Identification for Mooney model: αgel, θ-6, V=1.25

Japan Association for Nonlinear CAE

ANSYS 9.0

Mooney model

$$W = \sum_{m=1}^{N}\sum_{n=1}^{N} C_{mn}(I_1-3)^m(I_2-3)^n$$

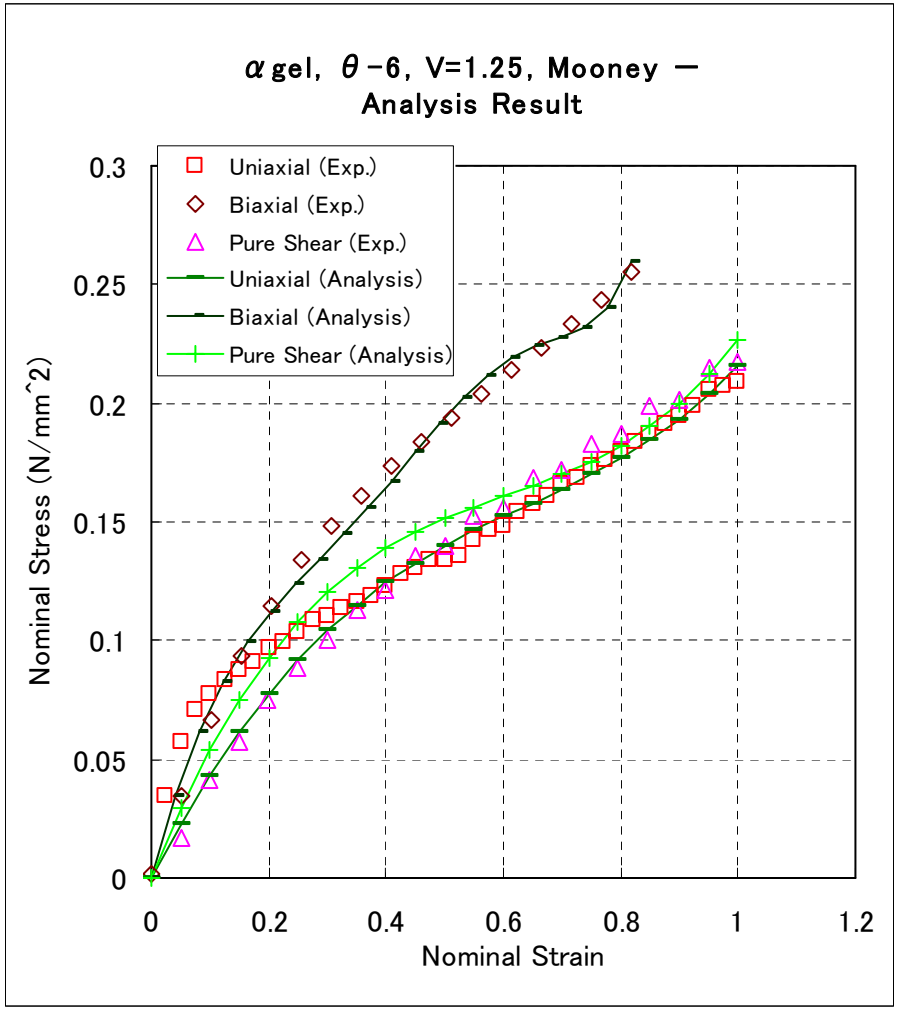
Rate of Loading in Tension Test(s)

1.25 mm/s

Coefficient

Coefficient	
C10 (C1)	0.084599
C01 (C2)	−0.0059611
C20 (C3)	−0.00484312
C11 (C4)	−0.027347
C02 (C5)	0.01752
C30 (C6)	−0.0030512
C21 (C7)	0.018881
C12 (C8)	−0.015567
C03 (C9)	0.0028892
C40 (C10)	0

Input File: gel6_v1.25_ansys_m.dat



Analysis result:
Stress-strain relationship

Identification for Odgen model: αgel, θ-6, V=1.25

ANSYS 9.0

Ogden model

$$W=\sum_{n=1}^{N}\frac{\mu_n}{\alpha_n}\left[J^{-\frac{\alpha_n}{3}}\left(\lambda_1^{\alpha_n}+\lambda_2^{\alpha_n}+\lambda_3^{\alpha_n}\right)-3\right]$$

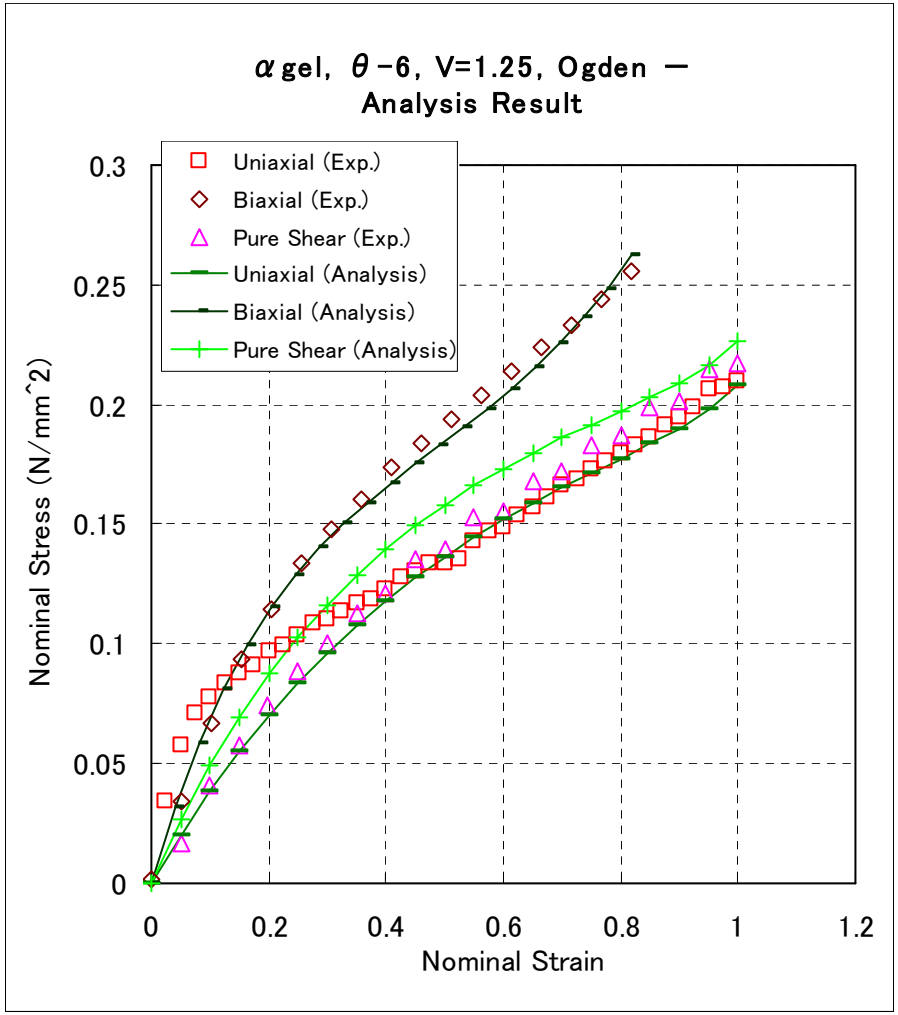
Rate of Loading in Tension Test(s)

1.25 mm/s

Coefficient

Coefficient		
Order	μ	α
1	−13321	0.0041444
2	−0.0063946	−3.1413
3	7.6922E−10	25.047
4	4117	0.013475

Input File: gel6_v1.25_ansys_og.dat



Analysis result:
Stress-strain relationship