



Armacell (ArmaSport®) Turf Underlayment – Technical Data Summary

Armacell manufactures two closed cell rubber products that are currently used in turf underlayment / sports field shock pad applications. Following is physical property information for two padding materials including shock absorption (G-max) and water infiltration / impermeability.

Quick Physical Property Guide

Armacell (ArmaSport®)	Density (lb/ft ³)	Density (kg/m ³)	25% Compression Deflection (psi)	25% Compression Deflection (kPa)	Polymer	Color
TU2	6.5 - 8.5	104 - 136	5 - 8	35 - 55	PVC / NBR	Black
TUC	10.5 - 12.5	168 - 200	13 - 17	91 - 117	PVC / NBR	Black

WATER INFILTRATION / DRAINAGE

- **Test Method:** British Standard (BS) 7044 Method 4
- **Title:** Determination of infiltration rate-buffered ponding-type infiltrometer

- **Standard Turf Description** = 42 oz. (2.25" Pile Height) Monofilament Synthetic Turf
- **Infill:** 3.3 lbs / ft² Rubber mixed with 3.0 lbs / ft² Sand

Armacell (ArmaSport®) Turf Underlayment Pad			
TU2	TU2	TU2	NO PAD
Pad Description: 5/8" flat pad no ridges and not perforated	Pad Description: 5/8" perforated, flat pad	Pad Description: 5/8" ridges and perforated pad Note: Pad was tested with ridge side down	
Inches / hour = 3	Inches / hour = 25	Inches / hour = 31	Inches / hour = 52
Centimeters / hour = 7 Note: Drainage was lateral between the turf and pad	Centimeters / hour = 64	Centimeters / hour = 79	Centimeters / hour = 132

SHOCK ABSORPTION: G-MAX

- **Test Method:** ASTM F 355 (2 foot [24"] Drop Height)
- **Title:** Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials

- **Standard Turf Description** = 42 oz. (2.25" Pile Height) Monofilament Synthetic Turf
- **Infill:** 3.3 lbs / ft² Rubber mixed with 3.0 lbs / ft² Sand
- **Sub Base:** 3" crushed rock

Description of Turf and Infill	Armacell (ArmaSport®) Turf Underlayment Pad					
	TU2			TUC		
	5/8" Pad with no ridges			5/8" Pad with ridges		
	G-max Reading Drop #2	G-max Reading Drop #3	Average G-max Reading	G-max Reading Drop #2	G-max Reading Drop #3	Average G-max Reading
Pad under standard turf and standard infill	57	59	58	69	70	70
Pad under standard turf and half infill	64	67	66	83	85	84
Pad under standard turf and no infill	83	91	87	99	99	99
NO PAD standard turf and standard infill	118	125	122	N/A	N/A	N/A

PHYSICAL PROPERTIES GUIDE CHART

Physical Property	Armacell (ArmaSport®) TU2		Armacell (ArmaSport®) TUC	
Polymer	PVC / NBR		PVC / NBR	
Color	Black		Black	
Form	Rolls (Sheets Available)		Rolls (Sheets Available)	
Ridges	Available with and without		Available with and without	
Perforation	Available with and without		Available with and without	
ASTM D 1056 Designation	2B2		2B4	
Compression Deflection, 25% (psi) per ASTM D 1056	5 - 8 psi (35 - 55 kPa)		13 - 17 psi (91 - 117 kPa)	
Density per ASTM D 1056, lb / ft ³	6.5 - 8.5 lb / ft ³ (104 - 136 kg / m ³)		10.5 - 12.5 lb / ft ³ (168 - 200 kg / m ³)	
Compression set, 50% compression, 22 h @ room temperature, 24 h recovery, % of original deflection per ASTM D 1056	<25%		<25%	
Water Absorption by wt. % per ASTM D 1056	≤5%		≤5%	
Tensile Strength per ASTM D 412 Die A, psi (kPa)	80 psi min (560 kPa min)		90 psi min (630 kPa min)	
Elongation per ASTM D 412 Die A, %	100% min		90% min	
Tear Strength per ASTM D 624 Die C, lb/in	0 lb / in min (1.75 kN / m min)		20 lb / in min (3.5 kNm min)	
Shock Absorption per ASTM F 355 [24" drop]	G-max	Description of foam and test condition	G-max	Description of foam and test condition
Standard Turf Description: 42 oz (2.25" PH) Monofilament Synthetic Turf	58	Flat pad under turf with standard infill	70	Ridged foam under turf with standard infill
Infill: 3.3 lbs / ft ² Rubber mixed with 3.0 lbs / ft ² Sand	66	Flat pad under turf with half infill	84	Ridged foam under turf with half infill
Sub Base: 3" crushed rock All pad thicknesses = 5/8" (0.625")	87	Flat pad under turf with no infill	99	Ridged foam under turf with no infill

All Armacell (ArmaSport®) Pads		
Water Infiltration Rate per BS 7044 Method 4 (in / hour) and (cm / hour)	5/8" flat pad (no ridges or perforation) under standard turf and infill: 5/8" flat perforated pad under standard turf and infill: 5/8" ridged and perforated pad under standard turf and infill: No pad under standard turf and infill:	3" (7 cm) / hour 25" (64 cm) / hour 31" (79 cm) / hour 52" (132 cm) / hour
Fungus Resistance per ASTM G 21	Rating 0 Specimen remained free of fungal growth	Rating 0 Specimen remained free of fungal growth
Antimicrobial Resistance per ISO 22196:2007	<0.1% survival	<0.1% survival
Ozone Resistance per ASTM D 1171	Rating 0 No Cracking	Rating 0 No Cracking

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