

# Identification with Mooney model: Hardness (65), Damping (Small), V=2

**ANSYS 9.0**

**Mooney model**

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

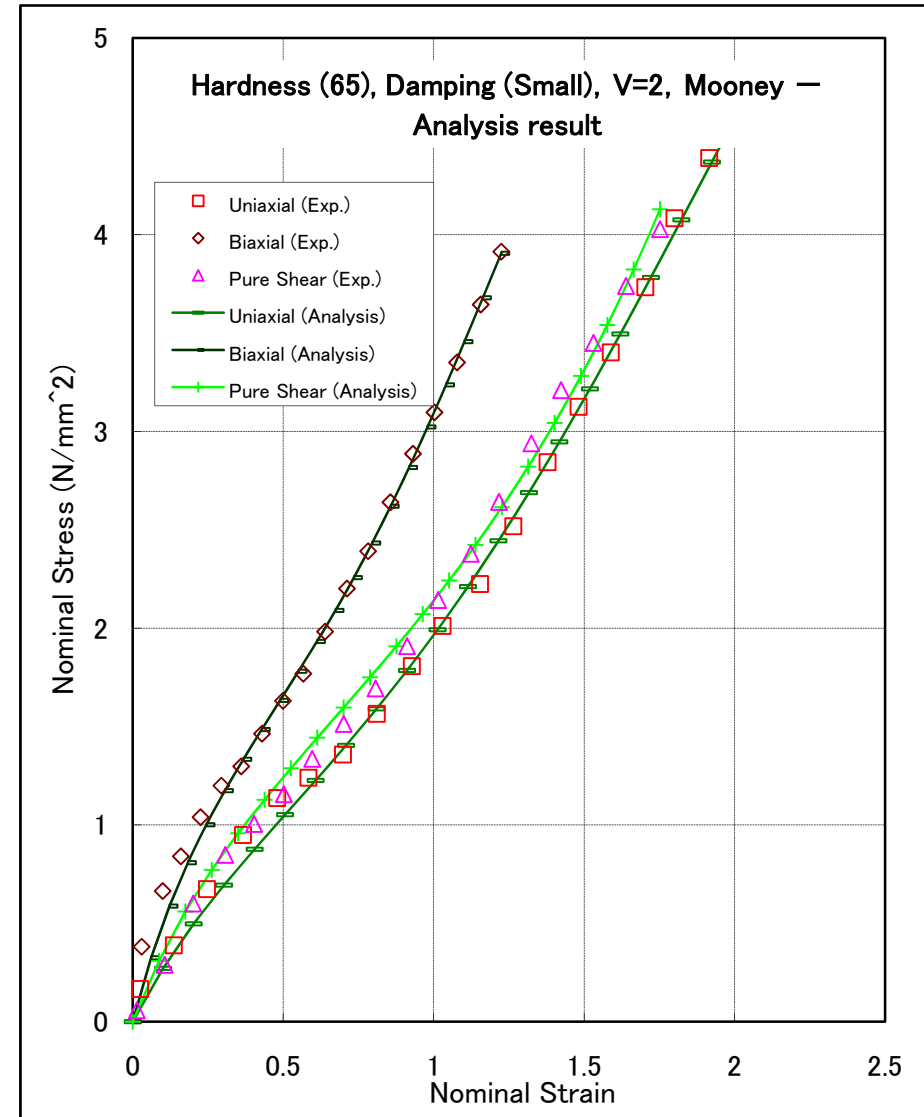
**Rate of Loading in Tension Test(s)**

2 mm/s

**Coefficient**

Coefficient	
C10 (C1)	0.40734
C01 (C2)	0.090309
C20 (C3)	0.054621
C11 (C4)	-0.055657
C02 (C5)	0.012736
C30 (C6)	-0.0033821
C21 (C7)	0.0073915
C12 (C8)	-0.0029276
C03 (C9)	0.00027109
C40 (C10)	0

**Input File:** ys\_nsl\_v2\_ansys\_m.dat



**Analysis result:  
Stress-strain relationship**

# Identification with Mooney model: Hardness (65), Damping (Small), V=20

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**Mooney model**

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

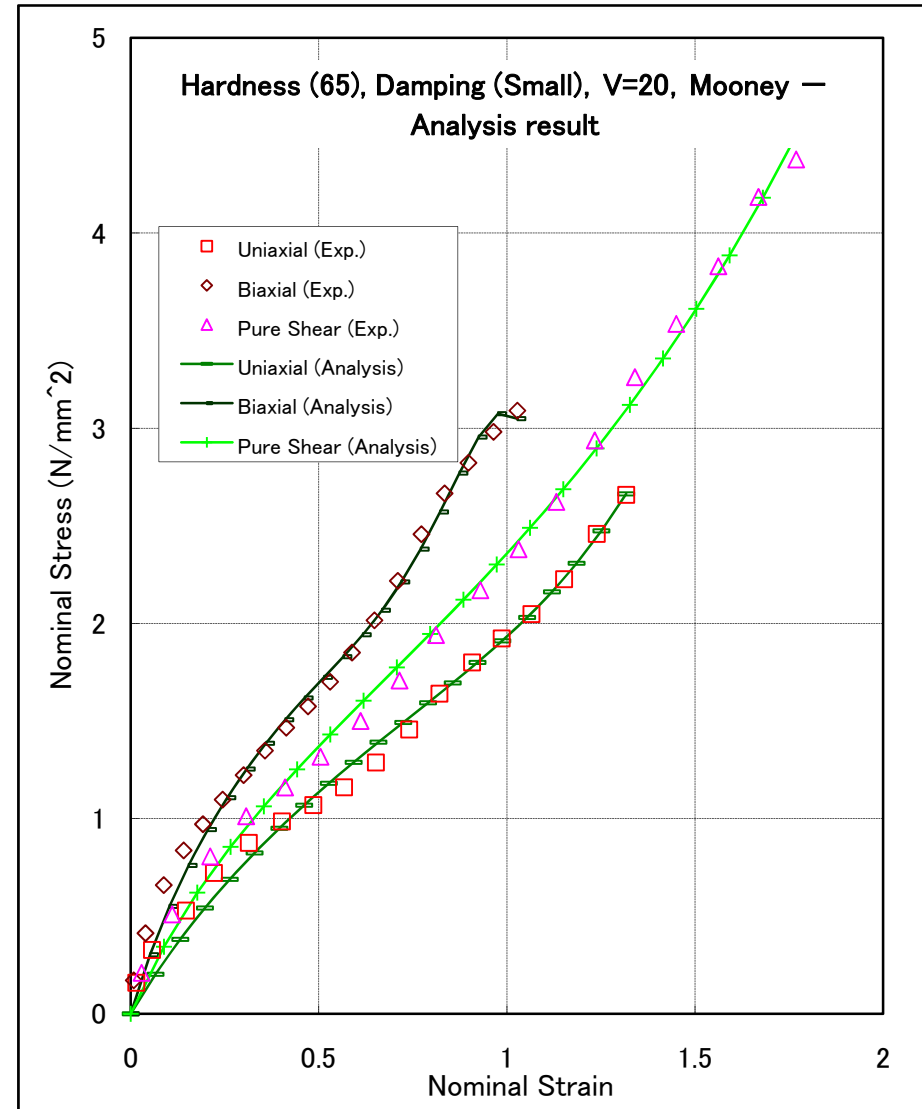
**Rate of Loading in Tension Test(s)**

20 mm/s

**Coefficient**

Coefficient	
C10 (C1)	0.49805
C01 (C2)	0.049676
C20 (C3)	-0.070546
C11 (C4)	0.152
C02 (C5)	-0.0672
C30 (C6)	0.024568
C21 (C7)	-0.05282
C12 (C8)	0.034691
C03 (C9)	-0.0053108
C40 (C10)	0

**Input File:** ys\_nsl\_v20\_ansys\_m.dat



**Analysis result:  
Stress-strain relationship**

# Identification with Ogden model: Hardness (65), Damping (Small), V=2

**ANSYS 9.0**

Ogden model

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

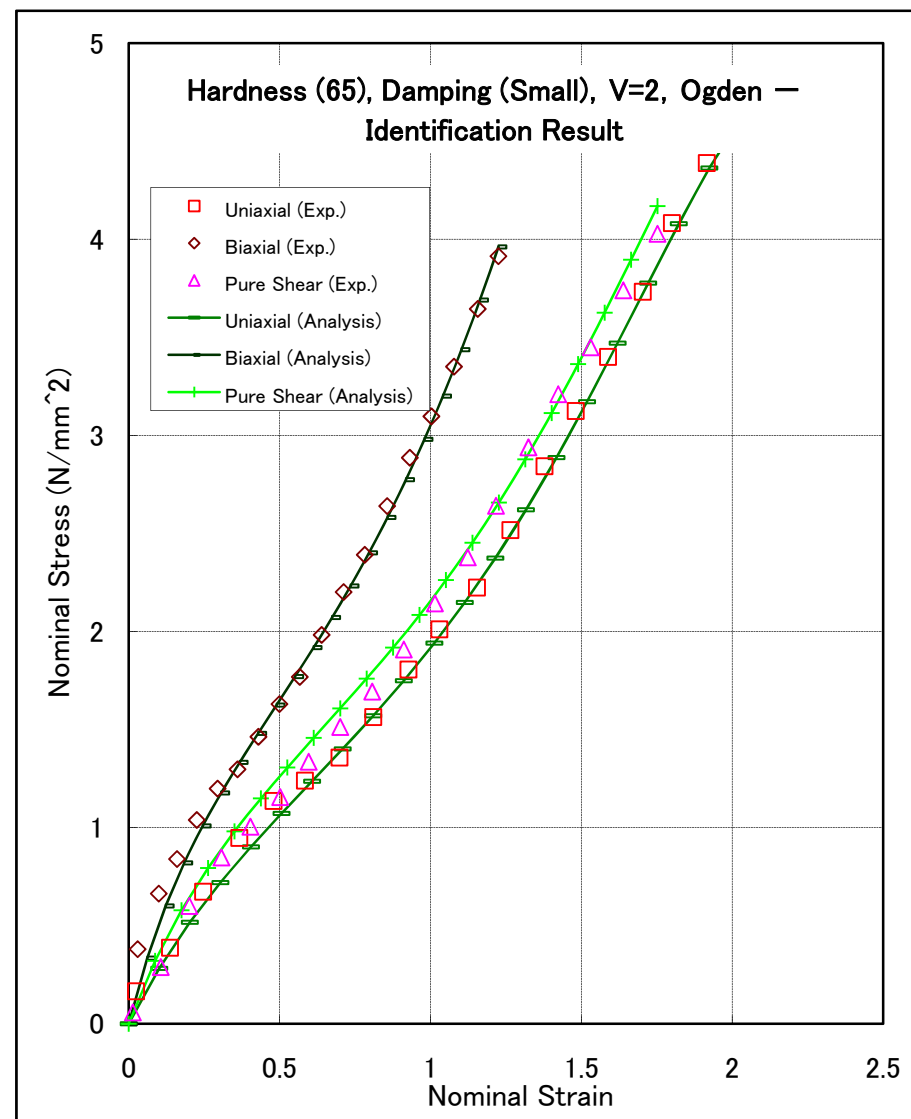
Rate of Loading in Tension Test(s)

2 mm/s

Coefficient

Coefficient		
Order	$\mu$	$\alpha$
1	-0.53014	8.1536
2	-0.07519	-2.3432
3	0.5358	8.1455
4	1.0919	1.6944

Input File: ys\_nsl\_v2\_ansys\_og.dat



Analysis result:  
Stress-strain relationship

# Identification with Ogden model: Hardness (65), Damping (Small), V=20

**ANSYS 9.0**

**Ogden model**

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

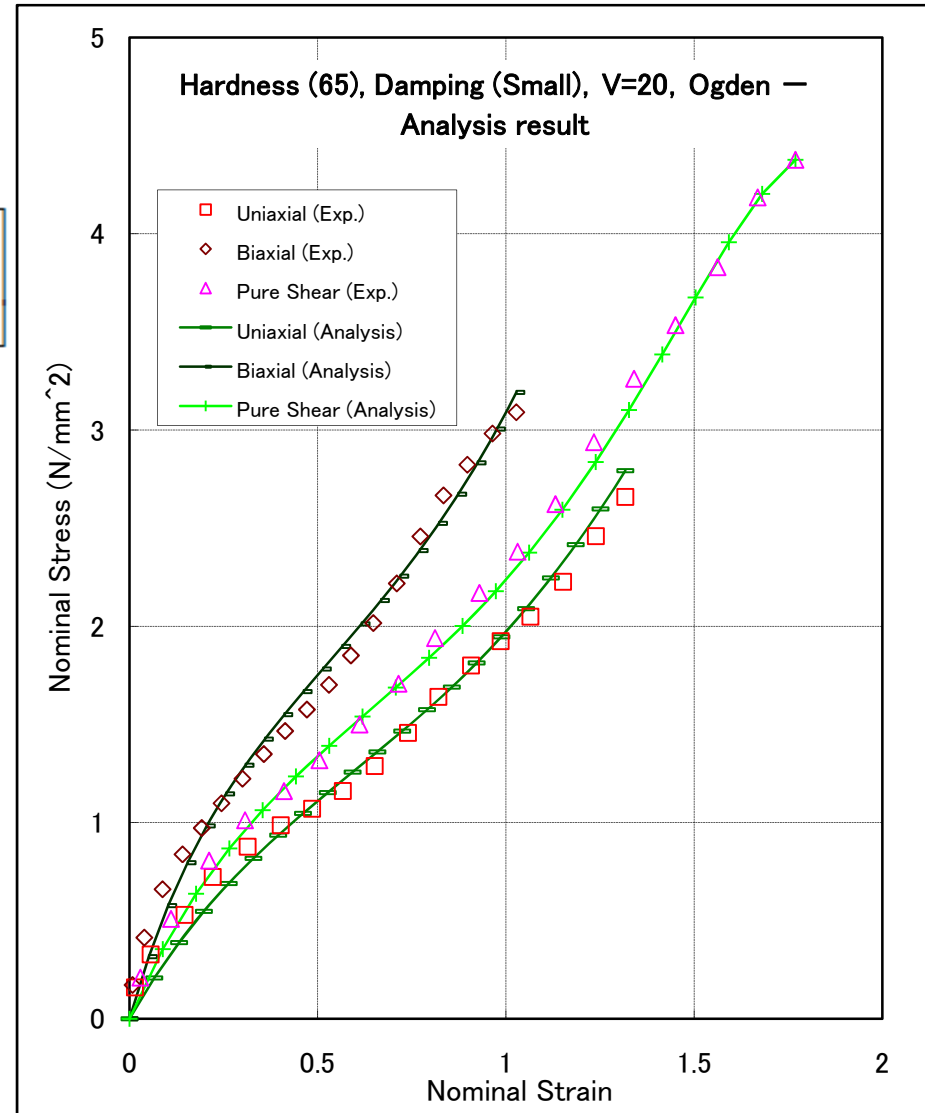
**Rate of Loading in Tension Test(s)**

20 mm/s

**Coefficient**

Coefficient		
Order	$\mu$	$\alpha$
1	-0.24835	9.7639
2	-0.0037742	-2.6786
3	0.25079	9.7554
4	1.662	1.2943

**Input File:**ys\_nsl\_v20\_ansys\_og.dat



**Analysis result:**  
**Stress-strain relationship**