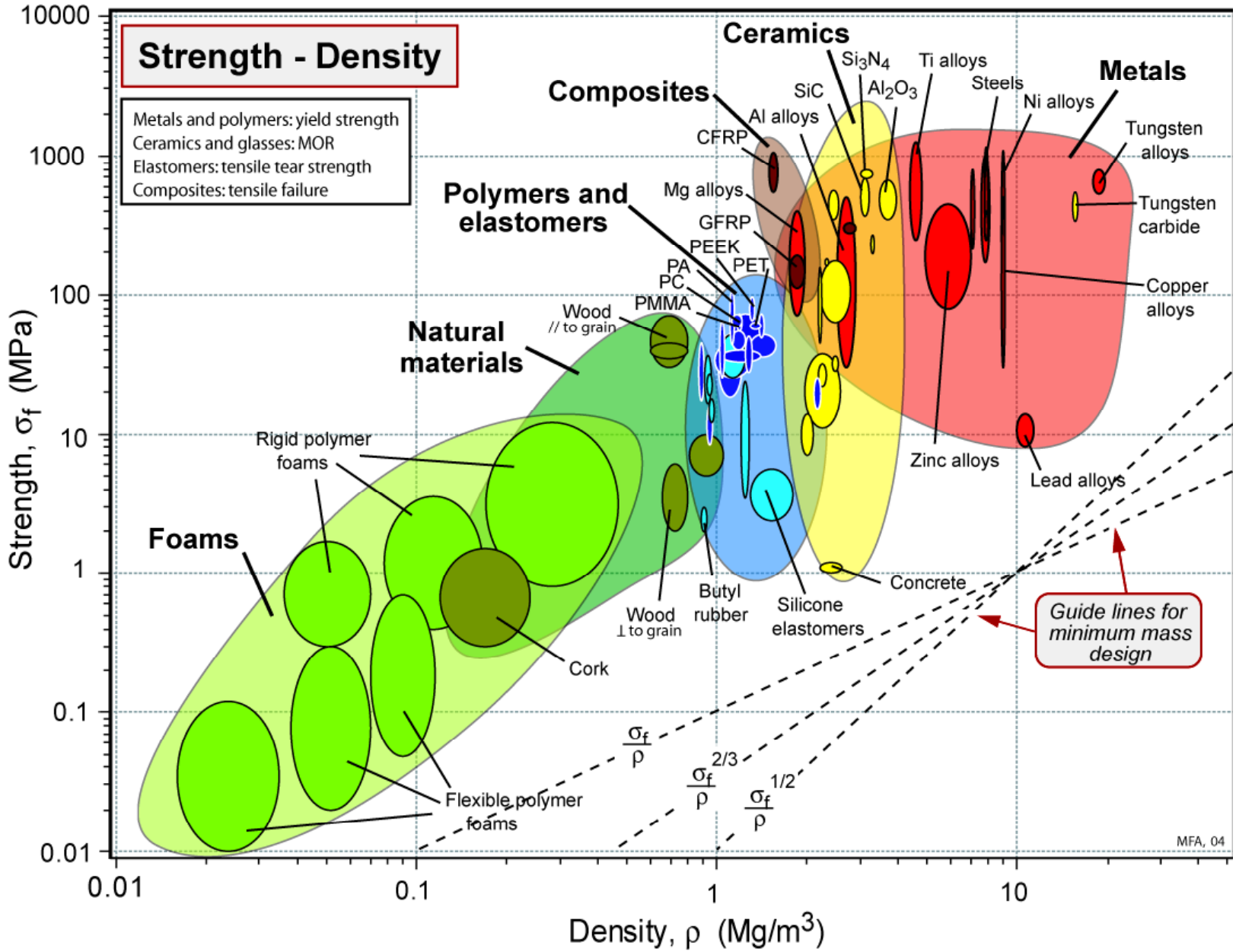
Strength - Density
Metals and polymers: yield strength
Ceramics and glasses: MOR
Elastomers: tensile tear strength
Composites: tensile failure
Ceramics
Composites
Metals
Polymers and elastomers
Natural materials
Foams
Si3N4
Ti alloys
SiC
Al2O3
Steels
Ni alloys
Al alloys
CFRP
Tungsten alloys
Mg alloys
Tungsten carbide
GFRP
PEEK
PA
PET
PC
PMMA
Copper alloys
Wood // to grain
Zinc alloys
Lead alloys
Rigid polymer foams
Concrete
Butyl rubber
Silicone elastomers
Wood ⊥ to grain
Cork
Guide lines for minimum mass design
Flexible polymer foams
σf/ρ
σf/ρ 2/3
σf/ρ 1/2
MFA, 04
Strength, σf (MPa)
Density, ρ (Mg/m3)
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10