GSE

GSE STANDARD PRODUCTS

Asian Product Data Sheet

GSE HD

GSE HD is a smooth, high quality, high density polyethylene (HDPE) geomembrane produced from specially formulated, virgin polyethylene resin. This polyethylene resin is designed specifically for flexible geomembrane applications. It contains approximately 97.5% polyethylene, 2.5% carbon black and trace amounts of antioxidants and heat stabilizers; no other additives, fillers or extenders are used. GSE HD has outstanding chemical resistance, mechanical properties, environmental stress crack resistance, dimensional stability and thermal aging characteristics. GSE HD has excellent resistance to UV radiation and is suitable for exposed conditions. *These product specifications meet or exceed GRI GM13.*

Product Specifications

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM VALUE							
Product Code			HDS 030 A00T	HDS 050 A00T	HDS 075 A00T	HDS 100 A00T	HDS 150 A00T	HDS 200 A00T	HDS 250 A00T	HDS 300 A00T
Thickness, mm (mils)	ASTM D 5199	every roll	0.27 (10.8)	0.45 (18)	0.68 (27)	0.9 (36)	1.35 (54)	1.8 (72)	2.25 (90)	2.7 (108)
Density, g/cm	ASTM D 1505	every 5th roll	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 6693, Type IV	every 5th roll								
Strength at Break, N/mm-width (lb/in)	Dumbell, 2 ipm		8 (46)	14 (80)	21 (122)	28 (162)	43 (243)	57 (324)	71 (405)	85 (486)
Strength at Yield, N/mm-width (lb/in)			5 (29)	8 (46)	11 (63)	15 (84)	23 (130)	30 (173)	38 (216)	45 (257)
Elongation at Break, %	G.L. 51 mm (2.0 in)		600	700	700	700	700	700	700	700
Elongation at Yield, %	G.L. 33 mm (1.3 in)		13	13	13	13	13	13	13	13
Tear Resistance, N (lb)	ASTM D 1004	every 5th roll	40 (9)	65 (15)	93 (21)	125 (28)	187 (42)	249 (56)	311 (70)	373 (84)
Puncture Resistance, N (lb)	ASTM D 4833	every 5th roll	105 (24)	176 (40)	263 (59)	352 (79)	530 (119)	703 (158)	881 (198)	1,059 (238)
Carbon Black Content, %	ASTM D 1603	every 5th roll	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	every 5th roll	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	90,000 kg	400	400	400	400	400	400	400	400
REFERENCE PROPERTY	**TEST METHOD**	**FREQUENCY**	**NOMINAL VALUE**							
Thickness, mm (mils)	ASTM D 5199	every roll	0.3 (12)	0.5 (20)	0.75 (30)	1.0 (40)	1.5 (60)	2.0 (80)	2.5 (100)	3.0 (120)
Oxidative Induction Time, minutes	ASTM D 3895, 200° C; O_2, 1 atm	90,000 kg	>100	>100	>100	>100	>100	>100	>100	>100
Roll Length (approximate), m (ft)			200 (656)	420 (1,738)	280 (918)	210 (689)	140 (459)	105 (344)	85 (279)	70 (230)
Roll Width, m (ft)			7.1 (23.3)	7.1 (23.3)	7.0 (23)	7.0 (23)	7.0 (23)	7.0 (23)	7.0 (23)	7.0 (23)
Roll Area, m^2 (ft^2)			1,420 (15,284)	2,982 (40,495)	1,960 (21,114)	1,470 (15,847)	980 (10,557)	735 (7,912)	595 (6,417)	490 (5,290)
40' Container, roll			35	16	16	16	16	16	16	16
Tensile Properties (each direction)	ASTM D 6693, Type IV	every 5th roll								
Strength at Break, N/mm-width (lb/in)	Dumbell, 2 ipm		11 (63)	18 (103)	26 (149)	35 (200)	53 (303)	70 (400)	88 (503)	105 (600)
Strength at Yield, N/mm-width (lb/in)			7 (40)	10 (57)	14 (80)	19 (109)	29 (166)	38 (217)	48 (274)	57 (326)
Elongation at Break, %	G.L. 51 mm (2.0 in)		750	800	800	800	800	800	800	800
Elongation at Yield, %	G.L. 33 mm (1.3 in)		17	17	17	17	17	17	17	17
Tear Resistance, N (lb)	ASTM D 1004	every 5th roll	45 (10)	75 (17)	113 (25)	150 (34)	225 (51)	300 (68)	375 (84)	450 (101)
Puncture Resistance, N (lb)	ASTM D 4833	every 5th roll	144 (32)	240 (54)	360 (81)	480 (108)	680 (153)	840 (189)	950 (214)	1,200 (270)
Melt Index	ASTM D 1238, Cond. E	20,000 kg	<=1.0	<=1.0	<=1.0	<=1.0	<=1.0	<=1.0	<=1.0	<=1.0

NOTES:

- +Note 1: Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- GSE HD provided in thicknesses of 0.5 mm to 3.0 mm has an approximate weight of 1,430 kg (3,152 lb). GSE HD 0.3 mm material is provided in rolls weighing approximately 413 kg (910 lb) each.
- All GSE geomembranes have dimensional stability of ±2% when tested with ASTM D 1204 and LTB of <-77° C when tested with ASTM D 746.

DS005 TH R03/10/03

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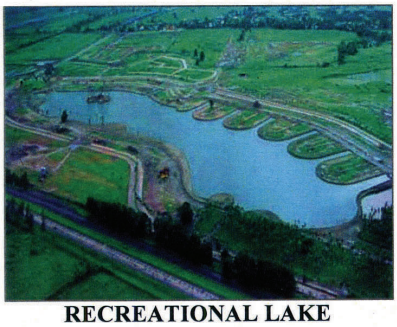
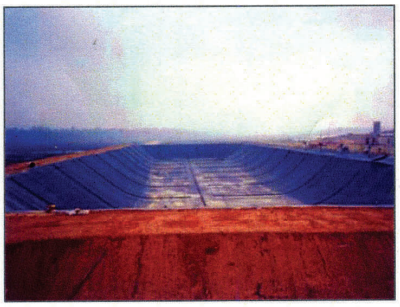


RECREATIONAL LAKE

WATER RESERVOIR

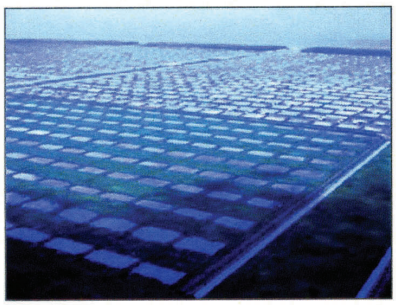
CANAL LINING

WASTE WATER POND



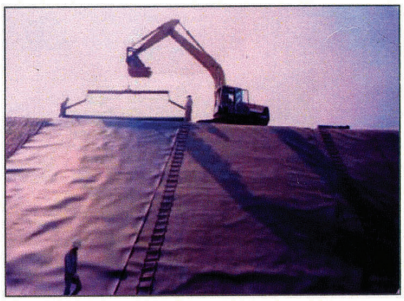
FLOATING COVER

LANDFILL WASTE PIT



AQUACULTURAL POND

ASH POND



LINER DEPLOYMENT

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