- 1 : Carbon black Dispersion only applies to near spherical agglomerates. 10 of 10 views in Category 1 or 2.
- 2: Testing frequencies are rounded the nearest full roll.
- 3: Roll lengths & widths have a tolerance of ±1%.

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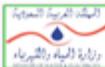
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TESTING CAPABILITIES

Rowad maintains high capacity, state of the art laboratory equipment suitable for performing specific Test procedures.

The quality assurance laboratory is accredited by the GAI LAP program and is audited annually.

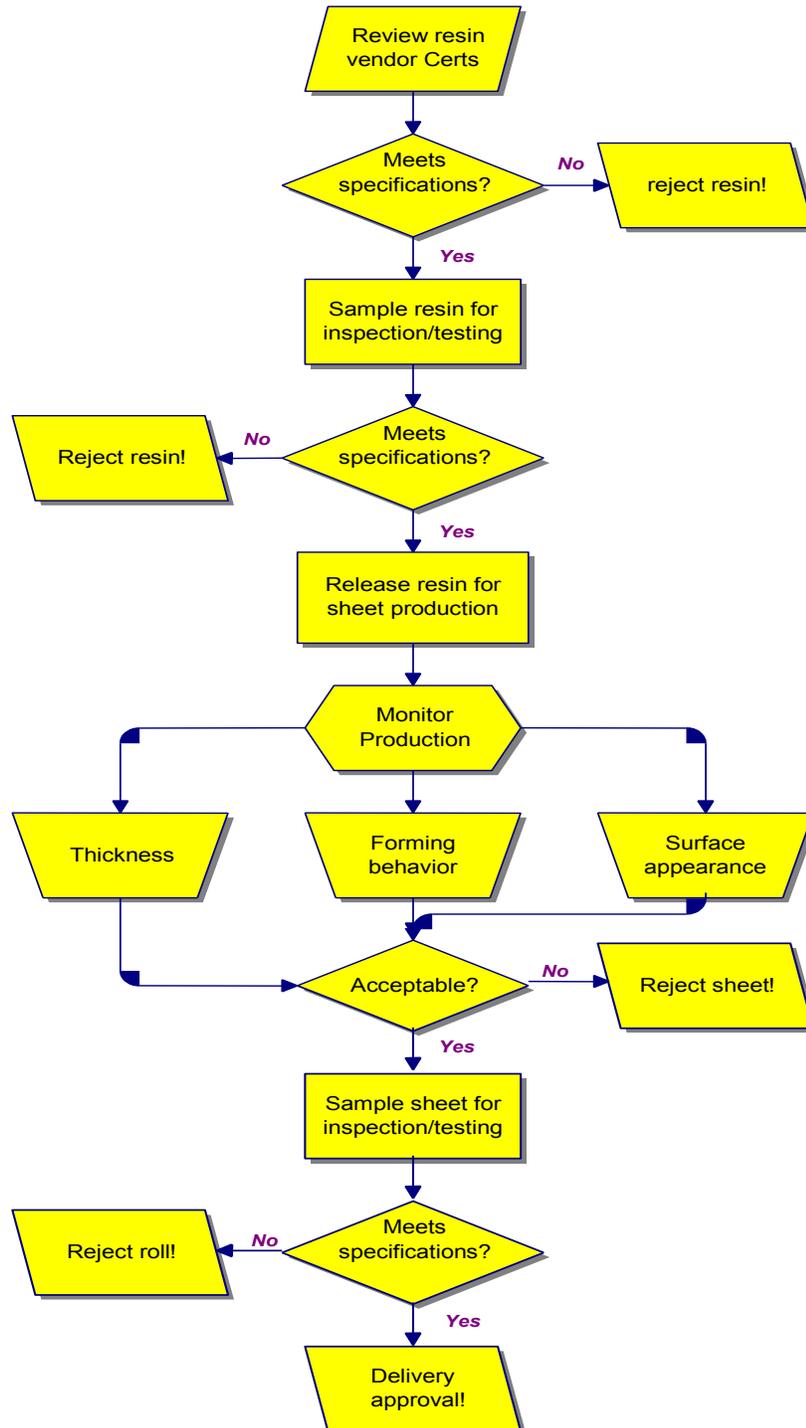
Rowad has developed a strict and thorough Quality Assurance Program, which meets or exceeds GRI GM13 specifications as a MINIMUM, it covers test properties, testing frequency for High Density Polyethylene (HDPE) smooth and textured geomembrane as well as GRI GM17 test properties, testing frequency for Linear Low Density Polyethylene(LLDPE) smooth and textured geomembrane.

The Comprehensive testing program covers raw materials and the finish goods.



Flowchart – Geomembrane Quality Control Program

Geomembrane Quality Control Program



STORAGE & HANDLING (From Production to Stock)

By using factory fitted overhead crane remove the sheet from the production winding roller.

Place the roll on the bogey / trolley with certified fork lift.

Place the relevant identification labels on the roll.

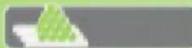
a. PACKING:

After placing the label, every roll should be wrapped with a protective printed poly film & strapped securely. Two single use lifting slings are then fitted to each roll .The rolls are then transferred to the warehouse by using specially adapted fork lift with steel lance specially designed for this purpose.

b. STORAGE:

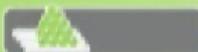
Place the pallets on the ground according to the width of the sheet. Stack the rolls in a pyramid fashion per below norms.

Smooth Geomembrane Rolls: No greater than 4 rolls in height



STORING THE ROLLS

Textured Geomembrane Rolls: No greater than 3 rolls in height



STORING THE ROLLS

Raw Material Quality Assurance

Rowad has established strict specification testing procedures for all raw materials. Test results must fall within the acceptable limits of Rowad & customer specifications.

Rowad geomembrane is produced using prime grade and virgin raw materials like natural resin, masterbatch & antioxidant, blended in appropriate ratios at the manufacturing stage.

Black master batch protects the resin against UV degradation & the additive package protects against thermal & oxidative degradation both during the manufacturing process, whilst being stored and whilst in operation outdoors.

The Natural resin is the base material that is used to make a geomembrane and it is this which determines its physical and mechanical properties.

Rowad verifies the properties of each lot of raw material prior to its utilization. When natural resin batches are received, samples are taken and subjected to the tests outlined in Appendix A.

All test results are evaluated with the Rowad specification.

The material is not accepted unless all standard test requirements are complied with.

Copies of the supplier's certificate of analysis (COA) for each lot of resin utilized in the production of the materials supplied to a specific project are supplied as standard documentation.

In addition, Rowad test results for each lot of resin are provided as part of the incoming material test report.

Appendix A:

Resin:

All resins use in Rowad must pass a candidate pre-approval process before being eligible for use. Each incoming resin batch shall be sampled with the following testing performed and compared to the manufactures specifications.

1. Density: ASTM D 792
2. Melt Index: ASTM D 1238
3. Oxidation Induction Time (OIT): ASTM D3895.

Additives:

All incoming material are tested and approved prior to use with the following testing performed and compared to the manufacture's specifications;

1. Carbon Black Content: ASTM D 1603.
2. Oxidation Induction Time for anti-oxidant. ASTM D 3895

Applicable Test Methods:

American Society for Testing and Materials (ASTM) are the main test criteria for reporting although EN ISO and DIN to name a few are also possible on request.

Material Warranty

Rowad provides the geomembrane material warranty based on the gauge (thickness) of the liner, using 100 (micron) = 1 year for example : 1.00mm = 10 years, 1.50mm-15 years etc.

Below is the Standard warranty specimen copy available for information only.

LIMITED WARRANTY

ROWAD INTERNATIONAL GEOSYNTHETICS Co LTD.

GEOMEMBRANE TYPE:

PROJECT NAME/QTY :

EFFECTIVE DATE :

BUYER'S ADDRESS :

Rowad International Geosynthetics Co Ltd hereby warrants that each Polyethylene geomembrane rolls sold to conforms at the time of sale to the specifications of Rowad, to be free from manufacturing defects, and to be able to withstand normal weathering for a period of years from the above **effective date** for normal use in approved applications with proper design.

This Warranty does not include damages or defects in the Rowad geomembrane resulting from acts of God, casualty or catastrophe including but not limited to: earthquakes, floods, piercing hail or tornadoes. This limited warranty does not include, among other things, the exposure of Rowad geomembrane to harmful chemicals, abuse by machinery, equipment, people, animals or covering materials; existing conditions, including, but not limited to, subsurface conditions beneath the geomembrane such as a settlement of the ground, cave-in, etc...; excessive pressures or stresses from any source or improper Design, improper operation and maintenance by the owner. Rowad geomembrane warranty is intended for commercial use only and is not in effect for the consumer. The parties expressly agree that the sale hereunder is for commercial or industrial use only.

Should defects or premature loss of use within the scope of the above Warranty occur, Rowad International geosynthetics Co Ltd will, at its option, replace Rowad geomembrane on a pro-rata basis at the then current price in such a manner as to charge only for that portion of the warranted life which has elapsed since purchase of material. Rowad International Geosynthetics Co Ltd will have the right to inspect and determine the cause of any alleged defect in Rowad geomembrane and to take the appropriate steps replace Rowad geomembrane if defect exists which is covered under this Warranty. This Warranty extends only to Rowad's geomembrane, and does not extend to the installation service of third parties.

Any claim for any alleged defect under this Warranty must be made in writing, by certified mail, to General Manager of ROWAD INTERNATIONAL GEOSYNTHETICS Co Ltd within Twenty (20) days of becoming aware of the alleged defect. Should the require notice not be given within that time frame, the defect and all warranties are waived by and shall not have any rights of recovery against Rowad. Rowad shall not be obligated to perform replacements under this Warranty unless and until the area to be replaced is clean, dry and unencumbered. This includes, but is not limited to, the area made available for replacement of Rowad geomembrane to be free from all water, dirt, sludge, residuals and liquids of any kind. If after inspection it is determined that there is no claim under this Warranty, shall reimburse Rowad for its costs associated with the site inspection.

In the event the exclusive remedy provided herein fails in its essential purpose, and in that event only, shall be entitled to a return of the purchase price for so much of the material as Rowad determines to have violated the Warranty provided herein. Rowad International Geosynthetics Co Ltd shall not be liable for any direct, indirect, incidental, specific or consequential damages of any kind or any loss of profits resulting from failure of Rowad geomembrane or the breach of this Warranty, whether such damage are for breach of warranty, negligence or otherwise. Rowad shall not be obligated to reimburse for any repairs, replacement, modifications or alterations made by unless Rowad specifically authorized, in writing, said repairs, replacements, modifications or alterations in advance of them having been made. Rowad's liability under this Warranty shall in no event exceed the replacement cost of the Rowad geomembrane sold for the above mentioned customer which has violated the Warranty provided herein.

Rowad International Geosynthetics Co Ltd neither assumes nor authorizes any person other than the undersigned of Rowad to assume for it any other or additional liability in connection with Rowad geomembrane made on the basis of the Warranty. The Warranty on Rowad geomembrane herein is given in lieu of all other possible material warranties, either expressed or implied, and by accepting delivery of the material; waives all other possible warranties, except those specifically given. This Warranty is for the sole benefit of and is non-transferable and non-assignable; i.e., there are no third-party beneficiaries to this Warranty. acknowledges by acceptance that the Warranty herein given is accepted in preference to any and other possible materials warranties.

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