Based on GRI - GG4b '91 criteria May 2003

M. A. R. V. Properties
of
GeoCHEM Geogrids

Property	Symbol	Method	SF20	SF35	SF55	SF80	SF90	SF110	SF350
Note: All geogrids woven PET with PVC Coatings									
Tensile Properties			LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT
MD - Ultimate Strength	Tult	ASTM D-4595	1940	3055	4200	5950	8500	10205	27390
MD - Ultimate Strain at Failure	%	ASTM D-4595	14.4%	13%	15%	15%	15%	17%	14%
MD - Creep Reduced Strength	TI	ASTM D-5262	1141	1797	2500	3400	4857	5831	15651
DESIGN STRENGTH PROPERTIES									
CREEP Reduction Factor(ed=10'	RFCR	GRI-GG4b '91	1.7	1.7	1.68	1.75	1.75	1.75	1.75
AGING/DURABILITY Reduction Factor									
5<soil PH<8	RFD	GRI-GG4b '91	1.1	1.1	1.1	1.1	1.1	1.1	1.1
INSTALLATION DAMAGE Reduction Factor									
1:100mm Max, 30mm D50, PI<6	RFID	GRI-GG4b '91	1.73	1.63	1.55	1.5	1.5	1.4	1.4
2:20mm Max, 0.7mm D50, PI<6	RFID	GRI-GG4b '91	1.1	1.08	1.05	1.05	1.05	1.05	1.05
3:20mm Max, .1-.5mmD50, PI<20	RFID	GRI-GG4b '91	1.1	1.08	1.05	1.05	1.05	1.05	1.05
Tult / RF for Soil Type 1: =	LTDS	GRI-GG4b '91	599	1002	1466	2060	2943	3786	10163
Tult / RF for Soil Type 2: =	LTDS	GRI-GG4b '91	943	1662	2164	2943	4205	5048	13551
Tult / RF for Soil Type 3: =	LTDS	GRI-GG4b '91	943	1662	2164	2943	4205	5048	13551
DESIGN INTERACTION PROPERTIES			Note: Ci & Cds tests type 2 & estimate from tech. Literature; Ci tan o = F* a & Cd						
Coefficient of Interaction:	Ci	GRI - GG5 '91	Ci / Cds	Ci / Cds	Ci / Cds	Ci / Cds	Ci / Cds	Ci / Cds	Ci / Cds
Coefficient of Direct Sliding:	Cds	ASTM D-5321							
Soil Type 1:		see above	0.75 / 0.7	0.75 / 0.7	0.75 / 0.7	0.75 / 0.65	0.75 / 0.65	0.75 / 0.65	0.75 / 0.65
Soil Type 2:		see above	0.8 / 0.8	0.8 / 0.8	0.8 / 0.85	0.85 / 0.9	0.85 / 0.9	0.85 / 0.9	0.85 / 0.9
Soil Type 3:		see above	0.7 / 0.75	0.72 / 0.75	0.72 / 0.8	0.75 / 0.85	0.75 / 0.85	0.7 / 0.85	0.7 / 0.85
PHYSICAL PROPERTIES			US	US	US	US	US	US	US
MD - Aperture Size:	(ins.)	measured	0.75	0.75	0.75	0.75	0.75	0.75	0.75
CMD - Aperture Size:	(ins.)	measured	0.75	0.75	0.75	0.75	0.75	0.75	0.75

GeoCHEM can custom produce roll size and vary aperture size for site specific applications

Based on NCMA 97 Criteria - May 2003

M. A. R. V. Properties
of
GeoCHEM Geogrids

Property	Symbol	Method	SF20	SF35	SF55	SF80	SF90	SF110	SF350
Note: All geogrids woven PET with PVC Coatings									
Tensile Properties			LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT
MD - Ultimate Strength	Tult	ASTM D-4595	1940	3055	4200	5950	8500	10205	27390
MD - Ultimate Strain at Failure	%	ASTM D-4595	14.4%	13%	15%	15%	15%	17%	14%
MD - Creep Reduced Strength	Tl	ASTM D-5262	1259	1983	2727	3838	5483	6500	17445
DESIGN STRENGTH PROPERTIES									
CREEP Reduction Factor(ed=10'	RFCR	NCMA 97	1.54	1.54	1.54	1.55	1.55	1.57	1.57
AGING/DURABILITY Reduction Factor									
5<soil PH<8	RFD	NCMA 97	1.1	1.1	1.1	1.1	1.1	1.1	1.1
INSTALLATION DAMAGE Reduction Factor									
1:100mm Max, 30mm D50, PI<6	RFID	NCMA 97	1.73	1.63	1.55	1.5	1.5	1.4	1.4
2:20mm Max, 0.7mm D50, PI<6	RFID	NCMA 97	1.1	1.08	1.05	1.05	1.05	1.05	1.05
3:20mm Max, .1-.5mmD50, PI<20	RFID	NCMA 97	1.1	1.08	1.05	1.05	1.05	1.05	1.05
Tult / RF for Soil Type 1: =	LTDS	NCMA 97	661	1106	1599	2326	3323	4220	11328
Tult / RF for Soil Type 2: =	LTDS	NCMA 97	1040	1669	2361	3323	4747	5627	15104
Tult / RF for Soil Type 3: =	LTDS	NCMA 97	1040	1669	2361	3323	4747	5627	15104
DESIGN INTERACTION PROPERTIES			Note: Ci & Cds tests type 2 & estimate from tech. Literature; Ci tan o = F* a & Cd						
Coefficient of Interaction:	Ci	GRI - GG5 '91	Ci	Ci	Ci	Ci	Ci	Ci	Ci
Coefficient of Direct Sliding:	Cds	ASTM D-5321	Cds	Cds	Cds	Cds	Cds	Cds	Cds
Soil Type 1:		see above	0.75 0.7	0.75 0.7	0.75 0.7	0.75 0.65	0.75 0.65	0.75 0.65	0.75 0.65
Soil Type 2:		see above	0.8 0.8	0.8 0.8	0.8 0.85	0.85 0.9	0.85 0.9	0.85 0.9	0.85 0.9
Soil Type 3:		see above	0.7 0.75	0.72 0.75	0.72 0.8	0.75 0.85	0.75 0.85	0.7 0.85	0.7 0.85
PHYSICAL PROPERTIES			US	US	US	US	US	US	US
MD - Aperture Size:	(ins.)	measured	0.75	0.75	0.75	0.75	0.75	0.75	0.75
CMD - Aperture Size:	(ins.)	measured	0.75	0.75	0.75	0.75	0.75	0.75	0.75

GeoCHEM can custom produce roll size and vary aperture size for site specific appliations

Based on FHWA NH100043 March 2001 - May 2003

M. A. R. V. Properties
of
GeoCHEM Geogrids

Property	Symbol	Method	SF20	SF35	SF55	SF80	SF90	SF110	SF350
Note: All geogrids woven PET with PVC Coatings									
Tensile Properties			LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT	LBS/FT
MD - Ultimate Strength	Tult	ASTM D-4595	1940	3055	4200	5950	8500	10205	27390
MD - Ultimate Strain at Failure	%	ASTM D-4595	14.4%	13%	15%	15%	15%	17%	14%
MD - Creep Reduced Strength	Tl	ASTM D-5262	1259	1983	2727	3838	5483	6500	17445
DESIGN STRENGTH PROPERTIES									
CREEP Reduction Factor(ed=10'	RFCR	AASHTO 98	1.54	1.54	1.54	1.55	1.55	1.57	1.57
AGING/DURABILITY Reduction Factor									
5<soil PH<8	RFD	AASHTO 98	1.15	1.15	1.15	1.15	1.15	1.15	1.15
INSTALLATION DAMAGE Reduction Factor									
1:100mm Max, 30mm D50, PI<6	RFID	AASHTO 98	1.73	1.63	1.55	1.5	1.5	1.4	1.4
2:20mm Max, 0.7mm D50, PI<6	RFID	AASHTO 98	1.1	1.1	1.1	1.1	1.1	1.1	1.1
3:20mm Max, .1-.5mmD50, PI<20	RFID	AASHTO 98	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Tult / RF for Soil Type 1: =	LTDS	AASHTO 98	633	1057	1519	2225	3179	4037	10835
Tult / RF for Soil Type 2: =	LTDS	AASHTO 98	995	1567	2155	3034	4335	5138	13791
Tult / RF for Soil Type 3: =	LTDS	AASHTO 98	995	1567	2155	3034	4335	5138	13791
DESIGN INTERACTION PROPERTIES			Note: Ci & Cds tests type 2 & estimate from tech. Literature; Ci tan o = F* a & Cd						
Coefficient of Interaction:	Ci	GRI - GG5 '91	Ci	Ci	Ci	Ci	Ci	Ci	Ci
Coefficient of Direct Sliding:	Cds	ASTM D-5321	Cds	Cds	Cds	Cds	Cds	Cds	Cds
Soil Type 1:		see above	0.75 0.7	0.75 0.7	0.75 0.7	0.75 0.65	0.75 0.65	0.75 0.65	0.75 0.65
Soil Type 2:		see above	0.8 0.8	0.8 0.8	0.8 0.85	0.85 0.9	0.85 0.9	0.85 0.9	0.85 0.9
Soil Type 3:		see above	0.7 0.75	0.72 0.75	0.72 0.8	0.75 0.85	0.75 0.85	0.7 0.85	0.7 0.85
PHYSICAL PROPERTIES			US	US	US	US	US	US	US
MD - Aperture Size:	(ins.)	measured	0.75	0.75	0.75	0.75	0.75	0.75	0.75
CMD - Aperture Size:	(ins.)	measured	0.75	0.75	0.75	0.75	0.75	0.75	0.75

GeoCHEM can custom produce roll size and vary aperture size for site specific applications