



1st SAMPE Brasil
**Advanced
Composites
Week**

RESIN UPTAKE IN FOAM CORE MATERIALS

JORGE NASSEH

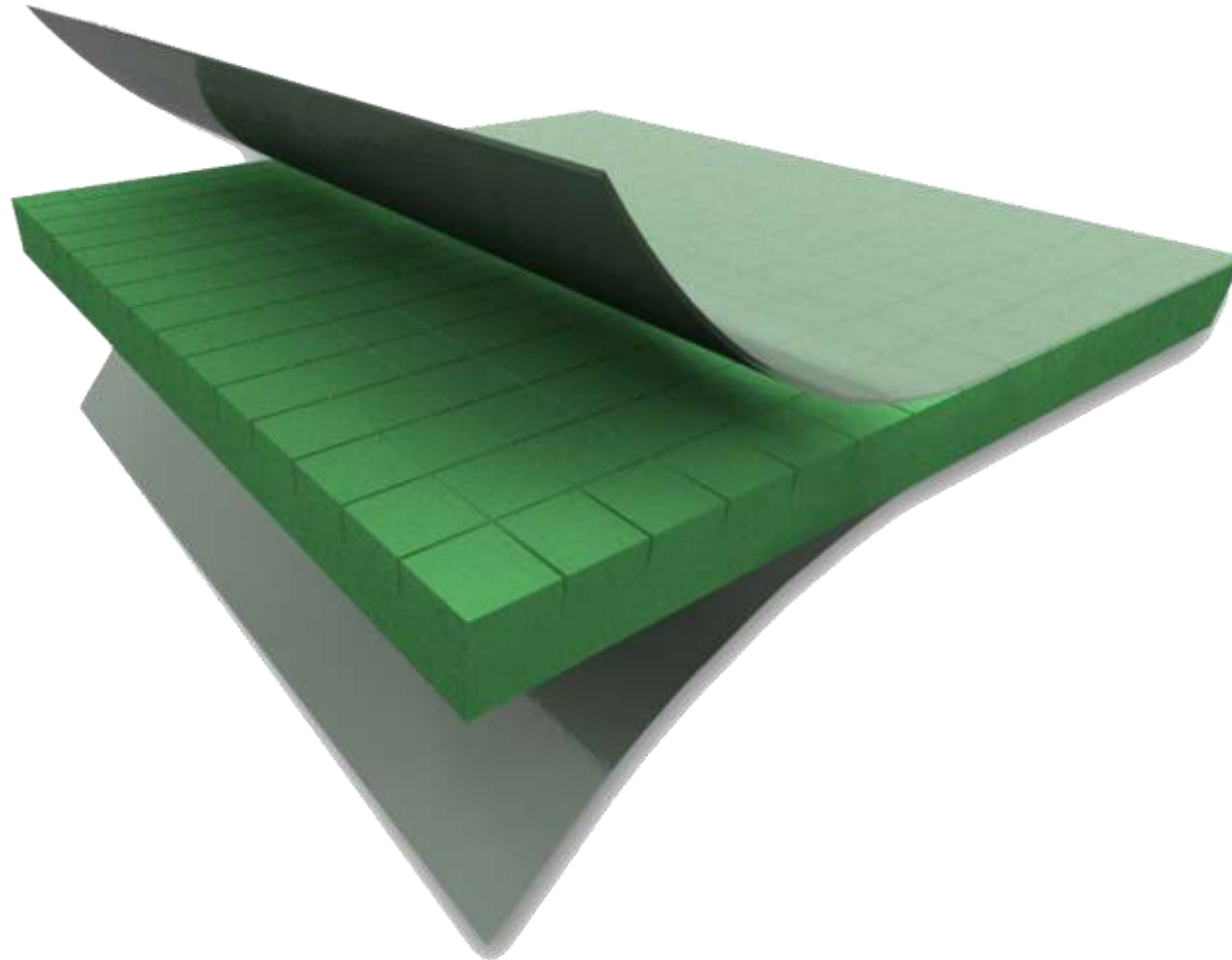
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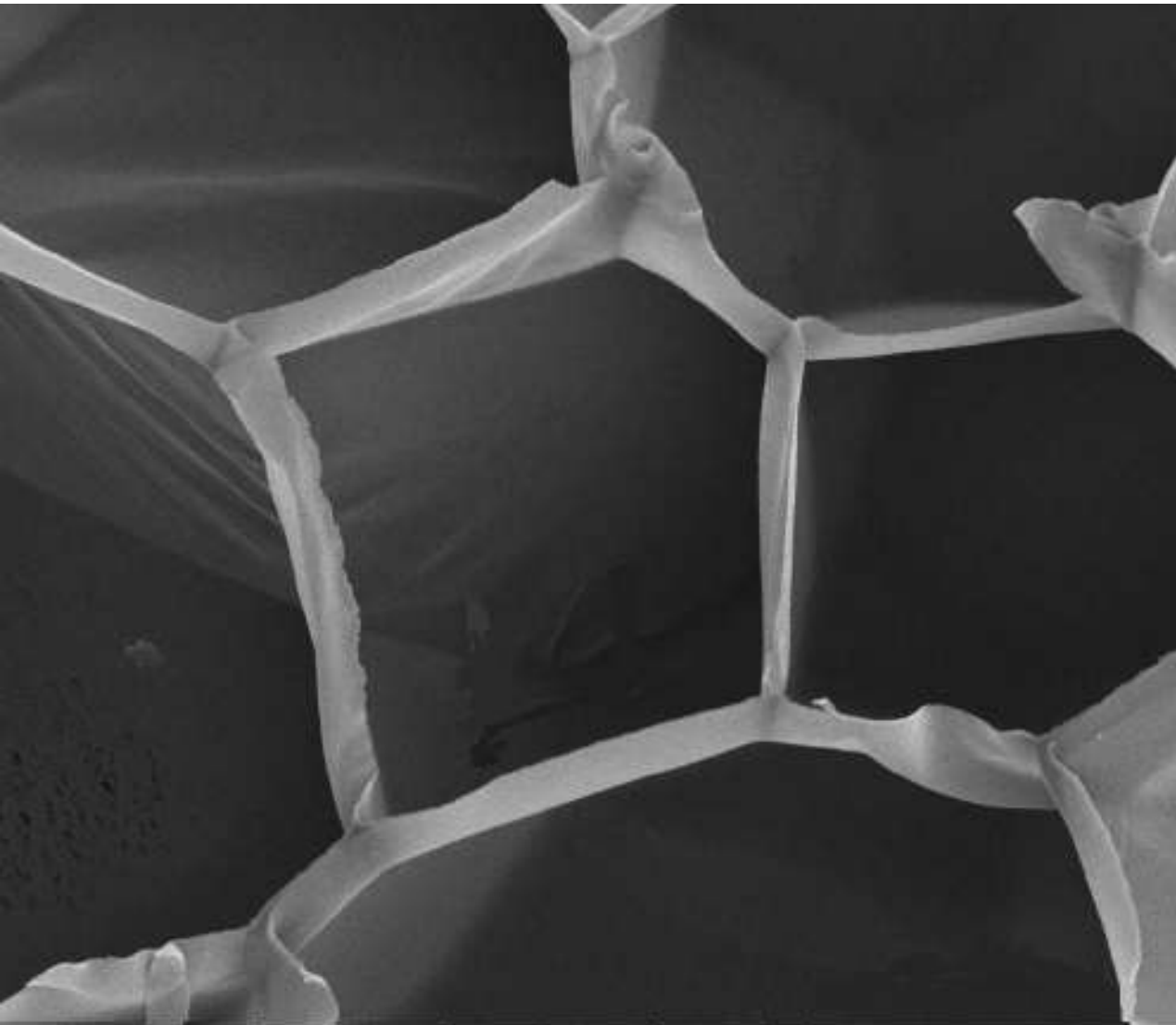


SANDWICH CORE CONSTRUCTION

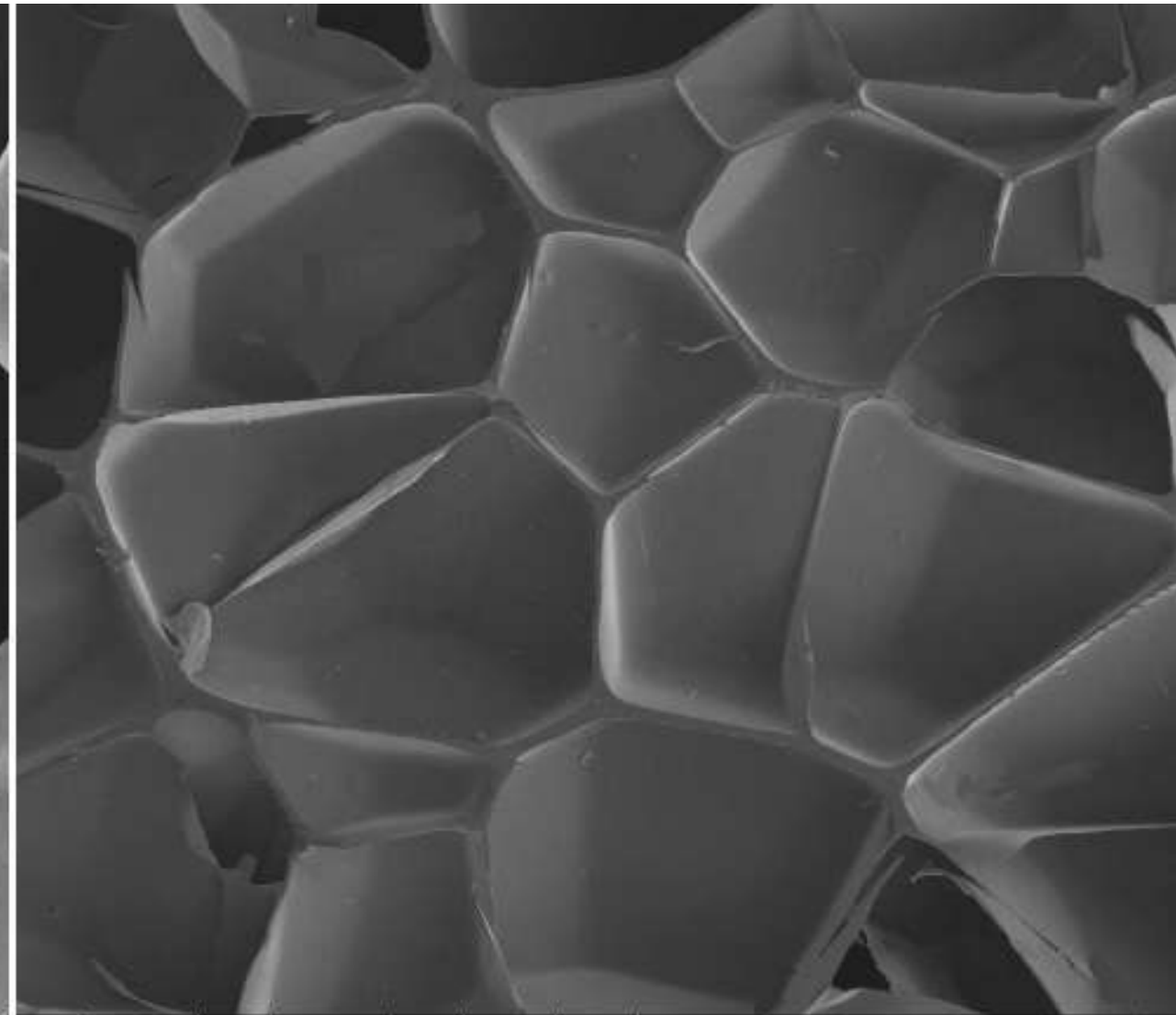


FOAM CORE MATERIALS

- POLYVINYLCHLORIDE FOAM (PVC)
- POLYSTYRENE FOAM (PS)
- POLYMETHACRYLIMIDE FOAM (PMI)
- POLYETHYLENE TEREPHTHALATE FOAMS (PET)
- STYRENE ACRYLONITRILE FOAMS (SAN)



WD	spot	HV	det	mode	mag	HFWD	20 μ m
8.7 mm	3.5	5.00 kV	ETD	SE	4,000 x	74.6 μ m	



WD	spot	HV	det	mode	mag	HFWD	500 μ m
8.1 mm	4.0	5.00 kV	ETD	SE	200 x	1.49 mm	

ESTIMATION OF SURFACE RESIN UPTAKE

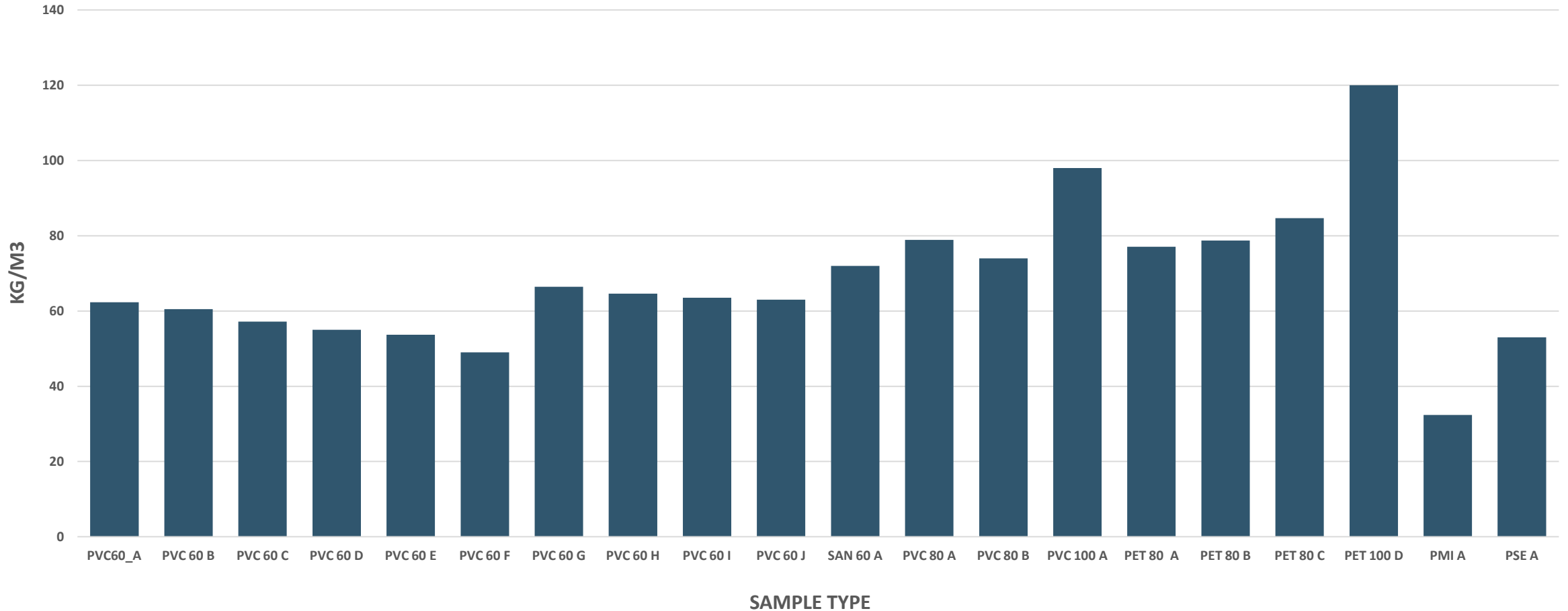
$$WR = (WAI - WBI) / 2$$

WR: TOTAL RESIN UPTAKE

WAI: CORE WEIGHT AFTER INFUSION

WBI: CORE WEIGHT BEFORE INFUSION

SAMPLE DENSITY KG/M3



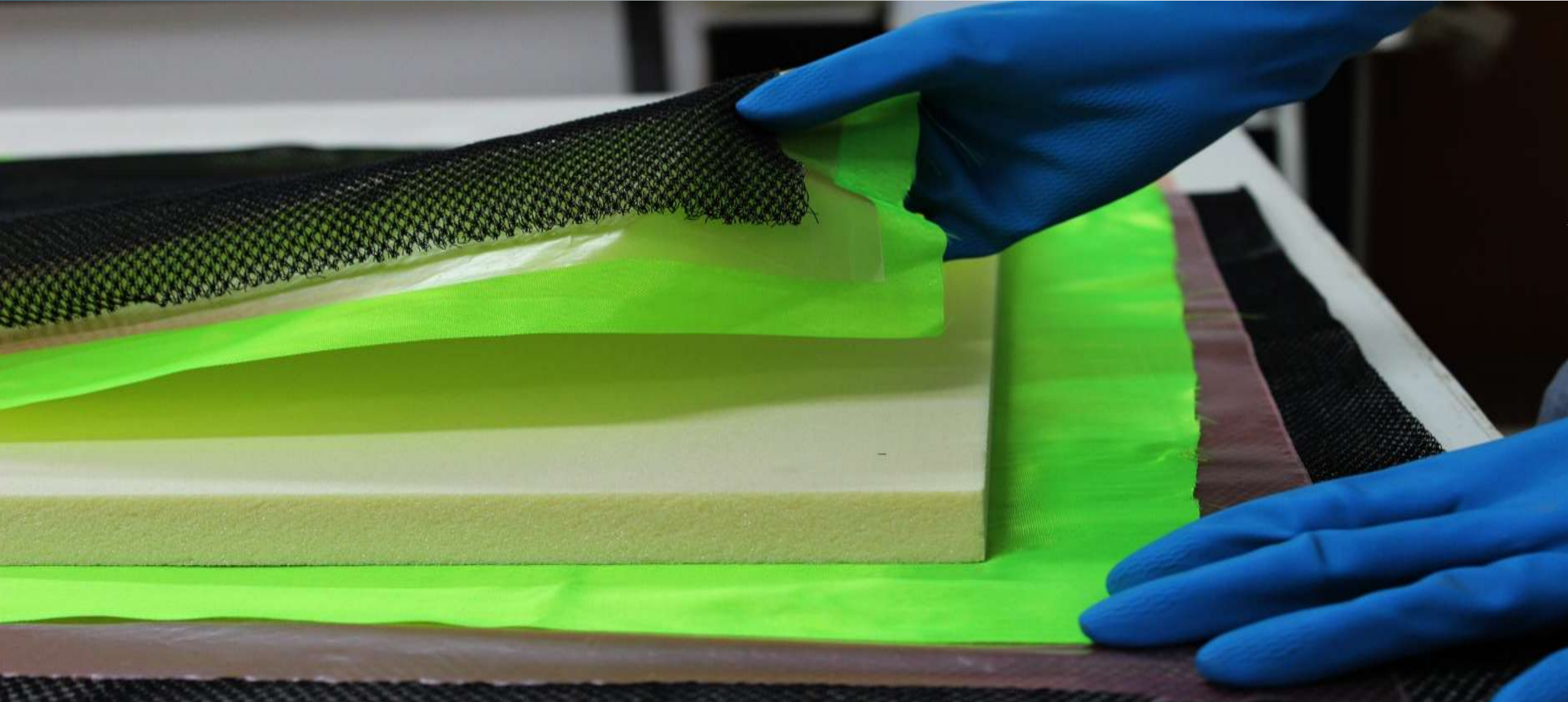


TEST METHODOLOGY

RESIN UPTAKE IN FOAM CORE MATERIALS



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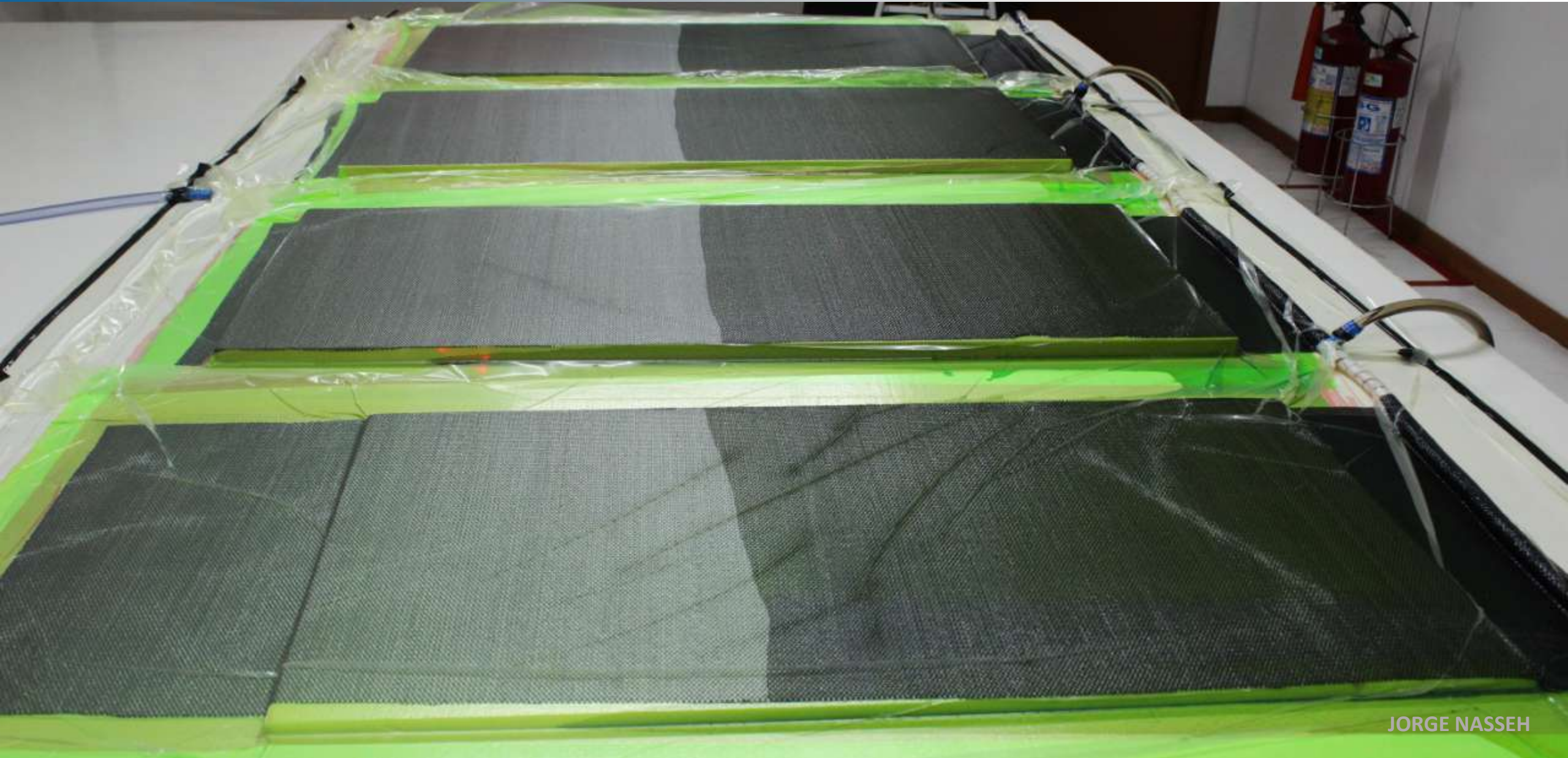


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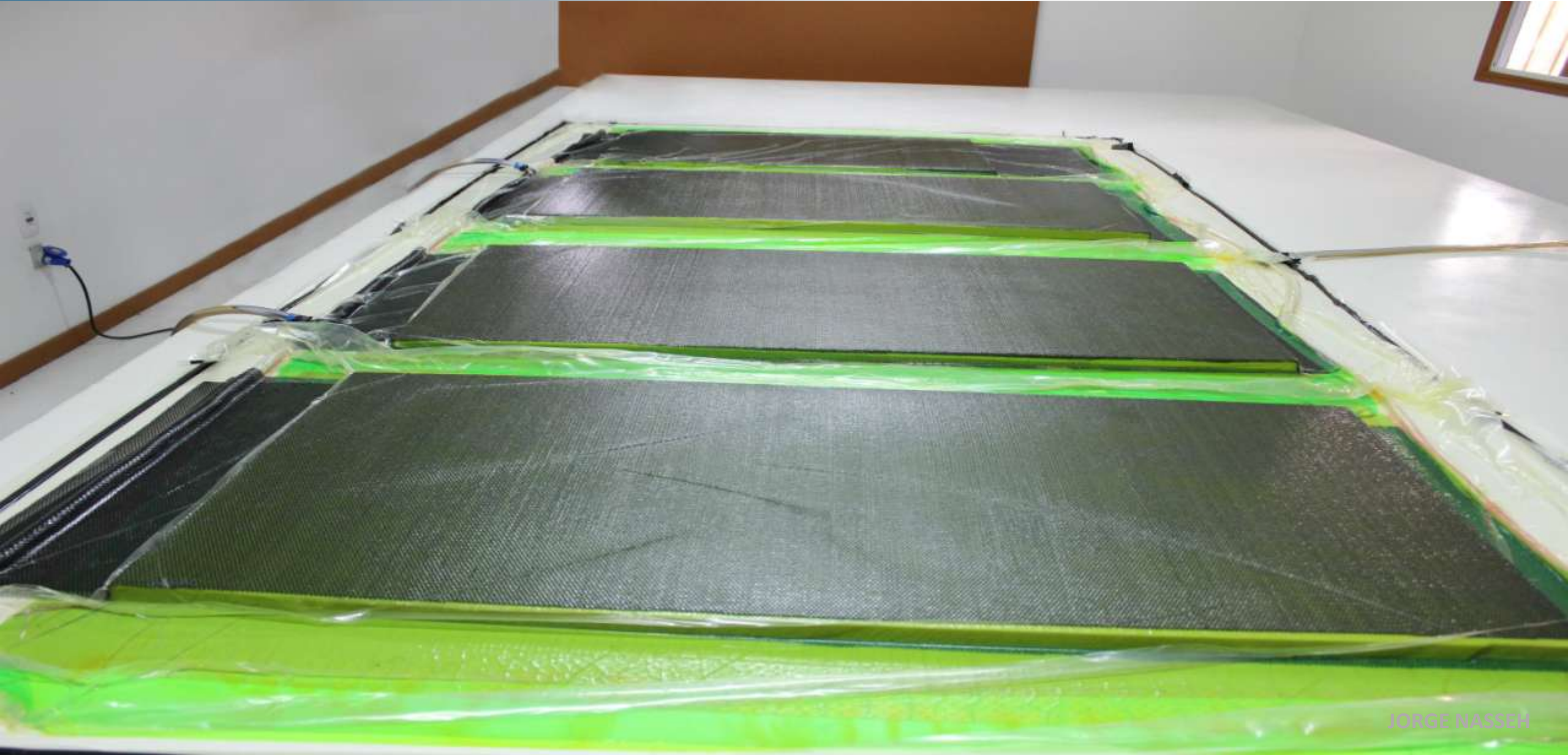


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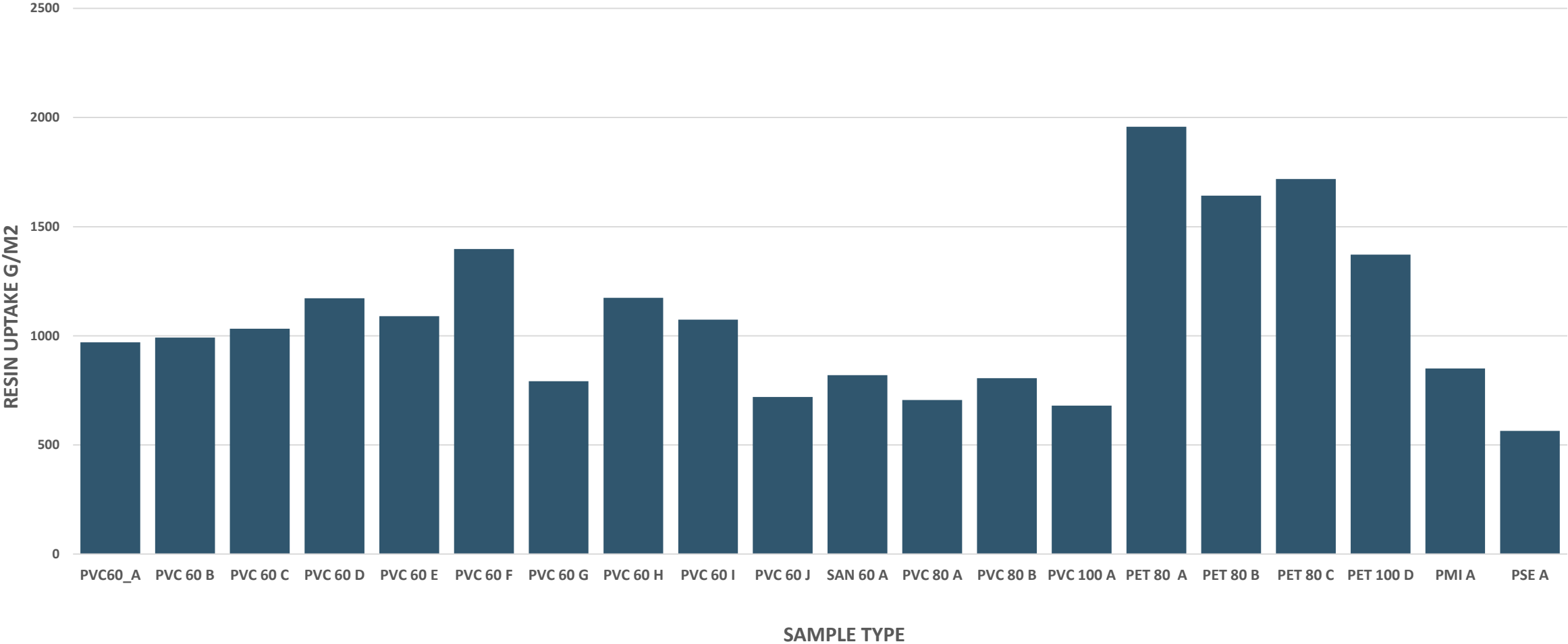
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SAMPLE PANELS FABRICATION GOPRO MOVIE

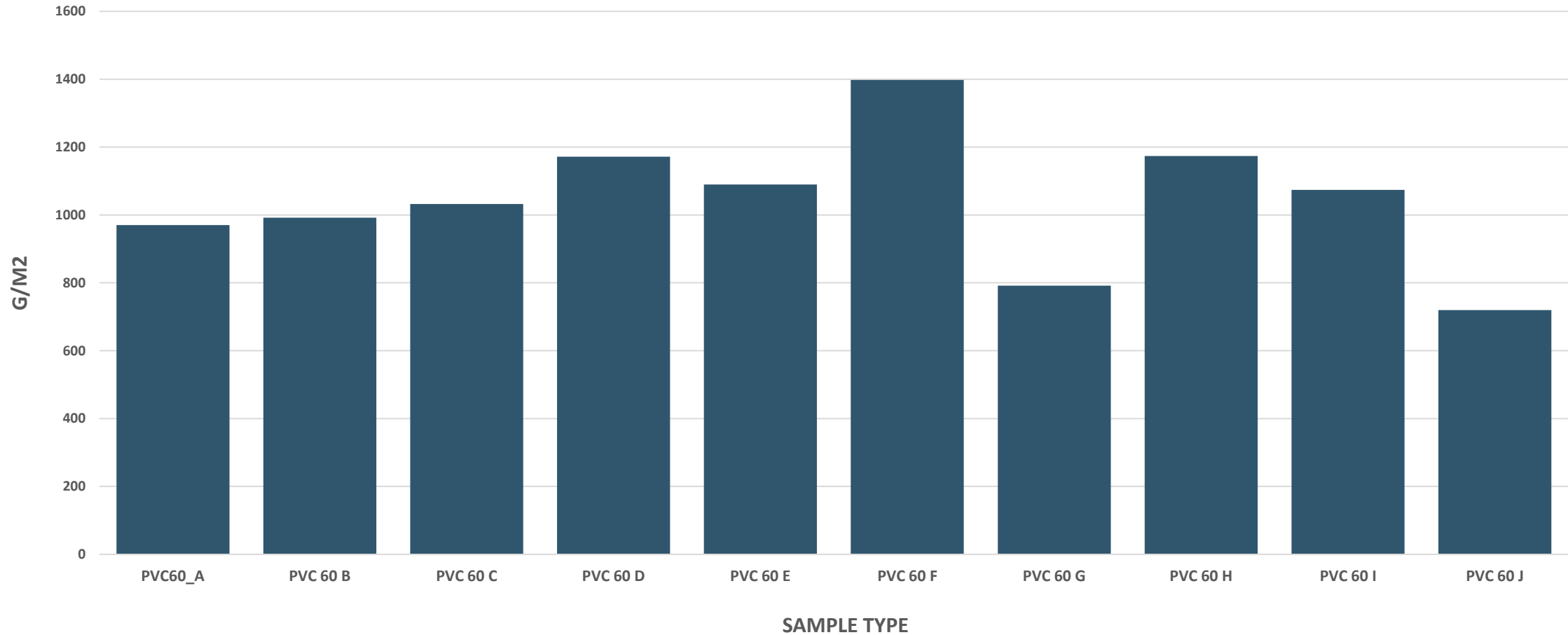




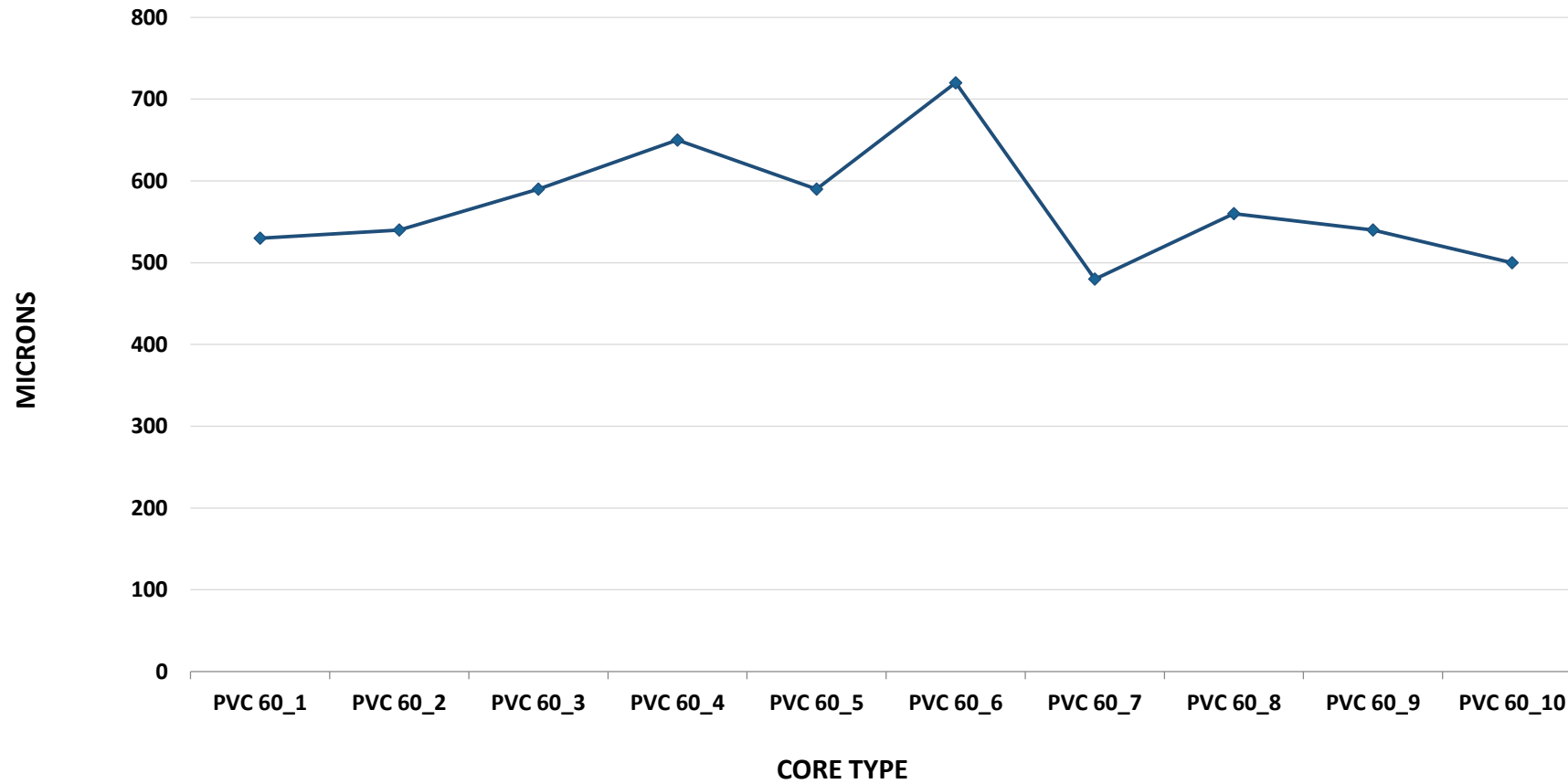
RESIN UPTAKE KG/M2 (BOTH FACES)



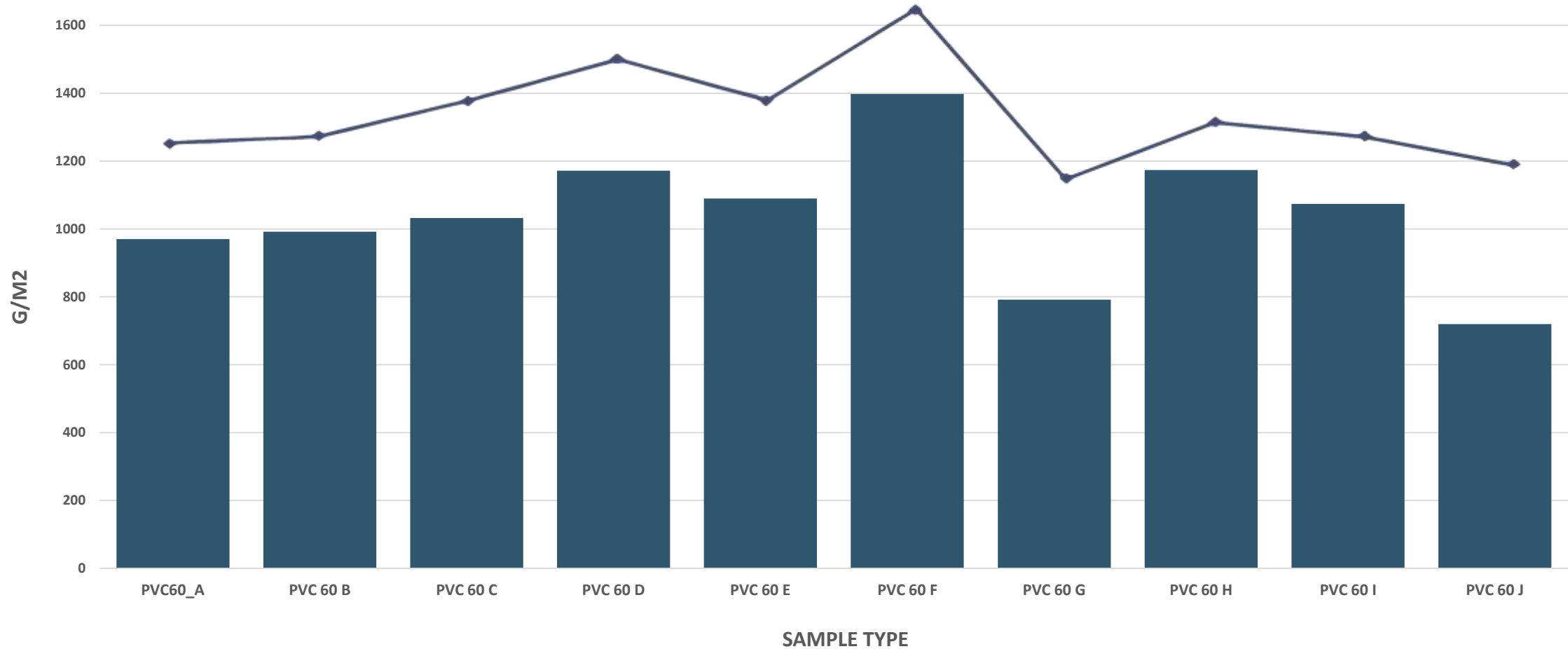
RESIN UPTAKE PVC 60 KG/M3



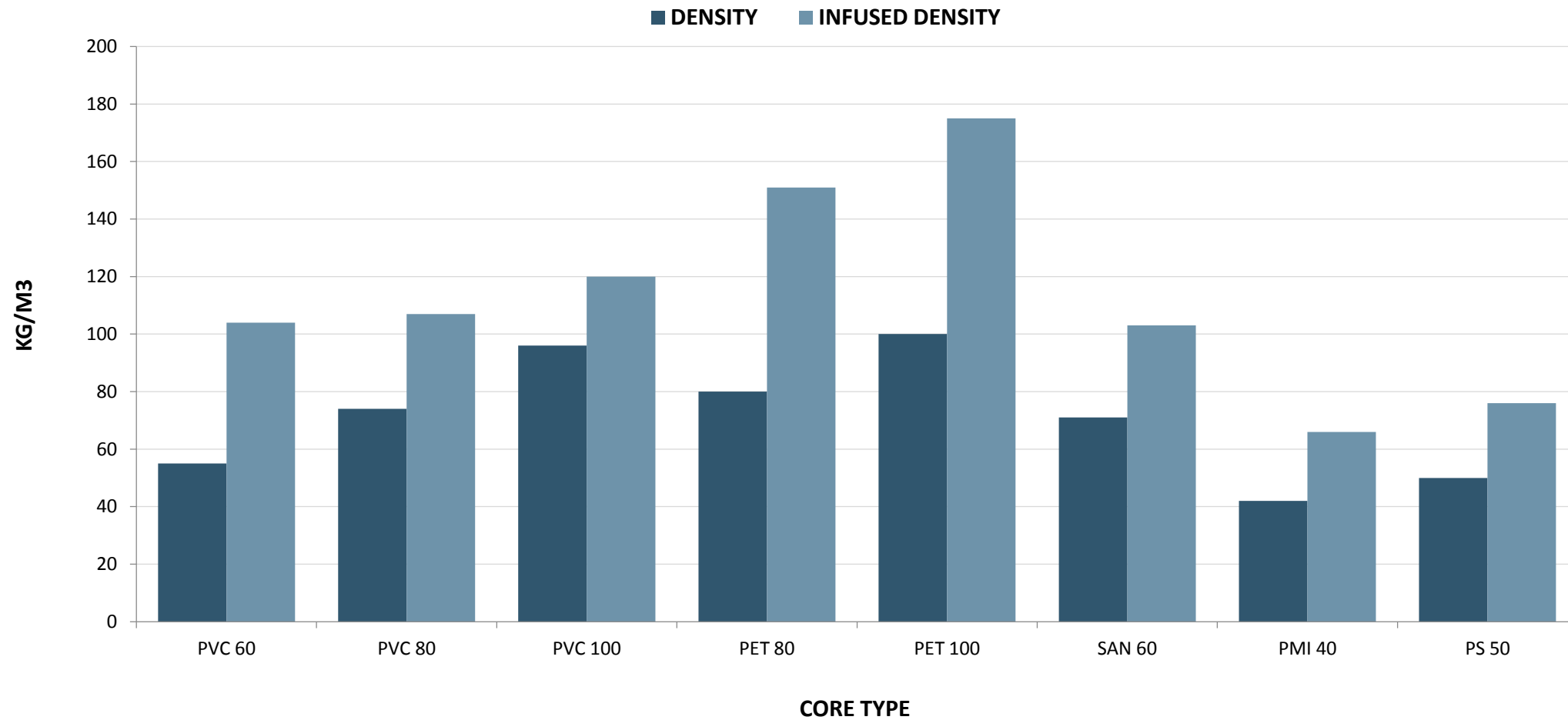
CELL SIZE PVC 60 KG/M3



RESIN UPTAKE PVC X CELL SIZE 60 KG/M3



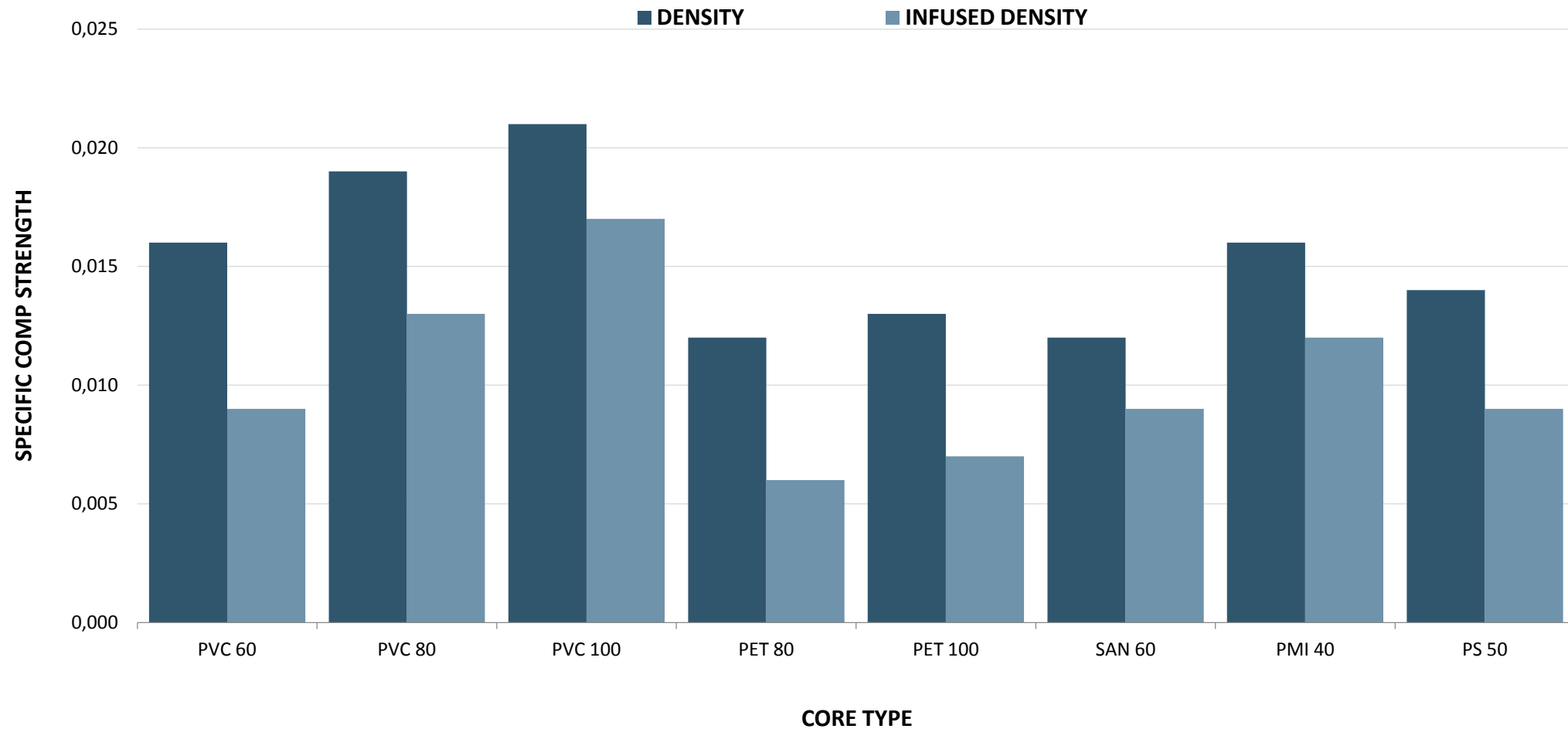
NOMINAL X INFUSED DENSITY



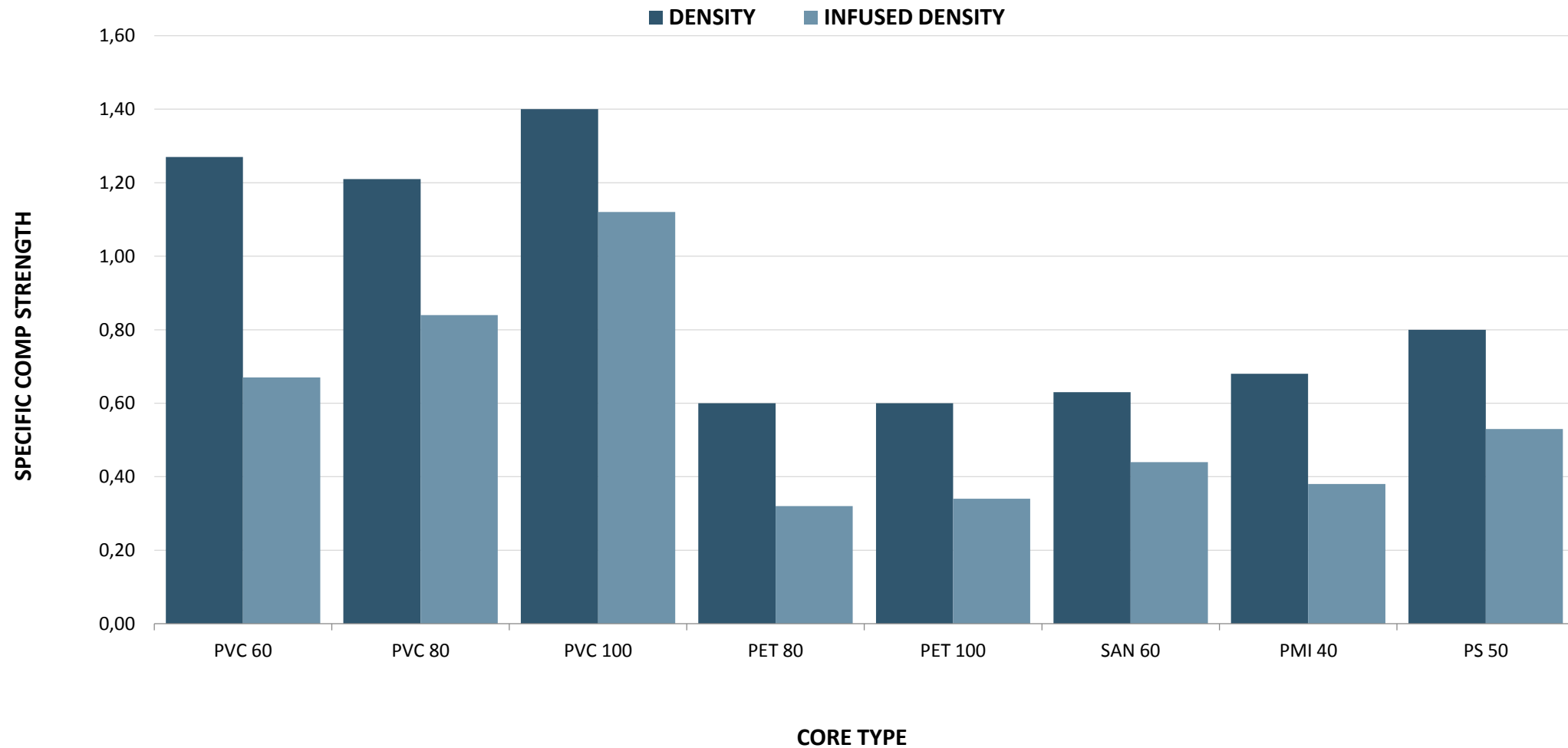


COMPRESSION PROPERTIES

SUMMARY SPECIFIC COMPRESSION STRENGTH



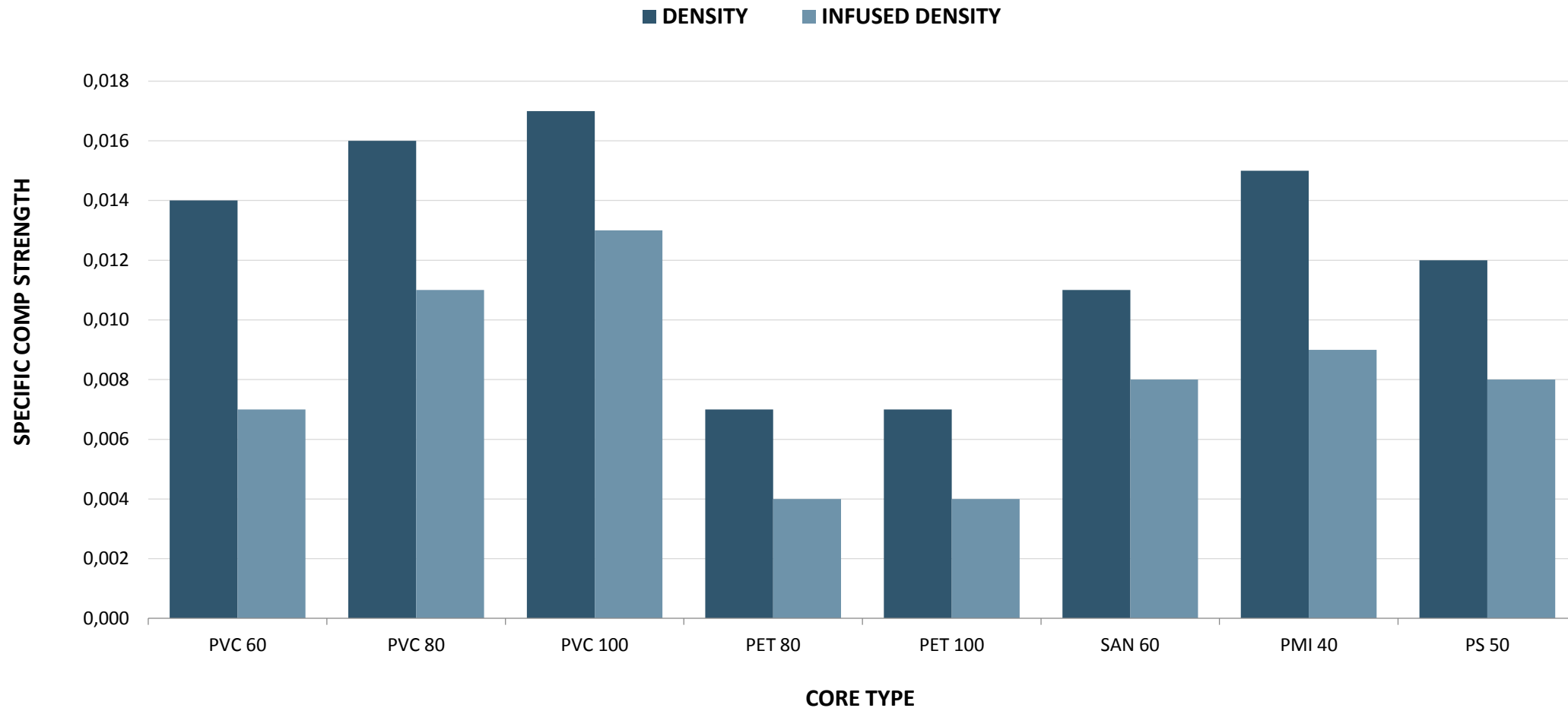
SUMMARY SPECIFIC COMPRESSION MODULUS



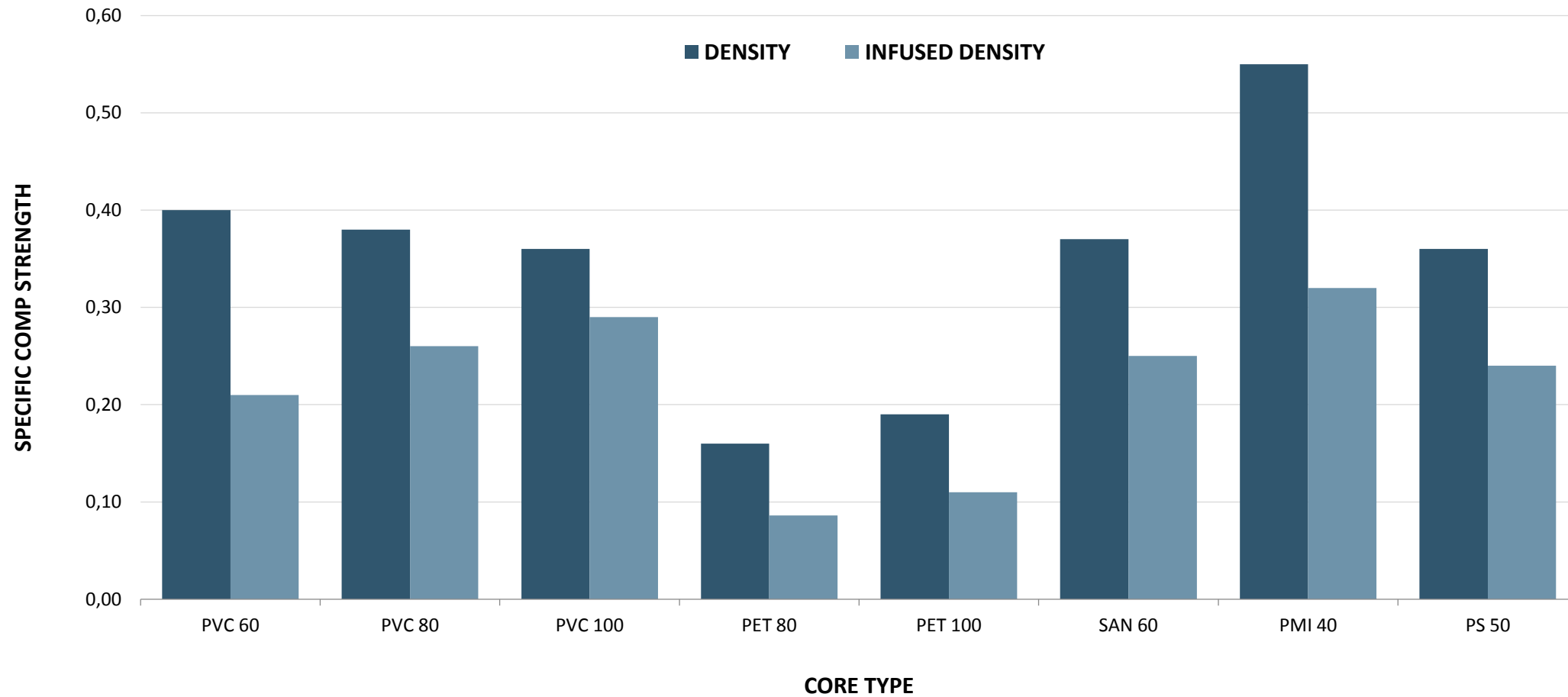


SHEAR PROPERTIES

SUMMARY SPECIFIC SHEAR STRENGTH

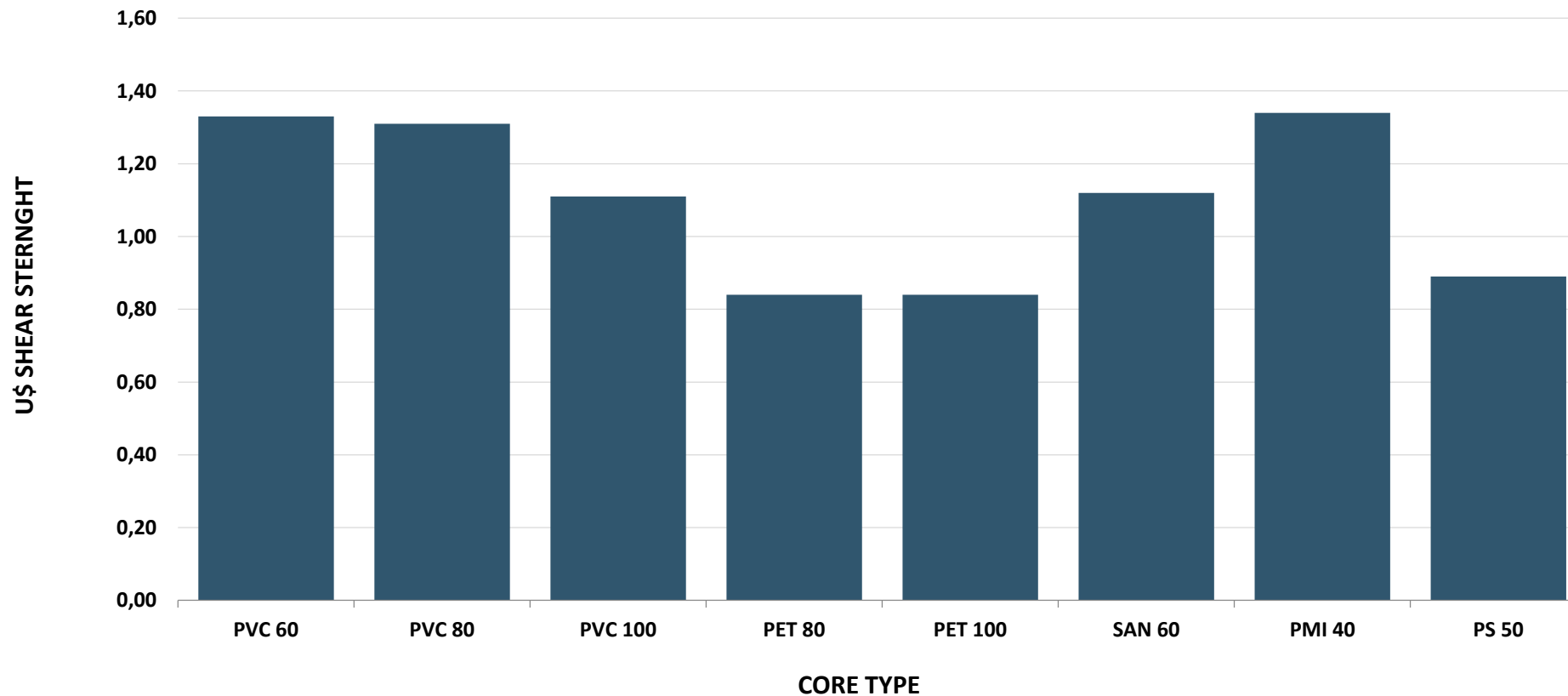


SUMMARY SPECIFIC SHEAR MODULUS

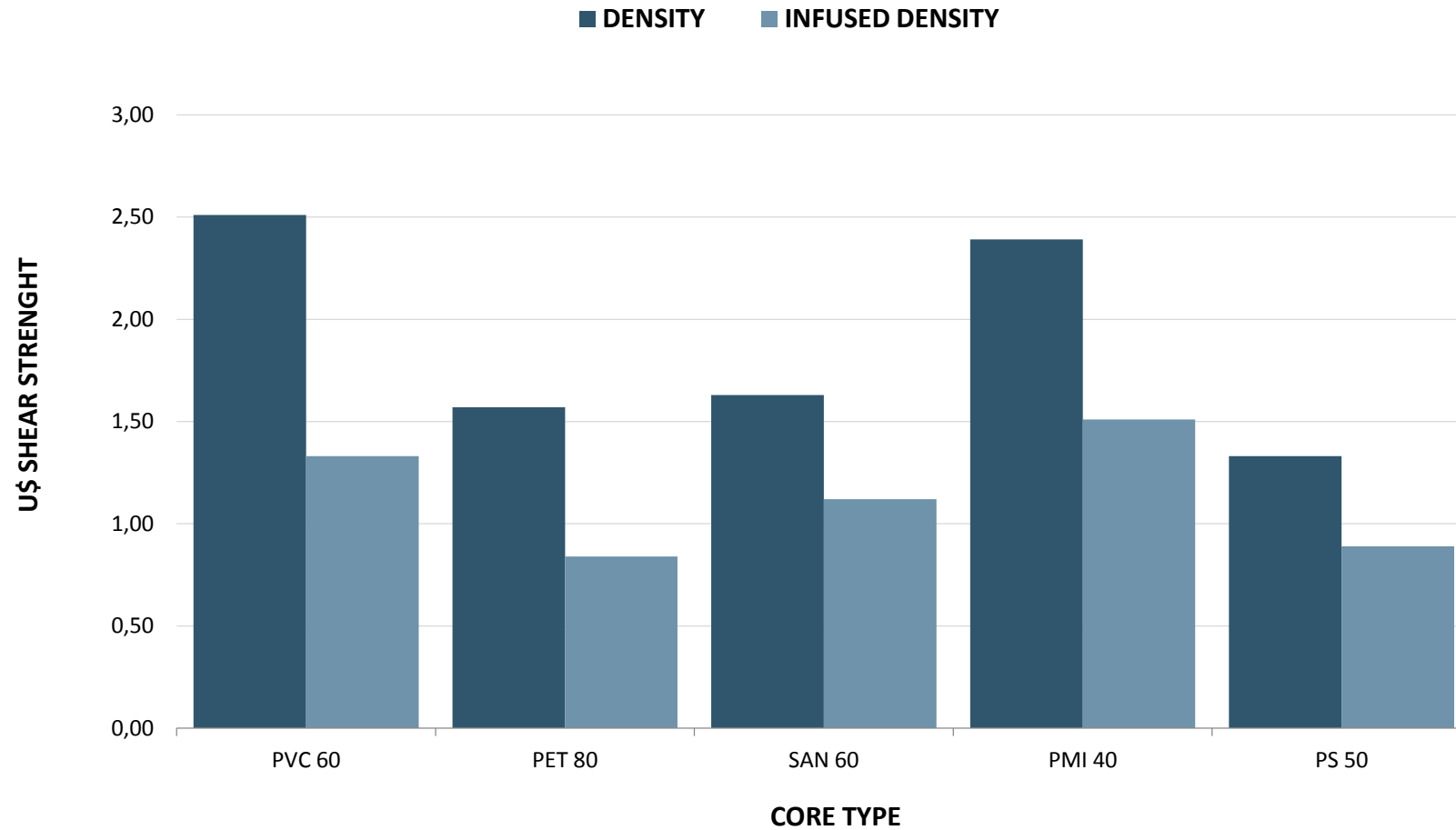


COST PROPERTIES

NORMALIZED SHEAR STRENGTH COST x INFUSED DENSITY



SUMMARY SHEAR COST 50-60 KG/M3 DENSITY





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