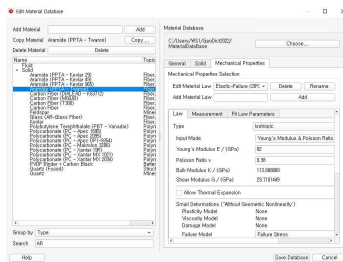


섬유복합구조체의 안전보호 소재의 시뮬레이션(인장강도) DB (36 건)

○ 시험 개요

보호복 원단의 기계적 특성(인장강도), 평가를 통해 실제 원단의 기계적 성능을 평가하고, 이 데이터를 기반으로 혼용물 기반의 원단, 원사 구조 모델링을 진행하고, 이러한 모델링과 물성 정보를 반영한 원사단위, 원단단위의 기계적 특성을 수치해석 기법을 통해 도출함.

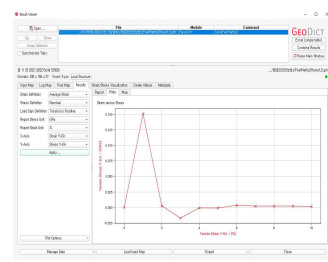
○ 직경에 따른 MB필터의 모델형상



원사 물성 정보 정의 및 설정



원단 제직 모델링



원단 시험 인장강도 해석

[보호복 원단 기계적 특성 해석 DB 구축 모식도]

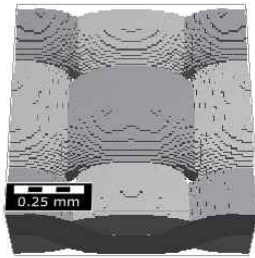
		원단 #1	원단 #2	원단 #3	원단 #4	원단 #5
인장강도 (Grab Method) (N/100mm)	경사	720	640	630	2,300	2,100
	위사	360	610	690	1,400	1,300
두께 (mm)		0.38	0.42	0.52	0.88	0.96



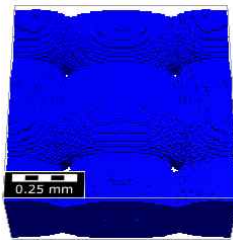
인장강도 (MPa)	경사	18.94	15.23	12.11	26.13	21.87
	위사	9.47	14.52	13.26	15.90	13.54

[시료별 다른 원단 두께를 반영한 하중으로 변환]

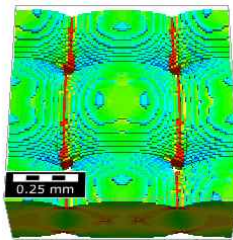
인장강도 시뮬레이션 결과_원사구조 (모델1_경사방향)



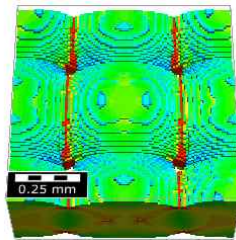
0.5%



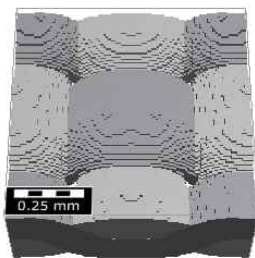
0.5%_failure



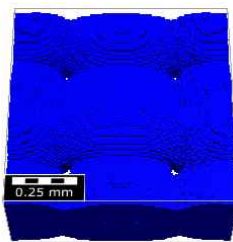
0.5%_strain



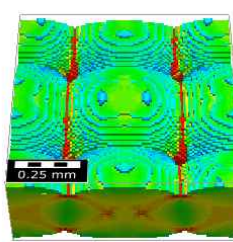
0.5%_stress



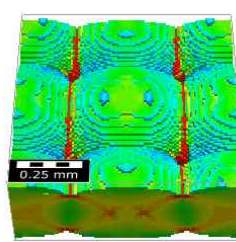
1%



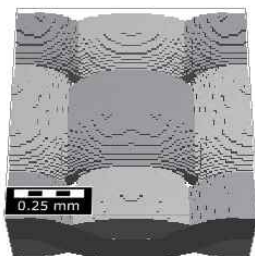
1%_failure



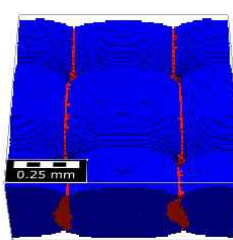
1%_strain



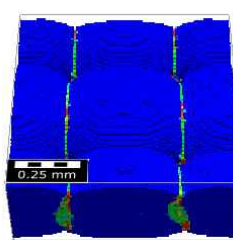
1%_stress



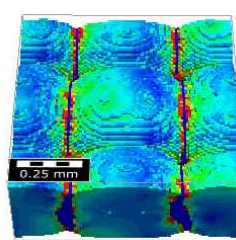
1.5%



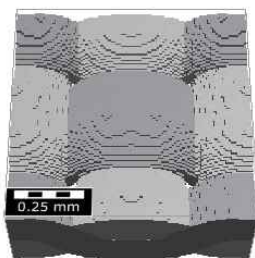
1.5%_failure



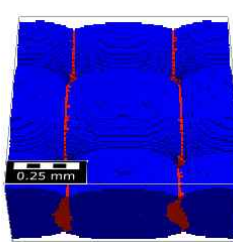
1.5%_strain



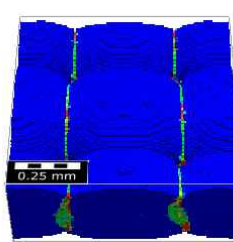
1.5%_stress



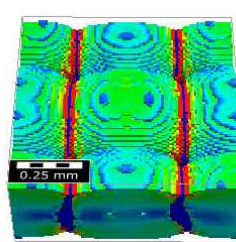
2%



2%_failure

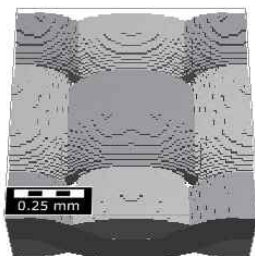


2%_strain

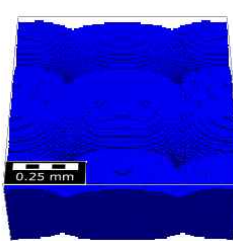


2%_stress

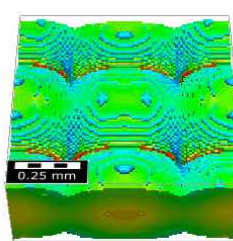
인장강도 시뮬레이션 결과_원사구조 (모델1_위사방향)



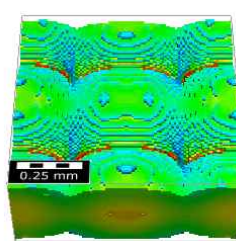
0.5%



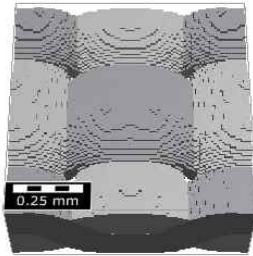
0.5%_failure



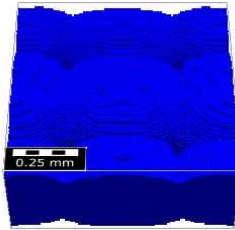
0.5%_strain



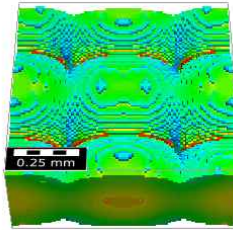
0.5%_stress



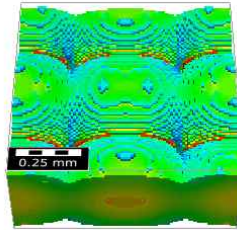
1%



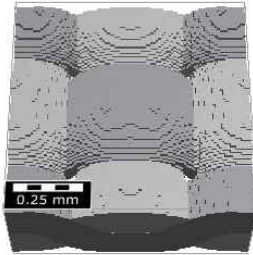
1%_failure



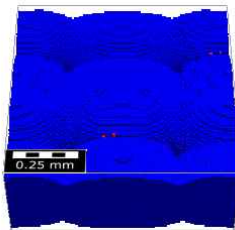
1%_strain



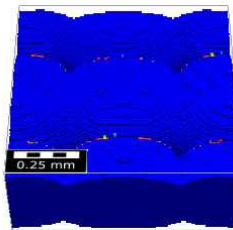
1%_stress



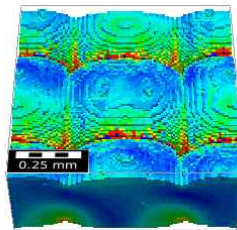
1.5%



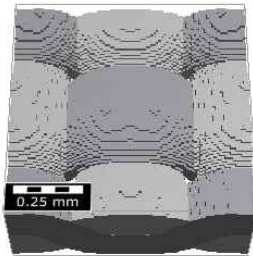
1.5%_failure



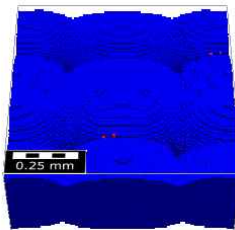
1.5%_strain



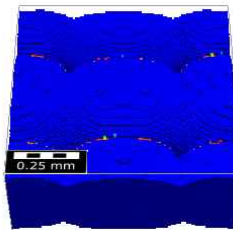
1.5%_stress



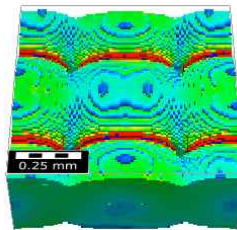
2%



2%_failure

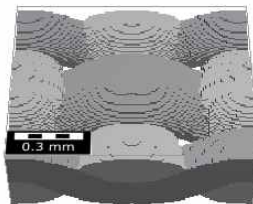


2%_strain

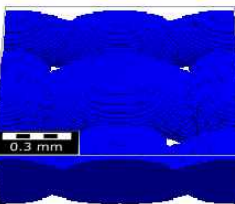


2%_stress

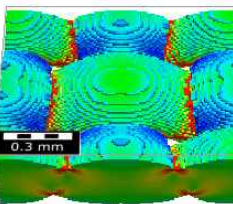
인장강도 시뮬레이션 결과_원사구조 (모델2_경사방향)



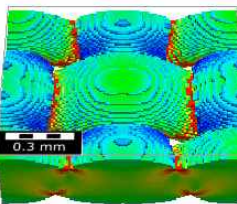
0.5%



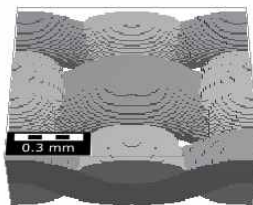
0.5%_failure



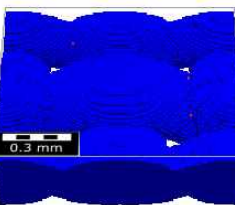
0.5%_strain



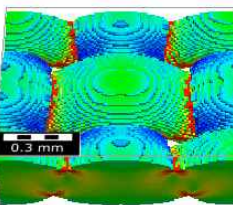
0.5%_stress



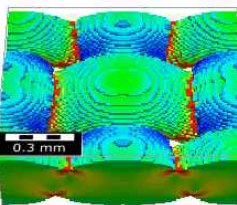
1%



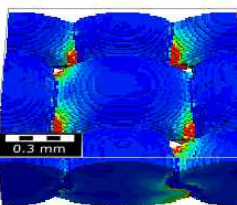
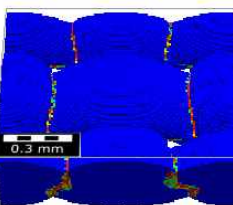
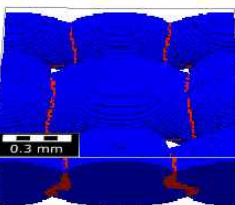
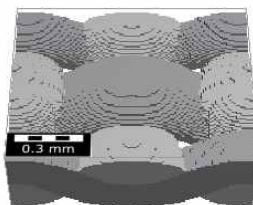
1%_failure

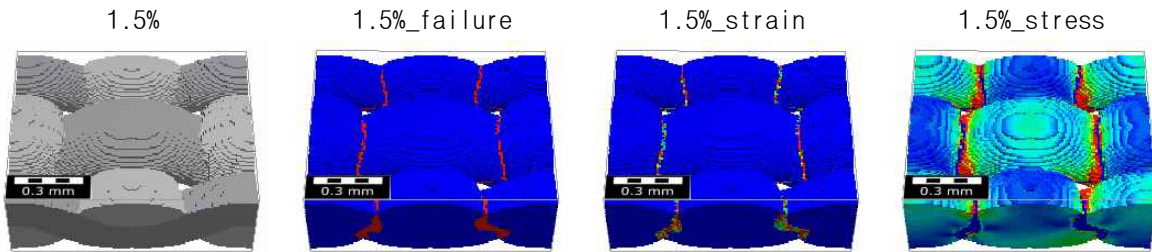


1%_strain



1%_stress





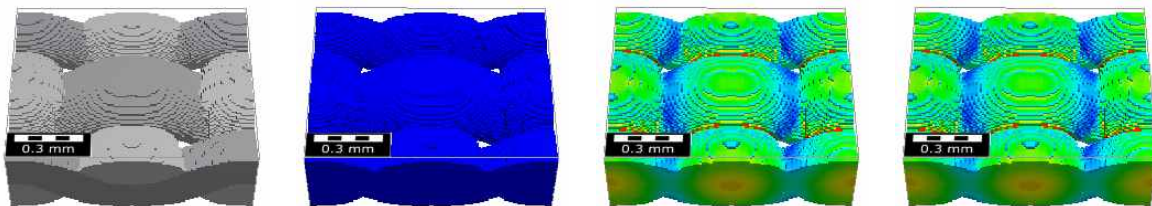
2%

2%_failure

2%_strain

2%_stress

인장강도 시뮬레이션 결과_원사구조 (모델2_위사방향)

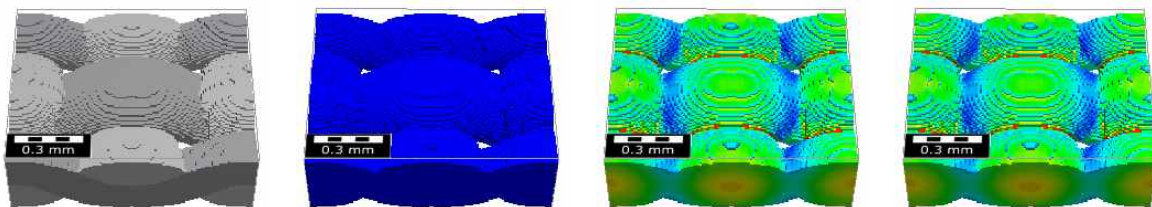


0.5%

0.5%_failure

0.5%_strain

0.5%_stress

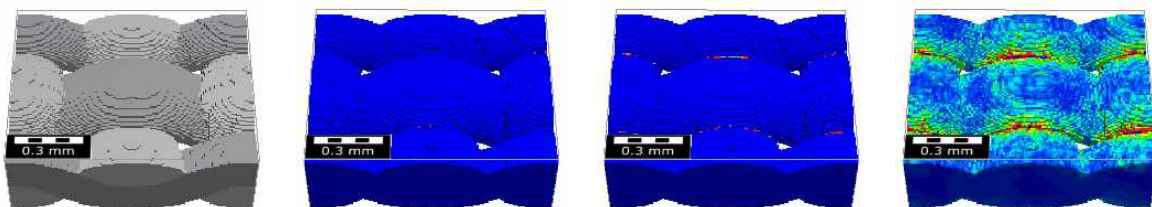


1%

1%_failure

1%_strain

1%_stress

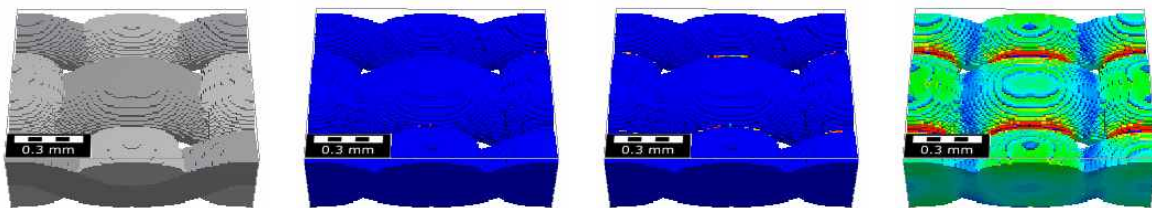


1.5%

1.5%_failure

1.5%_strain

1.5%_stress



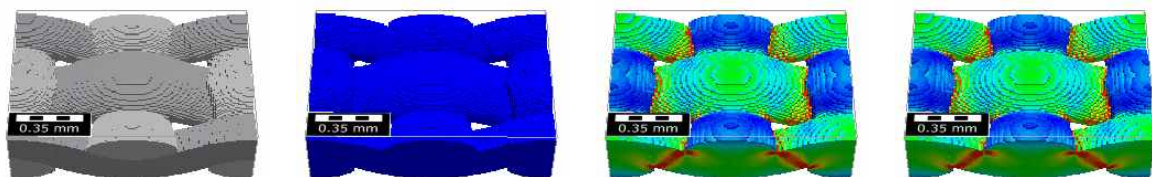
2%

2%_failure

2%_strain

2%_stress

인장강도 시뮬레이션 결과_원사구조 (모델3_경사방향)

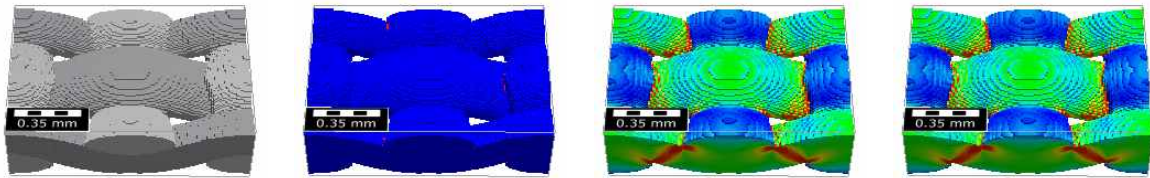


0.5%

0.5%_failure

0.5%_strain

0.5%_stress

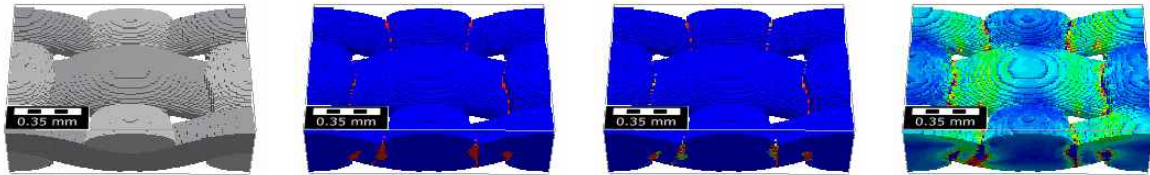


1%

1%_failure

11%_strain

1%_stress

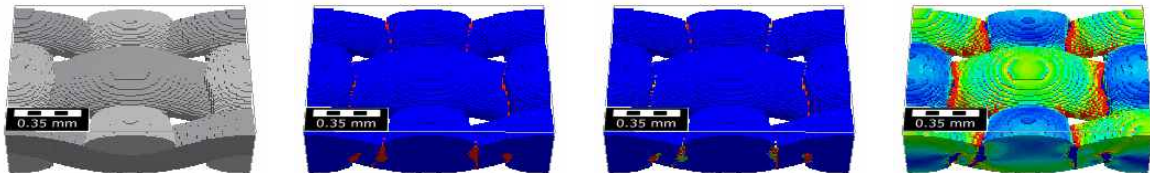


1.5%

1.5%_failure

1.5%_strain

1.5%_stress



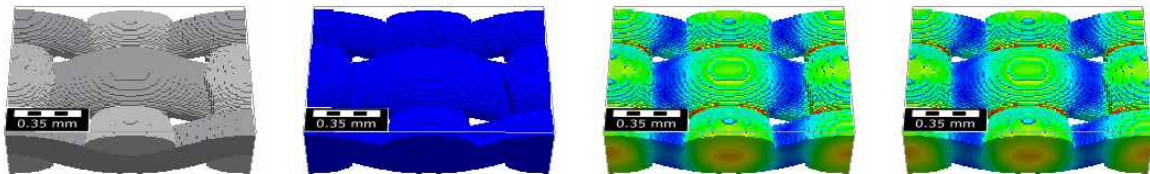
2%

2%_failure

2%_strain

2%_stress

인장강도 시뮬레이션 결과_원사구조 (모델3_위사방향)

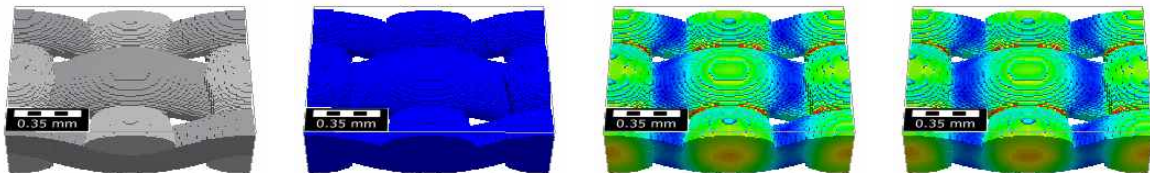


0.5%

0.5%_failure

0.5%_strain

0.5%_stress

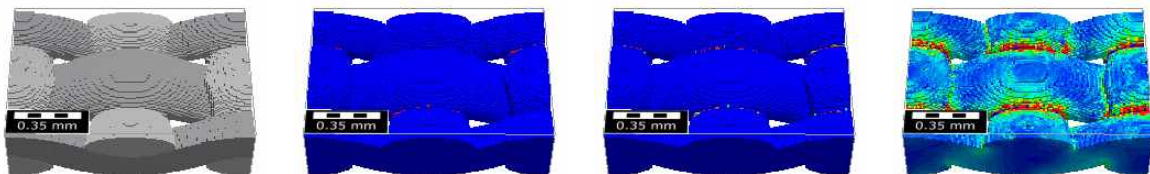


1%

1%_failure

11%_strain

1%_stress

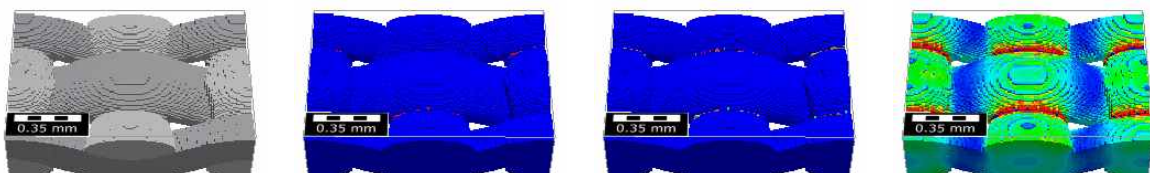


1.5%

1.5%_failure

1.5%_strain

1.5%_stress



2%

2%_failure

2%_strain

2%_stress