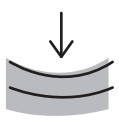
MATERIAL GUIDE for GREEN 3D PRINTING

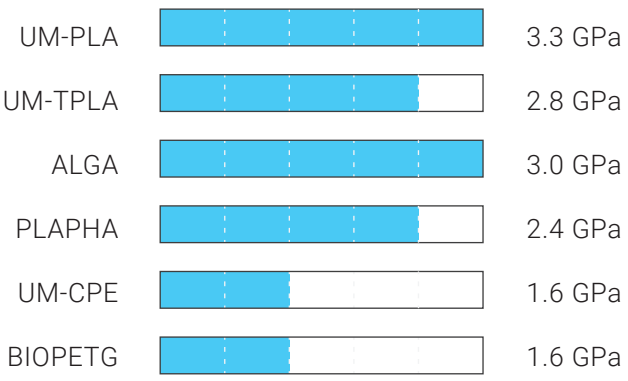
This material selection guide can be used to make greener material choices for FDM Printing, alongside functional and aesthetic requirements. Higher scores imply better material properties.

MECHANICAL PROPERTIES



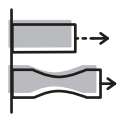
Tensile Modulus

Resistance to deforming under tension. Higher tensile modulus means lower elasticity.



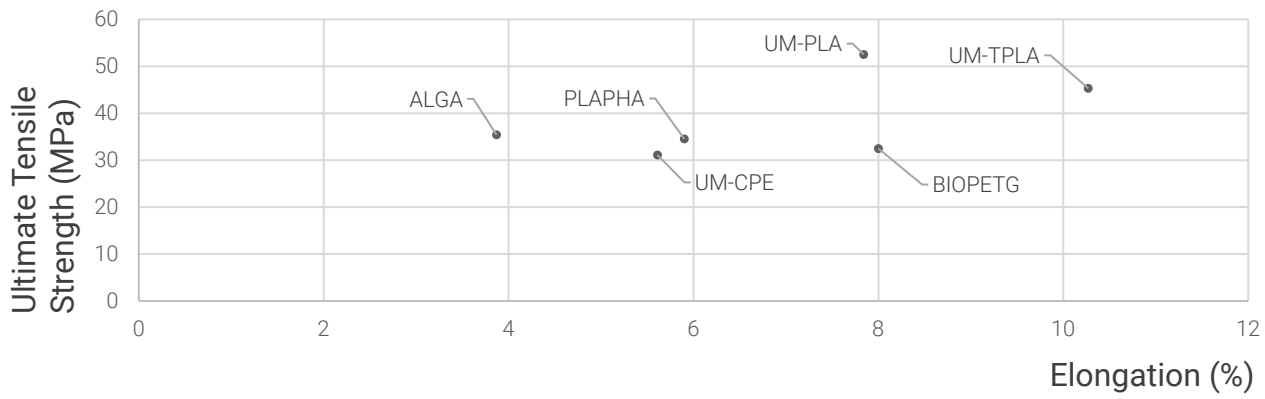
Ultimate Tensile Strength

Maximum stress that the material can withstand before breaking under tension.



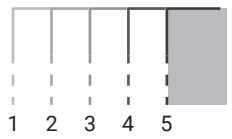
Elongation

Ratio between changed length and initial length after breaking under tension.



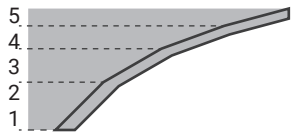
**Mechanical properties for materials PLAYPHAB and OMNI are estimated to be similar to PLAPHA and UM-TPLA respectively.*

PRINT QUALITY



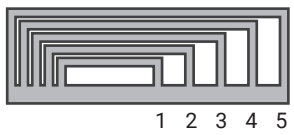
Dimensional accuracy

How well a printed object matches the dimensions of the original file.



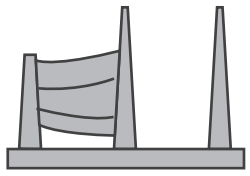
Overhangs

The extent to which parts of the 3D print can extend outward beyond the previous layer with no extra support.



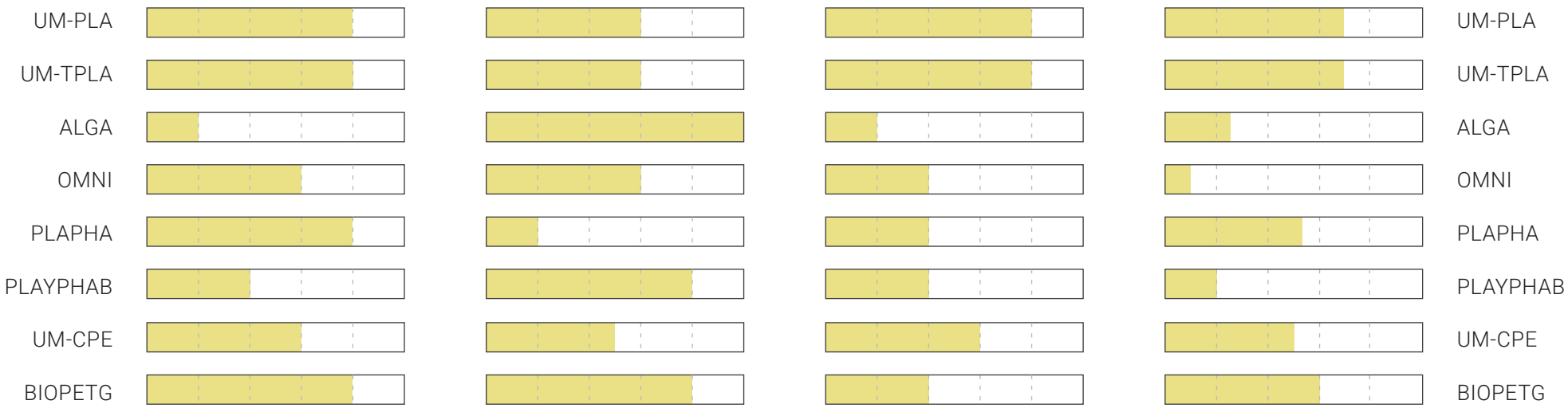
Bridging

The extent to which material can be extruded between two points with no support from below.

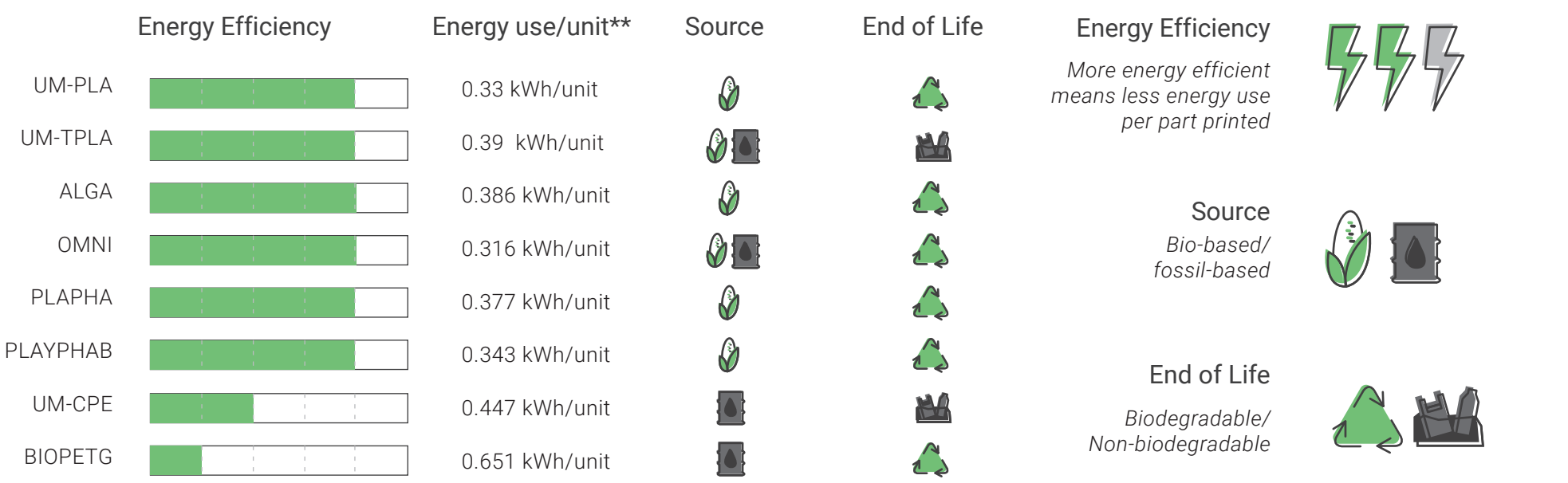


Fine Features

How well the features with smaller dimensions can be printed with a clean finish.



SUSTAINABILITY



Energy Efficiency

More energy efficient means less energy use per part printed

Source

Bio-based/ fossil-based

End of Life

Biodegradable/ Non-biodegradable

***One unit refers to the 'Apple shell' part used for universal comparisons - https://www.thingiverse.com/thing:4031080 .*