

# Identification for Mooney model: Hardness (50), Damping (Large), V=2

**ANSYS 9.0**

**Mooney model**

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

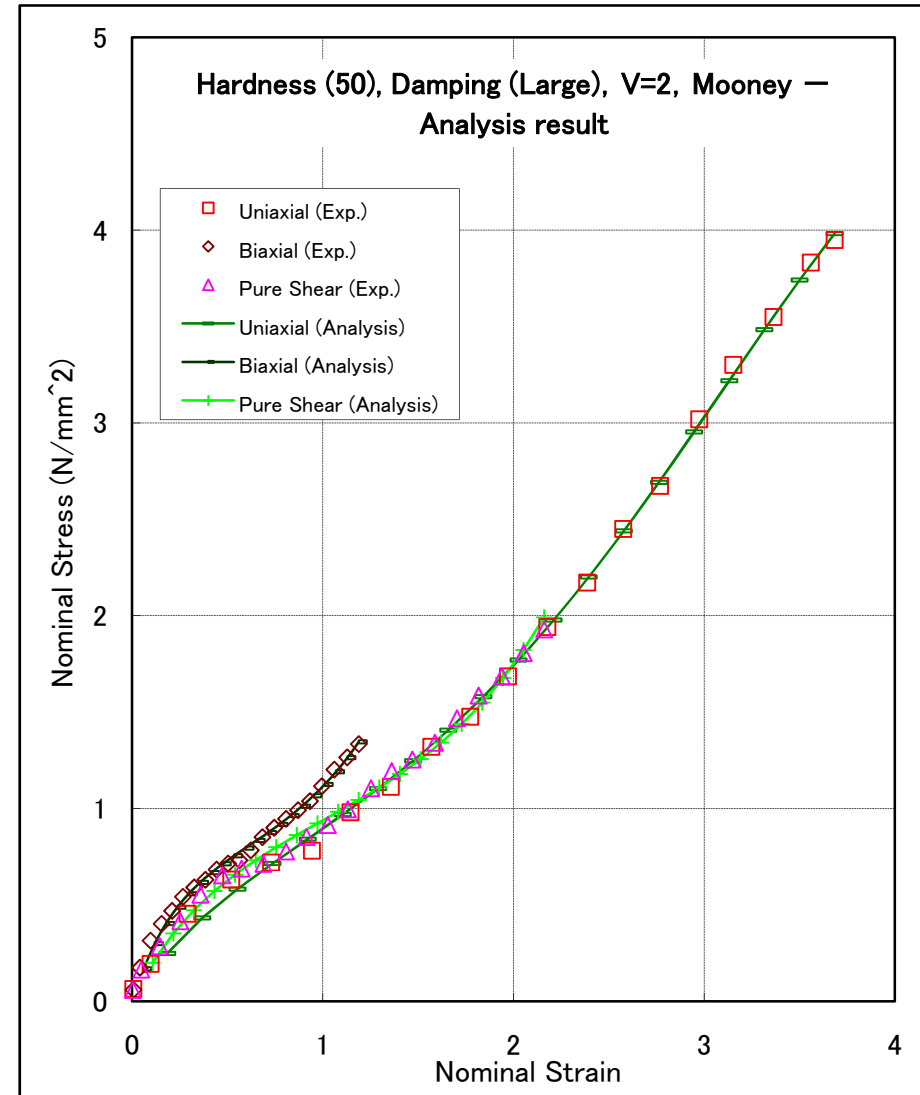
**Rate of Loading in Tension Test(s)**

2 mm/s

**Coefficient**

Coefficient	
C10 (C1)	0.24252
C01 (C2)	0.026161
C20 (C3)	0.0089352
C11 (C4)	-0.021263
C02 (C5)	0.0054577
C30 (C6)	-0.00055131
C21 (C7)	0.0023167
C12 (C8)	-0.0010529
C03 (C9)	0.00010484
C40 (C10)	0

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



**Analysis result:  
Stress-strain relationship**

# Identification for Mooney model: Hardness (50), Damping (Large), V=20

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**Mooney model**

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

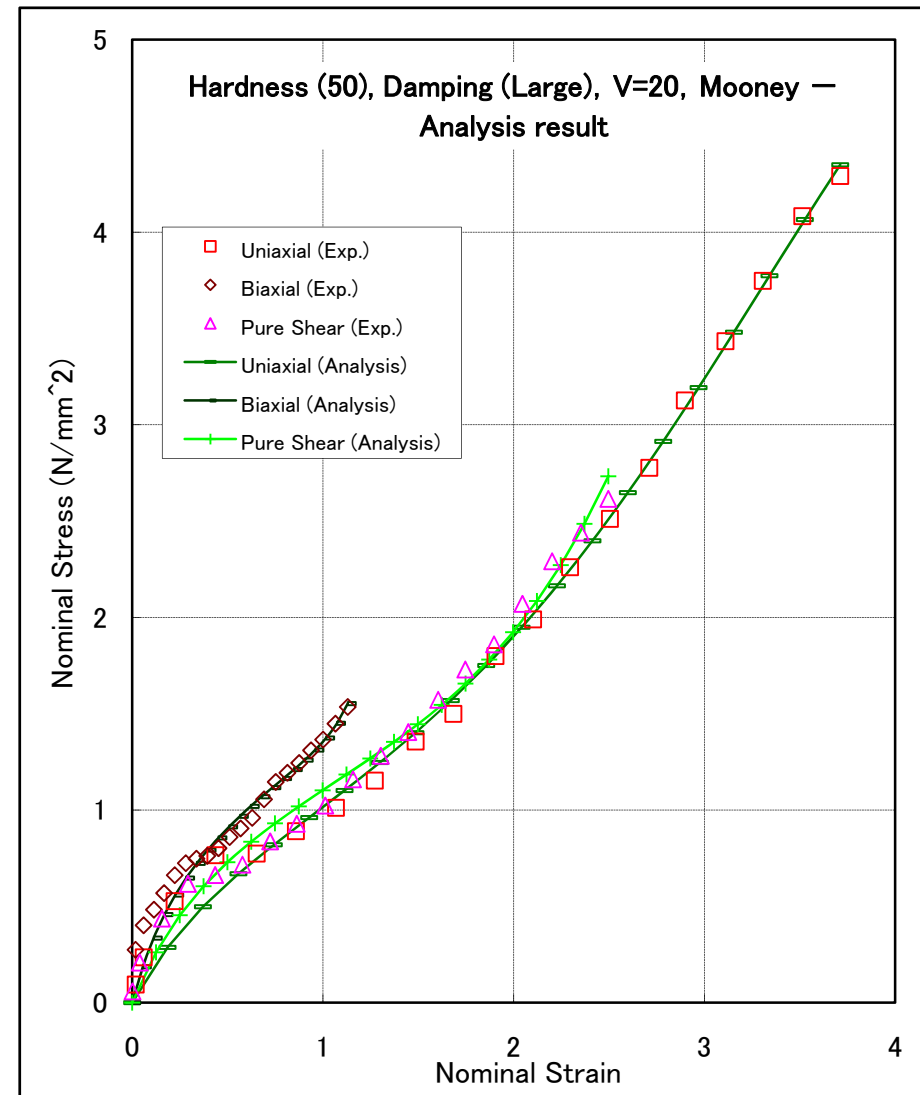
**Rate of Loading in Tension Test(s)**

20 mm/s

**Coefficient**

Coefficient	
C10 (C1)	0.26969
C01 (C2)	0.040062
C20 (C3)	0.0070715
C11 (C4)	-0.017387
C02 (C5)	0.0047539
C30 (C6)	-0.00051491
C21 (C7)	0.0024307
C12 (C8)	-0.0015114
C03 (C9)	0.00021743
C40 (C10)	0

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



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

# Identification for Ogden model: Hardness (50), Damping (Large), V=2

**ANSYS 9.0**

Ogden model

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

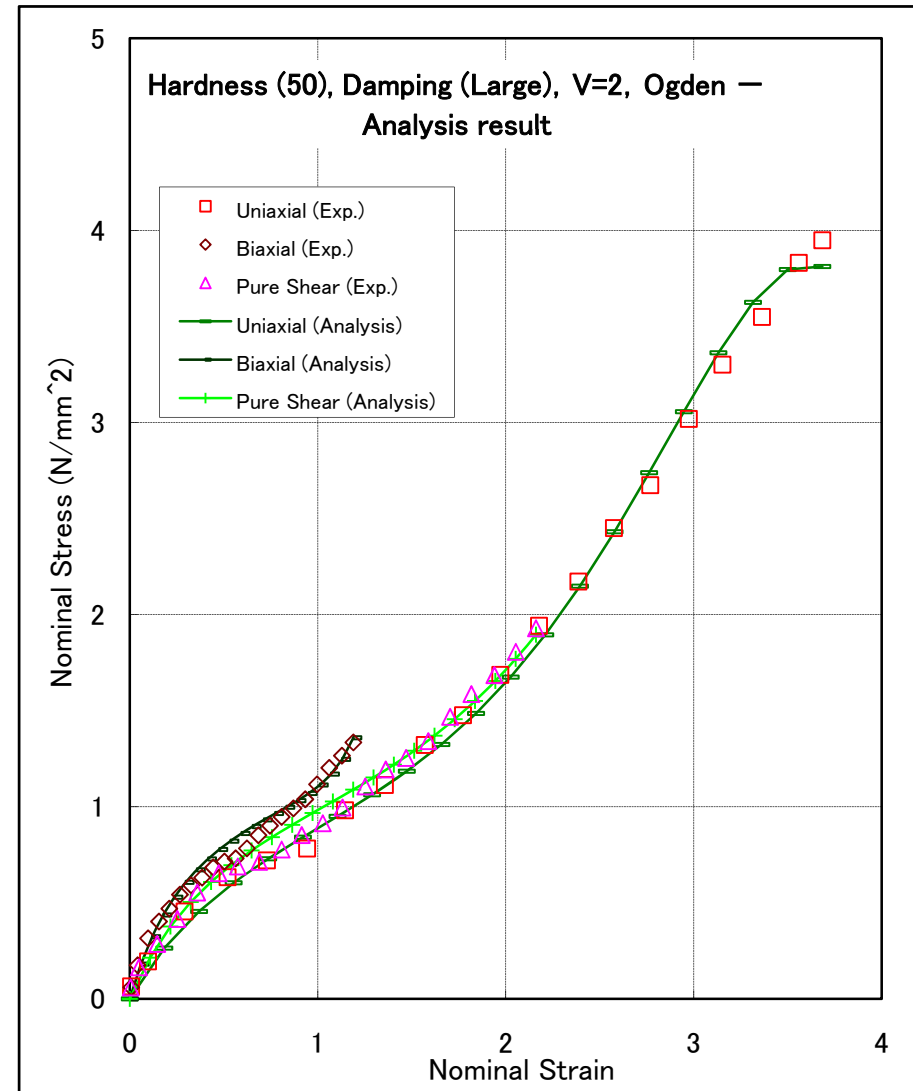
Rate of Loading in Tension Test(s)

2 mm/s

Coefficient

Coefficient		
Order	$\mu$	$\alpha$
1	-0.14129	8.0552
2	-2.01E-08	-10.754
3	0.14188	8.05126
4	0.79138	1.4503

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



**Analysis result:  
Stress-strain relationship**

# Identification for Ogden model: Hardness (50), Damping (Large), V=20

## Software Name

Ogden model

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

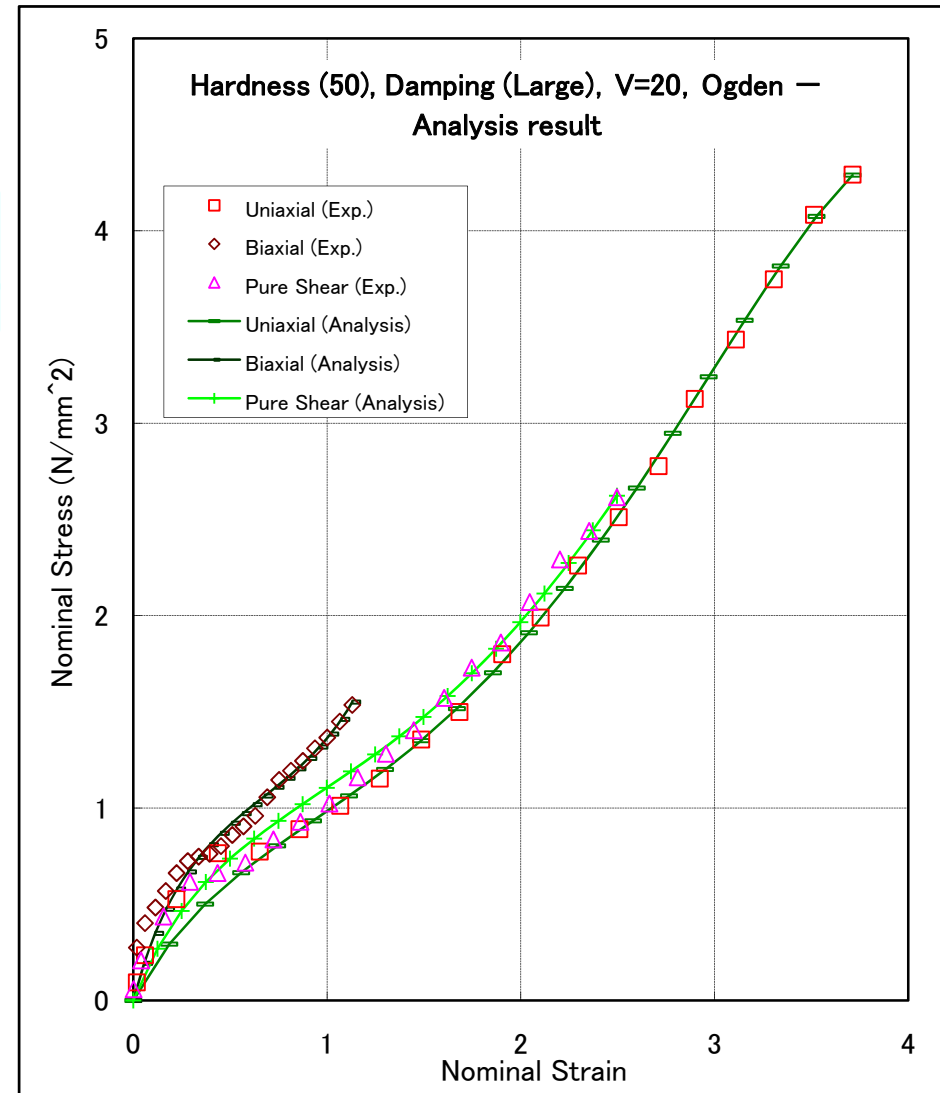
Rate of Loading in Tension Test(s)

20 mm/s

Coefficient

Coefficient		
Order	$\mu$	$\alpha$
1	-1.0189	6.1639
2	-0.0001215	-5.5015
3	1.0258	6.1602
4	1.0891	1.138

Input File: ys\_nls\_v20\_ansys\_og.dat



Analysis result:  
Stress-strain relationship