Supporting Information

Transparent, pliable antimicrobial hydrogels for ocular wound dressings

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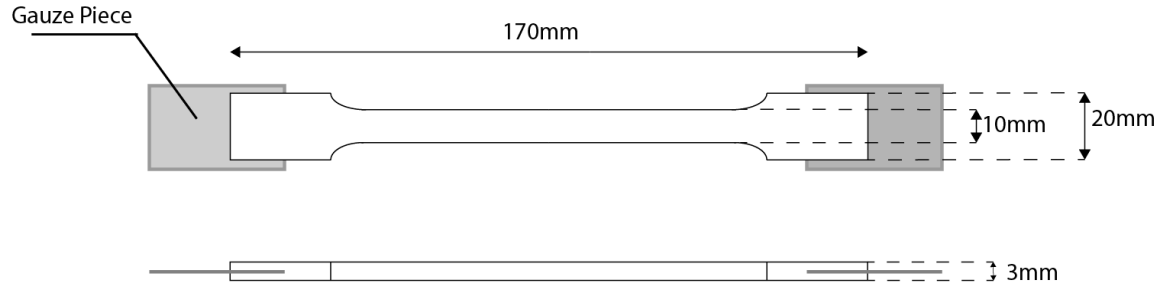
SI – Figure 1. (A) Schematic and key dimensions of dog bone samples for tensile testing in accordance to ISO527 type 1A; **(B)** Schematic of the 3-layerd mould used to produce dog bone samples. Two gauze pieces can be inserted between the first and second layer before assembly to produce dog bone samples with integral gauze pieces which provides gripping space for pneumatic grips attached to the tensile testing machine.

A



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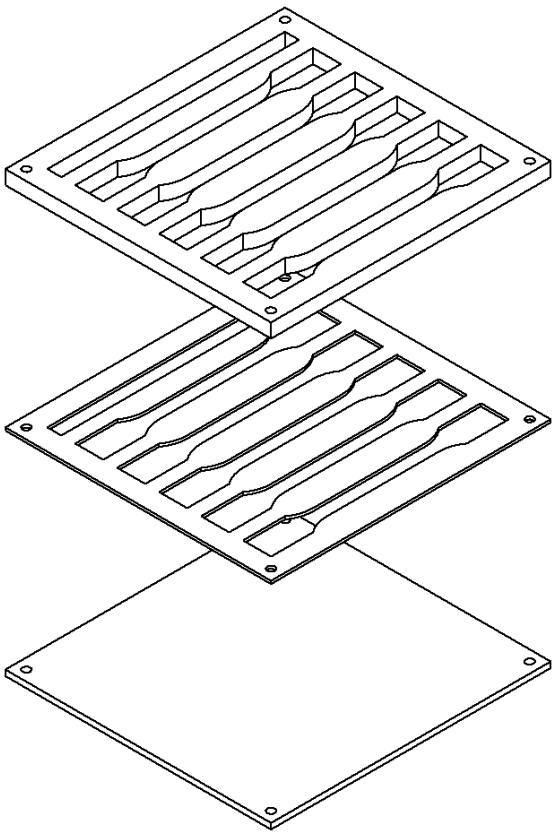
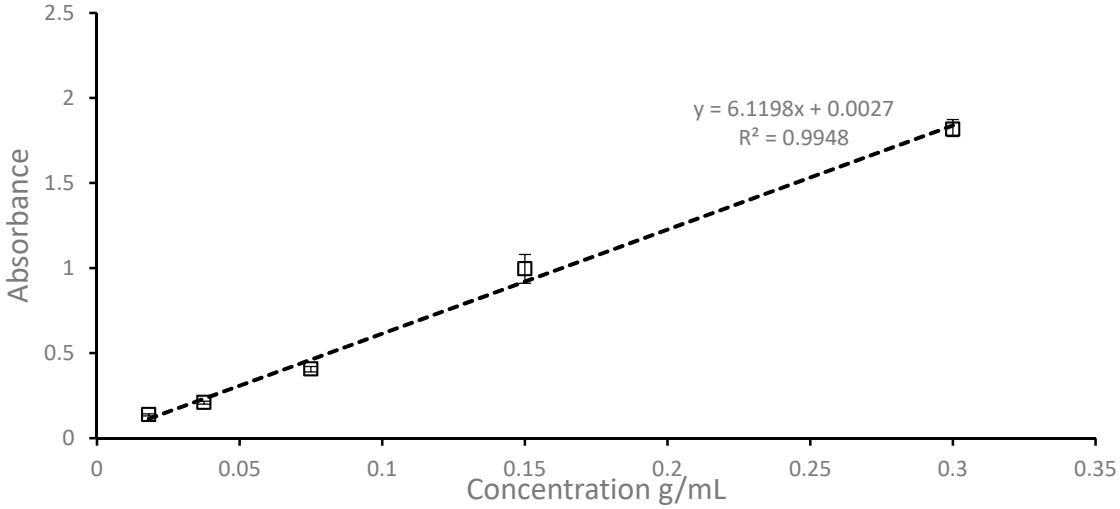


SI_- Figure 2. Absorbance vs. concentration calibration curves for concentration measurements of the following anti-microbial agents using UV spectroscopy: (A) Cefazolin (λ = 272 nm), **(B)** Doxycycline (λ = 272 nm); **(C)** Ionic Liquid (λ = 208 nm)

A



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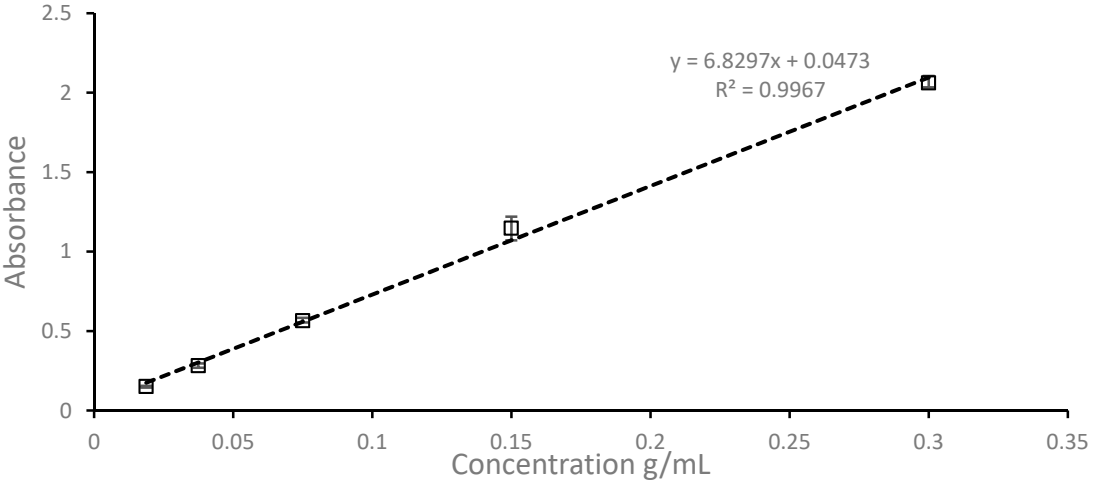

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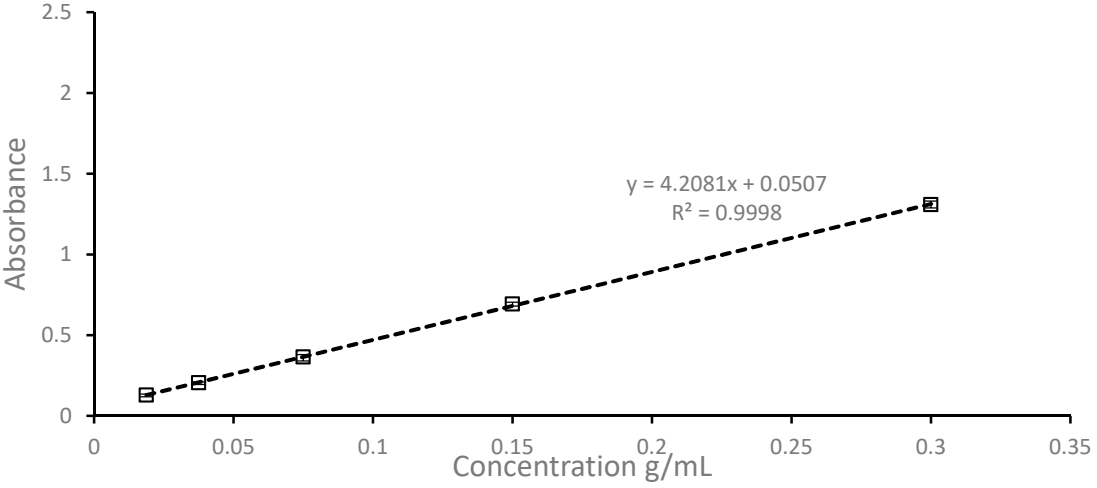
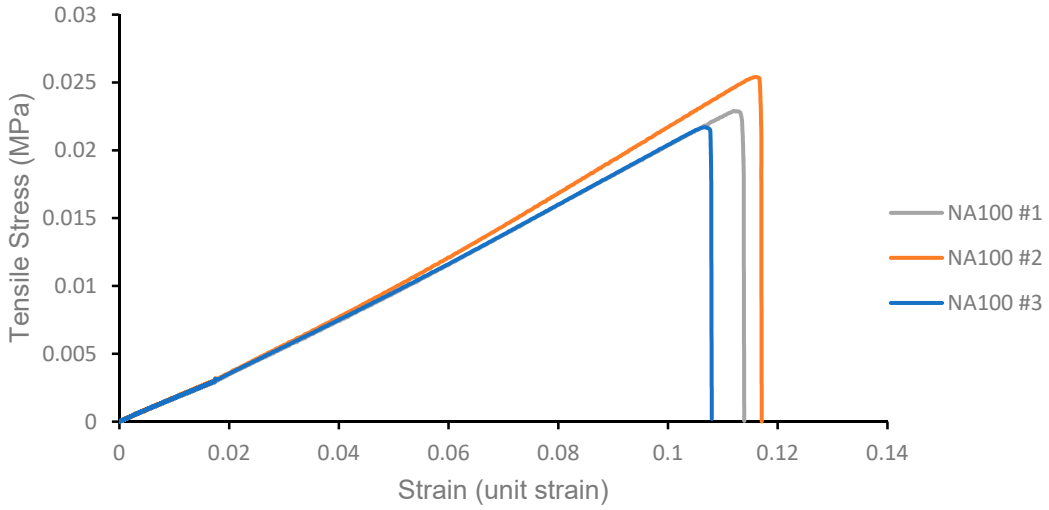


SI – Figure 3. Stress-strain curves produced by tensile testing with dog bone shaped samples of **(A)** NA100; **(B)** NA75CA25; **(C)** NA50CA50; **(D)** NA100 with 0.5% Cefazolin; (E) NA75CA25 with 0.5% Cefazolin; **(F)** NA50CA50 with 0.5% Cefazolin; **(G)** NA100 with 0.5% Doxycycline; **(H)** NA75CA25 with 0.5% Doxycycline; **(I)** NA50CA50 with 0.5% Doxycycline; **(J)** NA100 with 0.5% IL; **(K)** NA75CA25 with 0.5% IL; **(L)** NA50CA50 with 0.5% IL. The results show that the addition of anti-microbial agents into hydrogel blends had neglectable impact on the material's mechanical properties, probably because the anti-microbial molecules are too small in contract to the crosslinked polysaccharide fibres.

A



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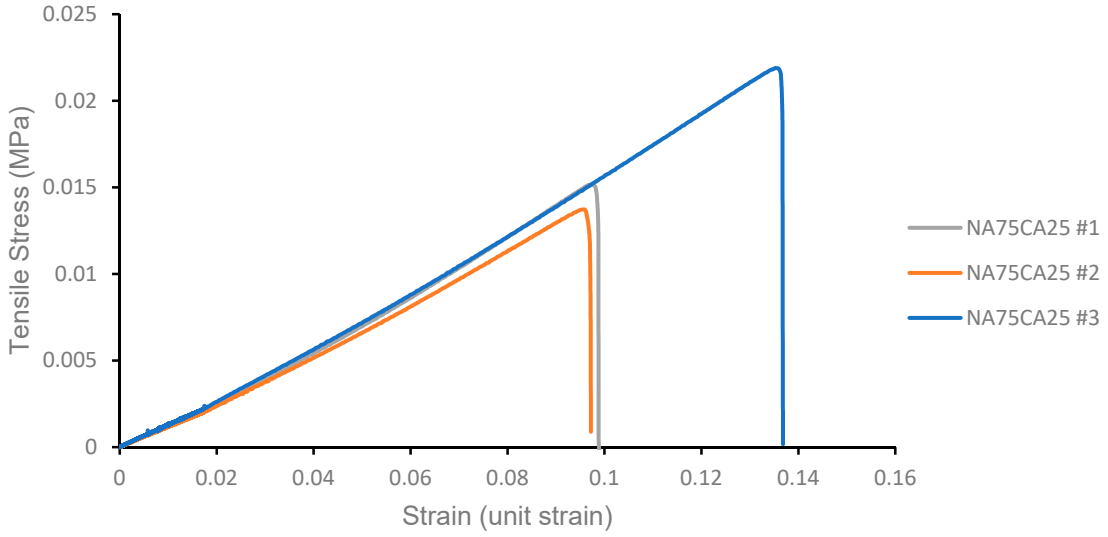

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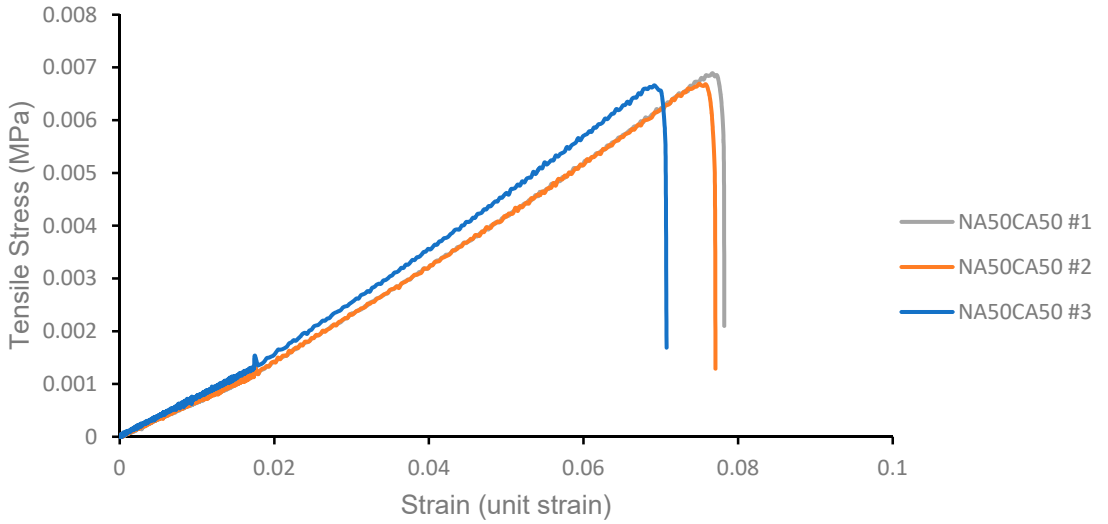
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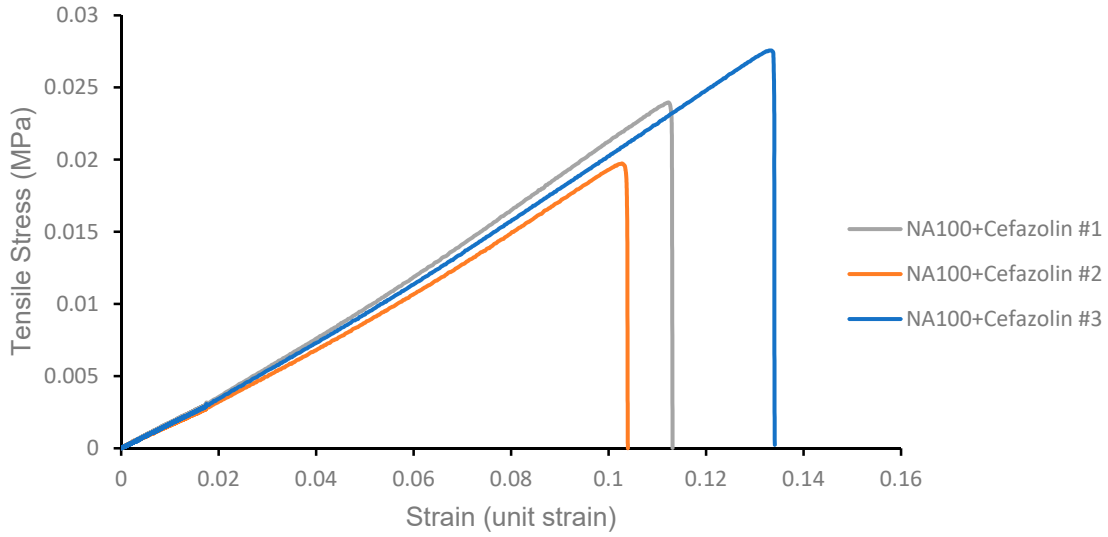
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
Strain (unit strain)
NA50CA50 #1
NA50CA50 #2
NA50CA50 #3

D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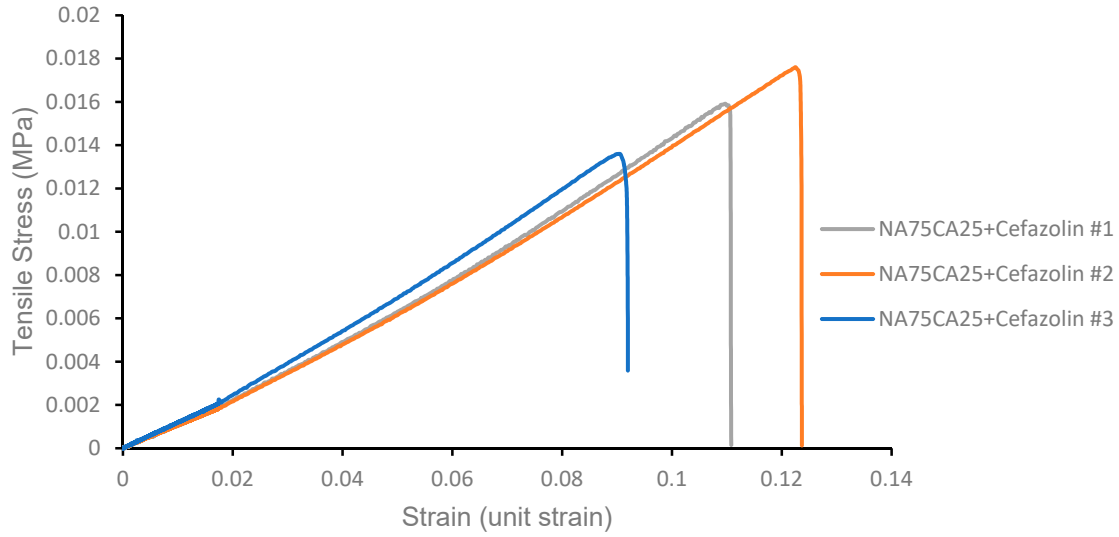
0.02
0.015
0.01
0.005
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
Strain (unit strain)
NA100+Cefazolin #1
NA100+Cefazolin #2
NA100+Cefazolin #3

E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0.01
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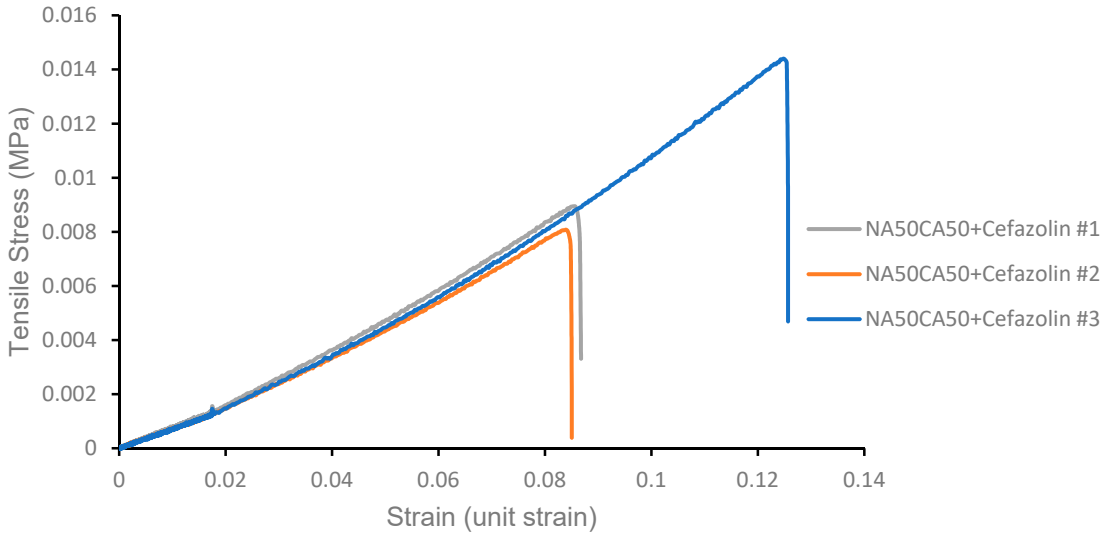
0.006
0.004
0.002
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
Strain (unit strain)
NA75CA25+Cefazolin #1
NA75CA25+Cefazolin #2
NA75CA25+Cefazolin #3

F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0.014
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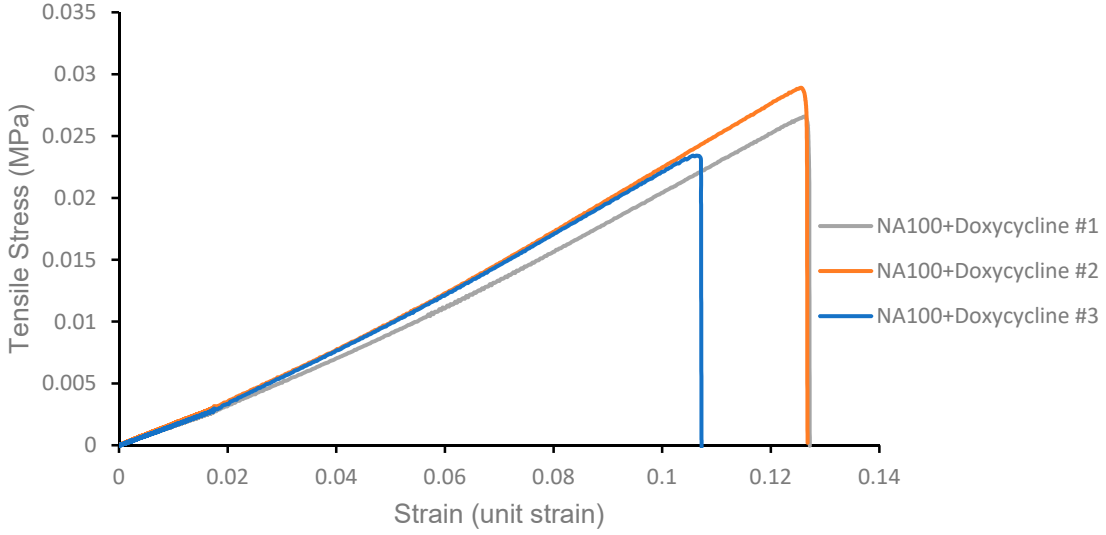
0.01
0.008
0.006
0.004
0.002
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
Strain (unit strain)
NA50CA50+Cefazolin #1
NA50CA50+Cefazolin #2
NA50CA50+Cefazolin #3

G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0.03
0.025
0.02
0.015
0.01
0.005
0
Tensile Stress (MPa)
0
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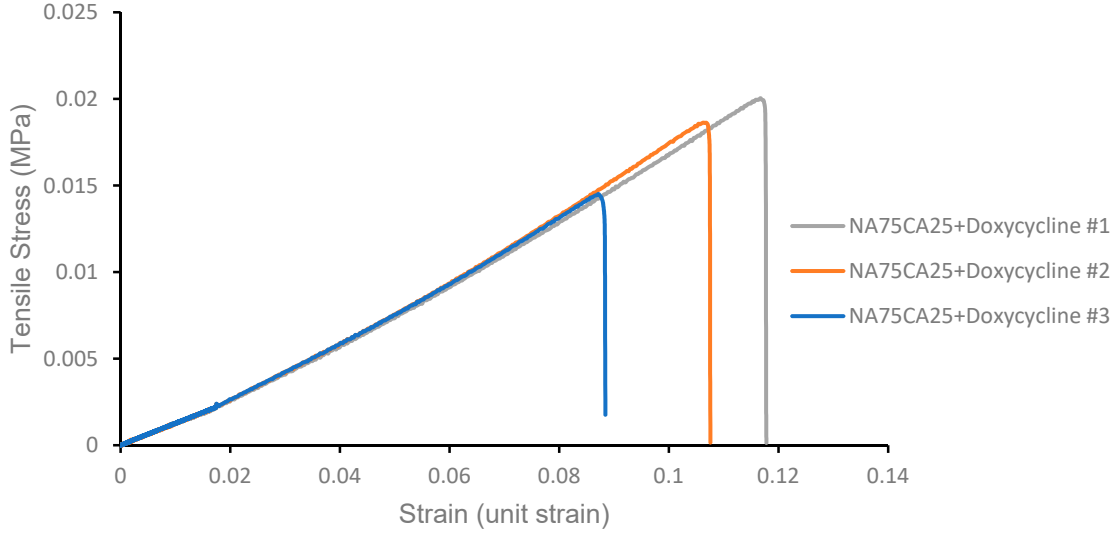
0.04
0.06
0.08
0.1
0.12
0.14
Strain (unit strain)
NA100+Doxycycline #1
NA100+Doxycycline #2
NA100+Doxycycline #3

H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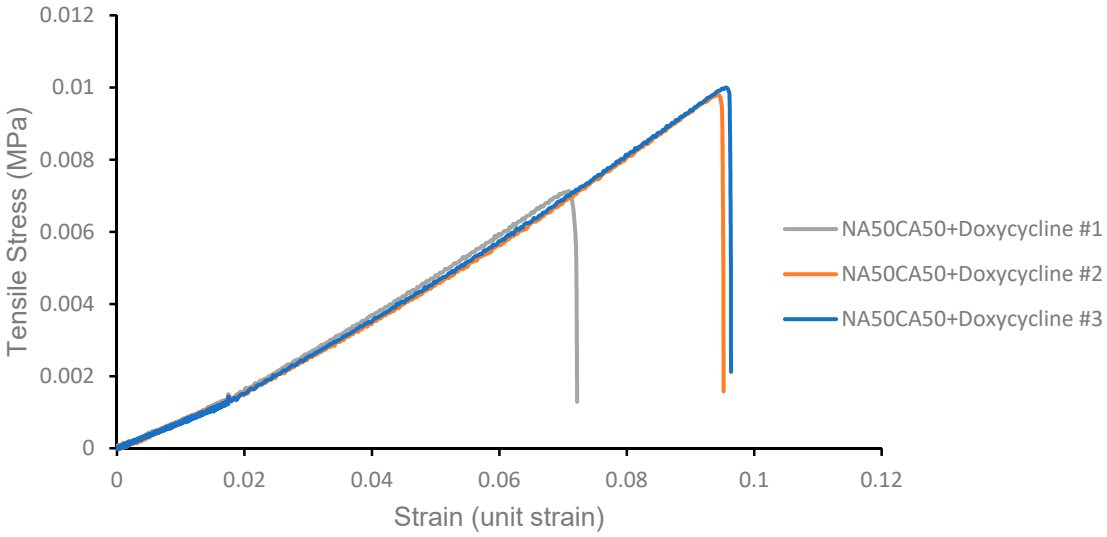
0.005
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
Strain (unit strain)
NA75CA25+Doxycycline #1
NA75CA25+Doxycycline #2
NA75CA25+Doxycycline #3

I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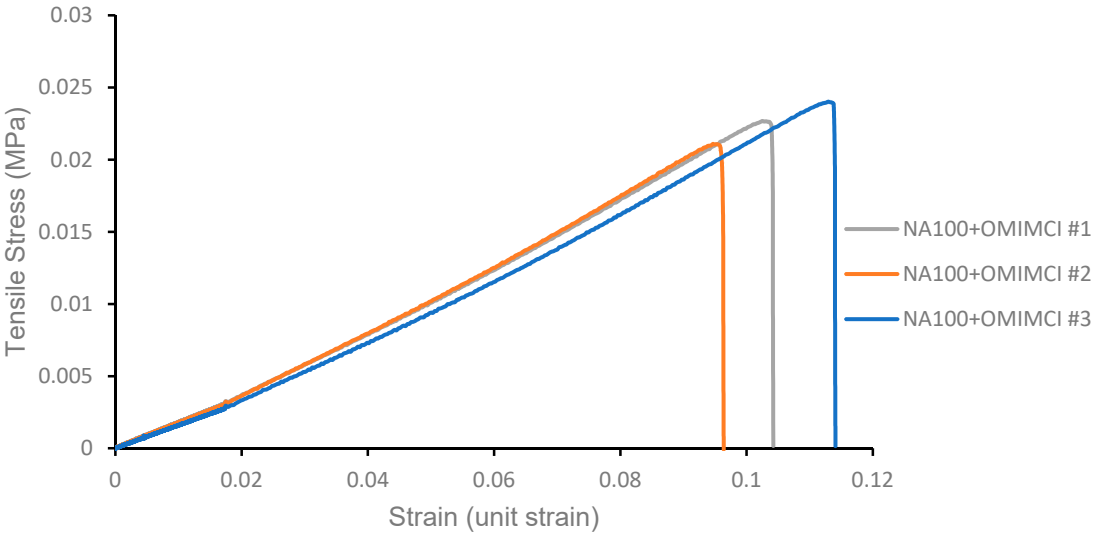
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
Strain (unit strain)
NA50CA50+Doxycycline #1
NA50CA50+Doxycycline #2
NA50CA50+Doxycycline #3

J


0.03
0.025
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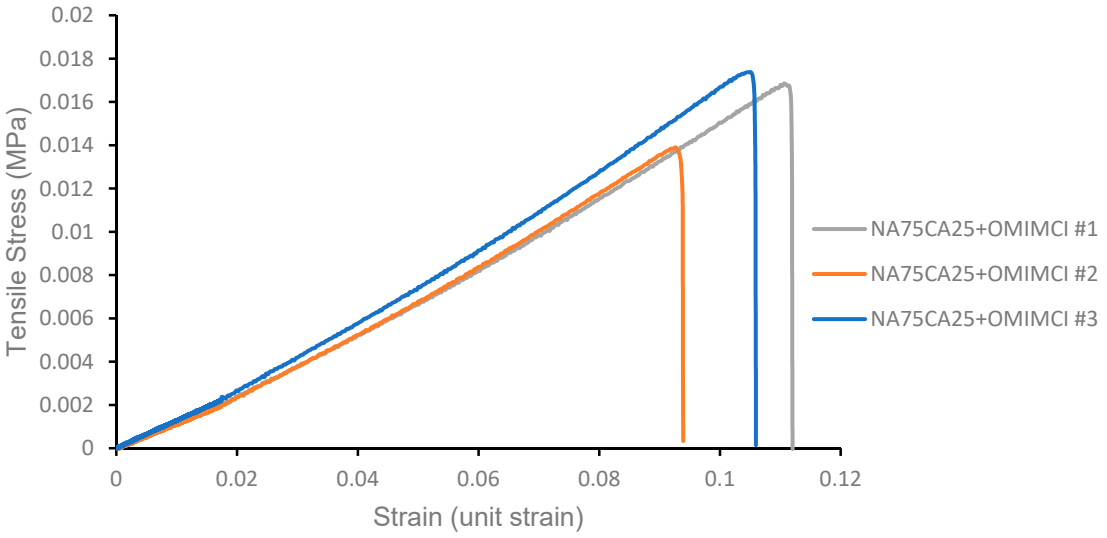
0.015
0.01
0.005
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
Strain (unit strain)
NA100+OMIMCl #1
NA100+OMIMCl #2
NA100+OMIMCl #3

K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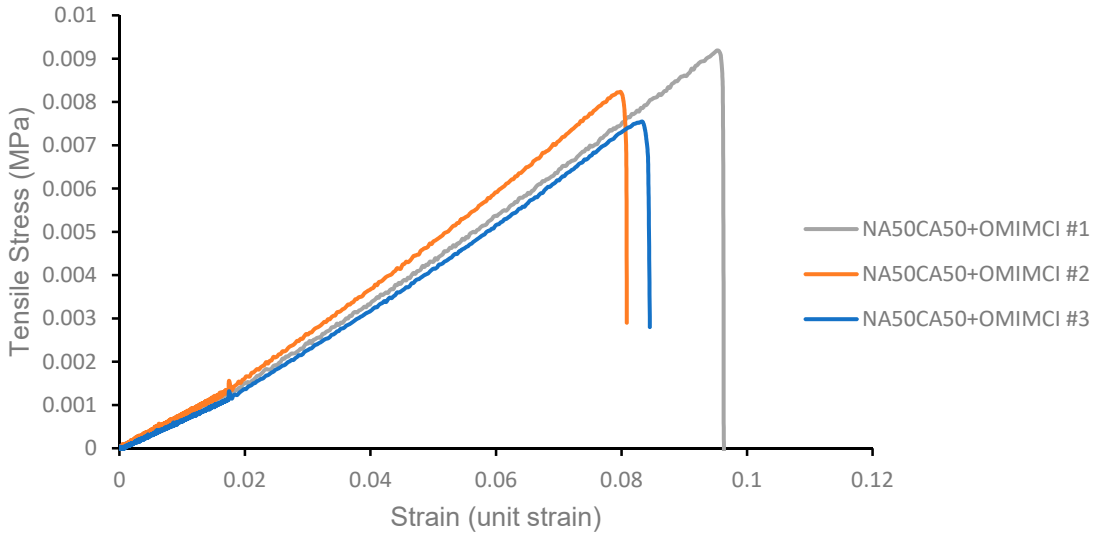
0.01
0.008
0.006
0.004
0.002
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
Strain (unit strain)
NA75CA25+OMIMCl #1
NA75CA25+OMIMCl #2
NA75CA25+OMIMCl #3

L


0.01
0.009
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0.002
0.001
0
Tensile Stress (MPa)
0
0.02
0.04
0.06
0.08
0.1
0.12
Strain (unit strain)
NA50CA50+OMIMCl #1
NA50CA50+OMIMCl #2
NA50CA50+OMIMCl #3