

Cushion Materials Properties Comparison Chart

Material	Foam	Viscoelastic Foam	Solid Gel	Viscous Fluid	Air
Trade Example	Polyurethane Latex	Pudgy Sunmate T-Foam	Action	Jay Floam	Roho BBD
Density	variable	variable	variable	variable	n/a
Stiffness	variable	variable	variable	variable	n/a
Resilience	good	fair	poor	poor	good
Damping	good	poor	poor	poor	good
Envelopment	good	good	poor	variable -depends on container	variable -depends on design
Shear	high	high	low - medium	low	variable -depends on design
Thermal	poor	good	good	good	variable -depends on design
Other factors	-deteriorates over time -lightweight -damaged by light/moisture	-Pudgy can freeze -lightweight -damaged by light/moisture -some are temp. sensitive	-heavy	-heavy -can freeze (except Floam) -can puncture -can change over time -Floam is plastic based -others are petroleum based	-pressure varies with altitude -can puncture -lightweight -inflation must be monitored

Definitions:

Density: weight of cushion by volume measured in lbs/cubic foot. Seat cushion between 1.5 and 3 lbs/ft.

Stiffness: relative measurement of how deep a person will sink into the cushion. Indentation load deflection test: force to indent cushion 25%. Cushions typically range between 30 (soft) and 70 (firm) pounds.

Resilience: ability to recover shape when forces change and ability to maintain properties while in use.

Damping: ability of a cushion to soften impacts.

Envelopment: ability of the cushion to surround or contain the buttocks and pelvis.

Shear: forces that occur when adjacent surfaces slide across one another.

Thermal: how well the cushion transfers heat and cold.