

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

LS-DYNA

Mooney model

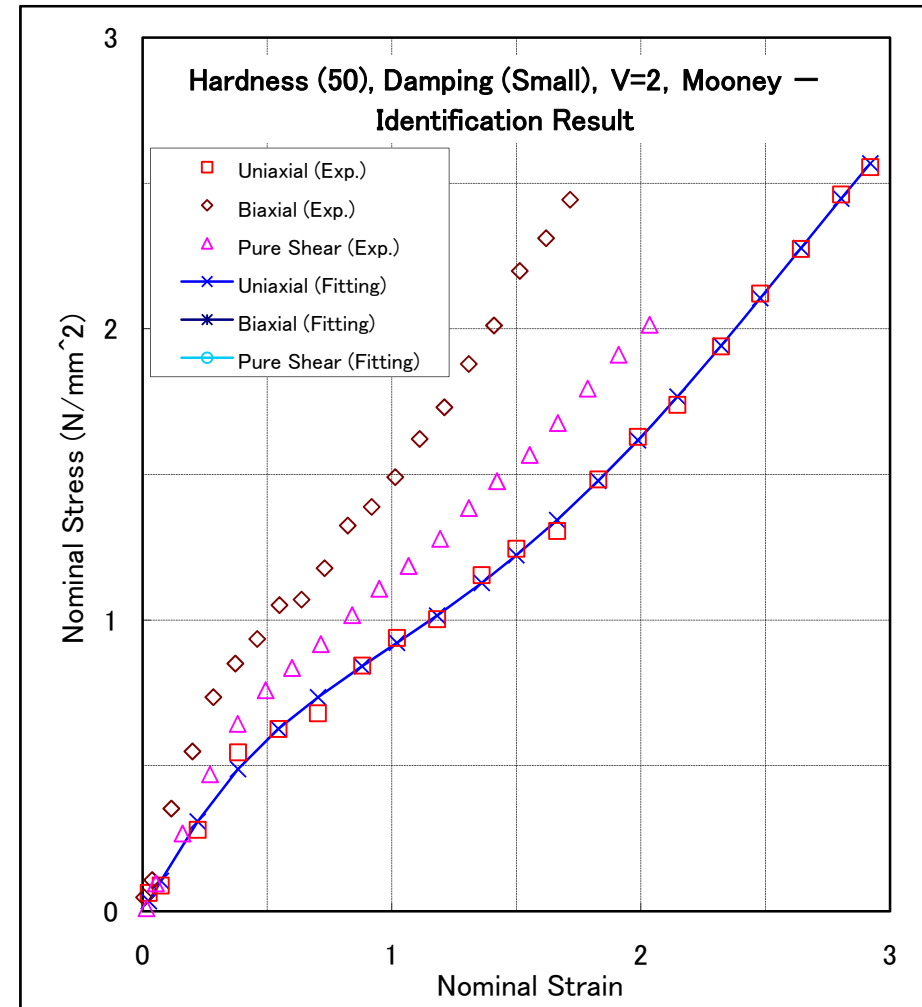
$$W = \sum_{m=1}^N \sum_{n=1}^N C_{mn} (J_1 - 3)^m (J_2 - 3)^n$$

Rate of Loading in Tension Test(s)

2 mm/s

Coefficient

Coefficient	
C10 (C1)	0.7323
C01 (C2)	-0.5071
C20 (C3)	0.02087
C11 (C4)	-0.01318
C02 (C5)	-0.2151
C30 (C6)	-0.0003239
C21 (C7)	
C12 (C8)	
C03 (C9)	
C40 (C10)	

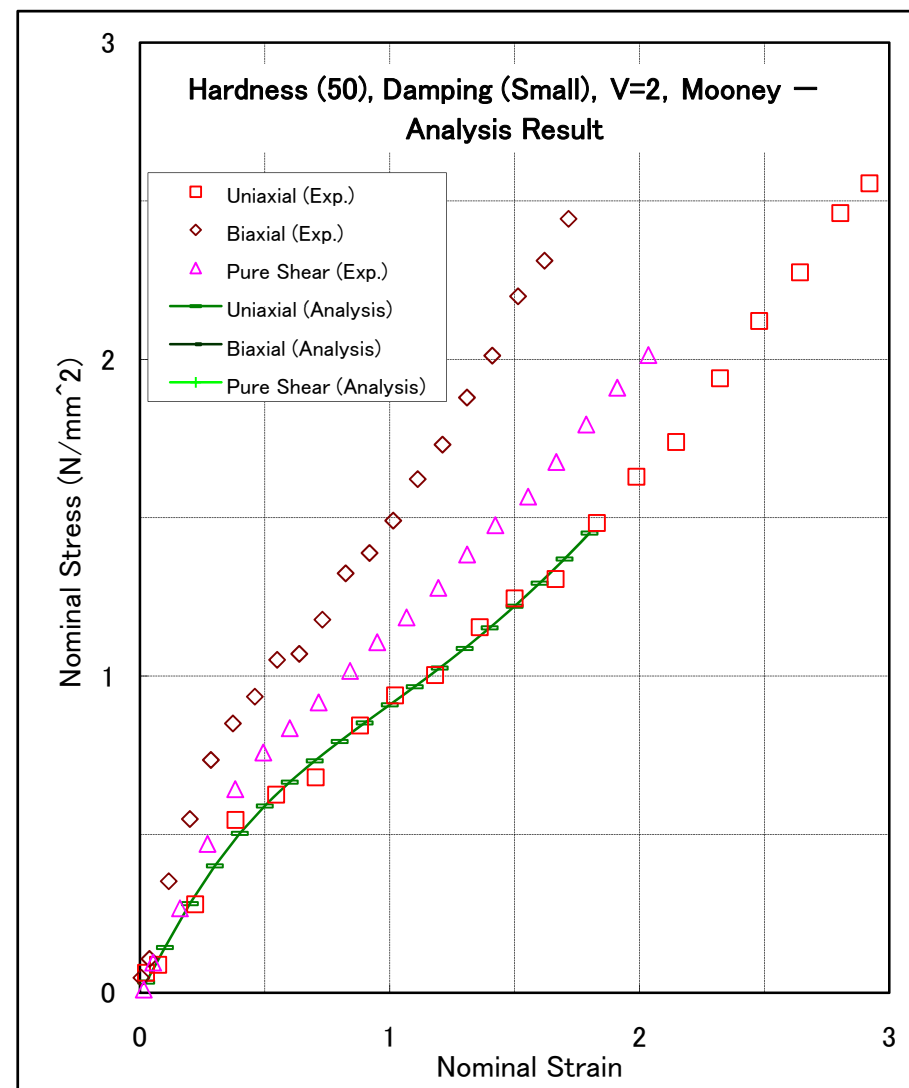
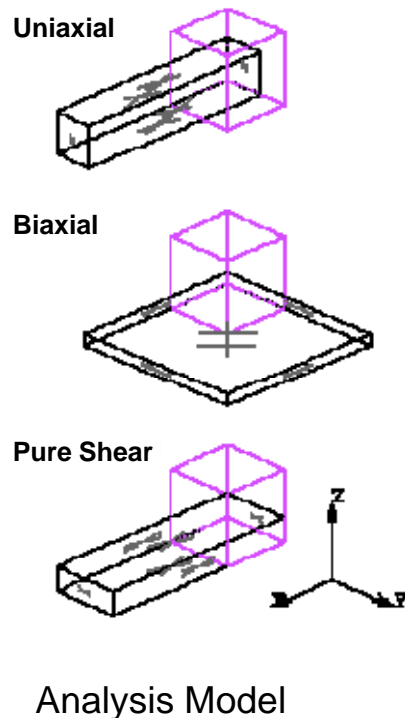


Identification result:  
Stress-strain relationship

# Analysis with Mooney Model: Hardness (50), Damping (Small), V=2

LS-DYNA

**Input File:** input1.dat (Uniaxial)  
input2.dat (Biaxial)  
input3.dat (Pure Shear)



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

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

LS-DYNA

Mooney model

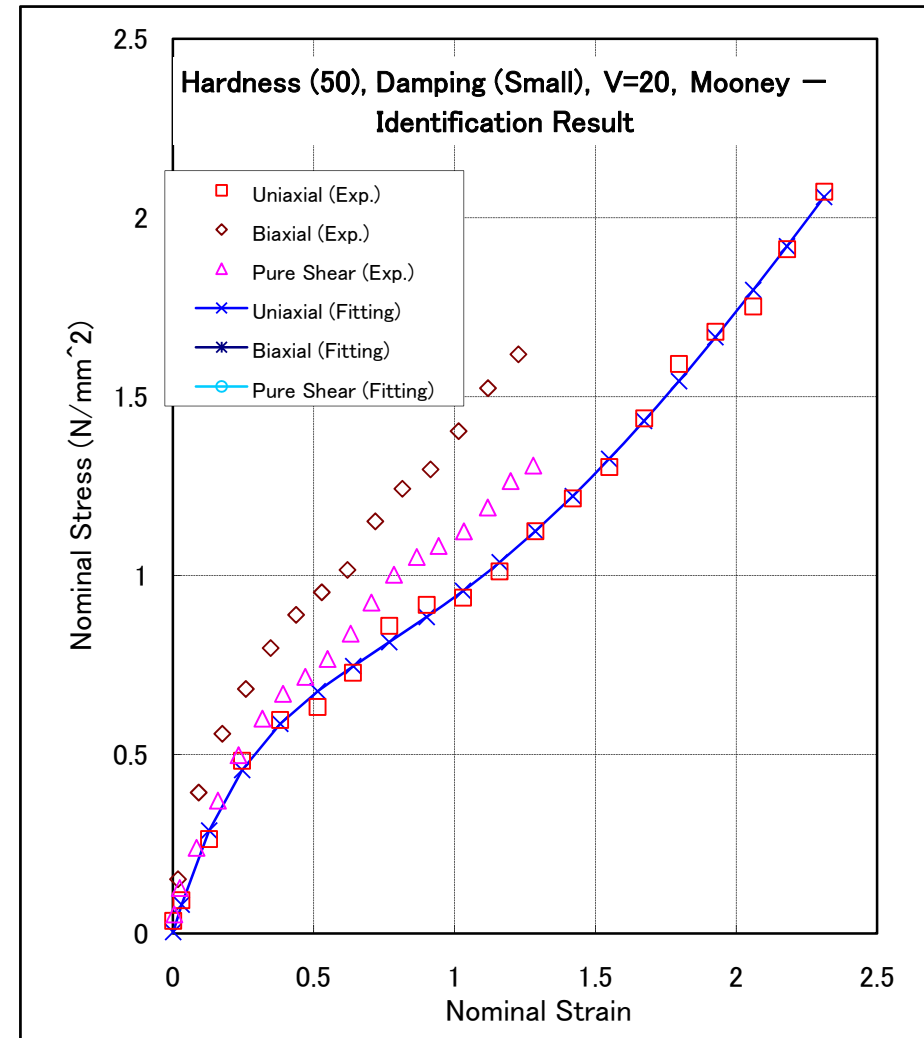
$$W = \sum_{m=1}^N \sum_{n=1}^N C_{mn} (J_1 - 3)^m (J_2 - 3)^n$$

Rate of Loading in Tension Test(s)

20 mm/s

Coefficient

Coefficient	
C10 (C1)	0.1359
C01 (C2)	0.3261
C20 (C3)	-0.0322
C11 (C4)	0.1937
C02 (C5)	-0.2711
C30 (C6)	0.0001107
C21 (C7)	
C12 (C8)	
C03 (C9)	
C40 (C10)	



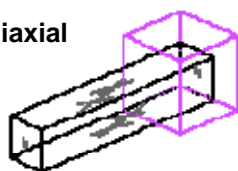
Identification result:  
Stress-strain relationship

# Analysis with Mooney model: Hardness (50), Damping (Small), V=20

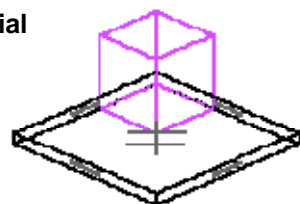
LS-DYNA

Input File: input1.dat (Uniaxial)  
input2.dat (Biaxial)  
input3.dat (Pure Shear)

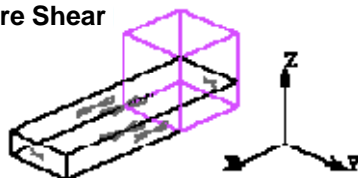
Uniaxial



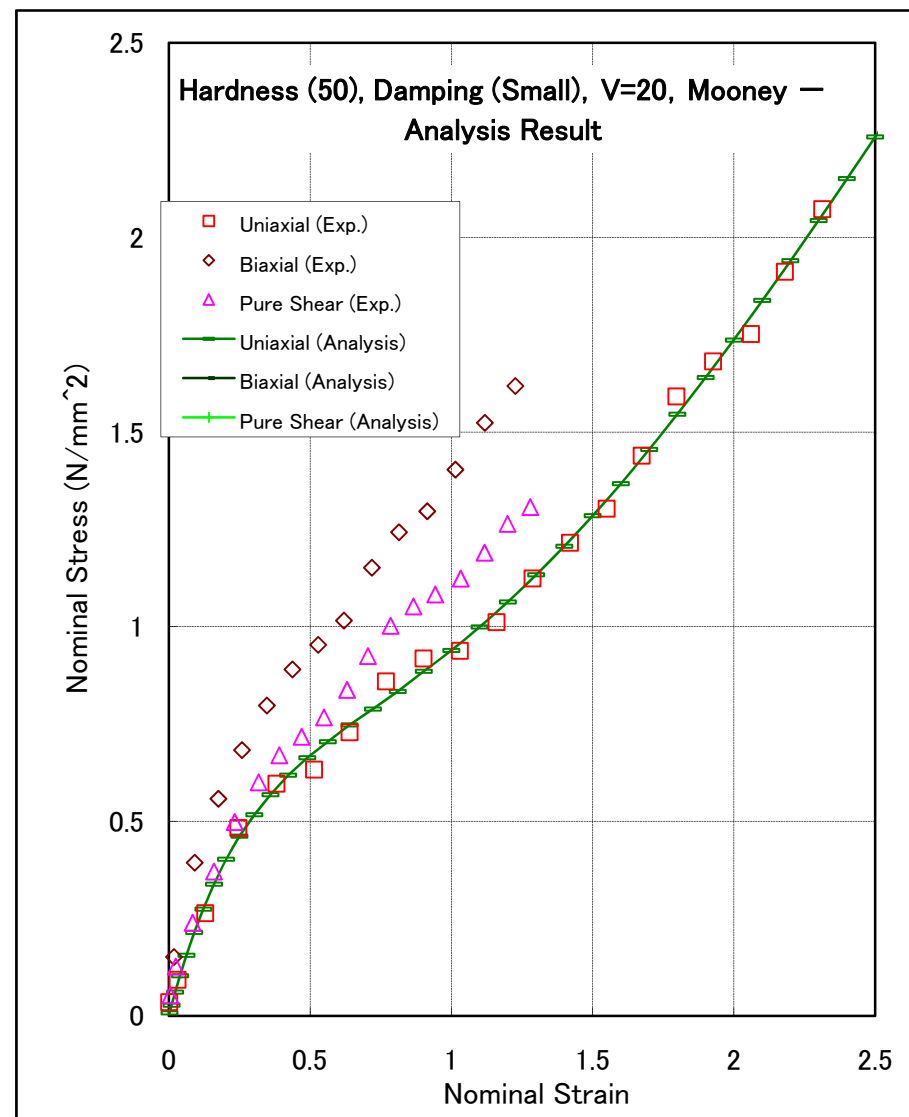
Biaxial



Pure Shear



Analysis Model



Analysis result:  
Stress-strain relationship

# Identification for Ogden Model: Hardness (50), Damping (Small), V=2

LS-DYNA

Ogden model

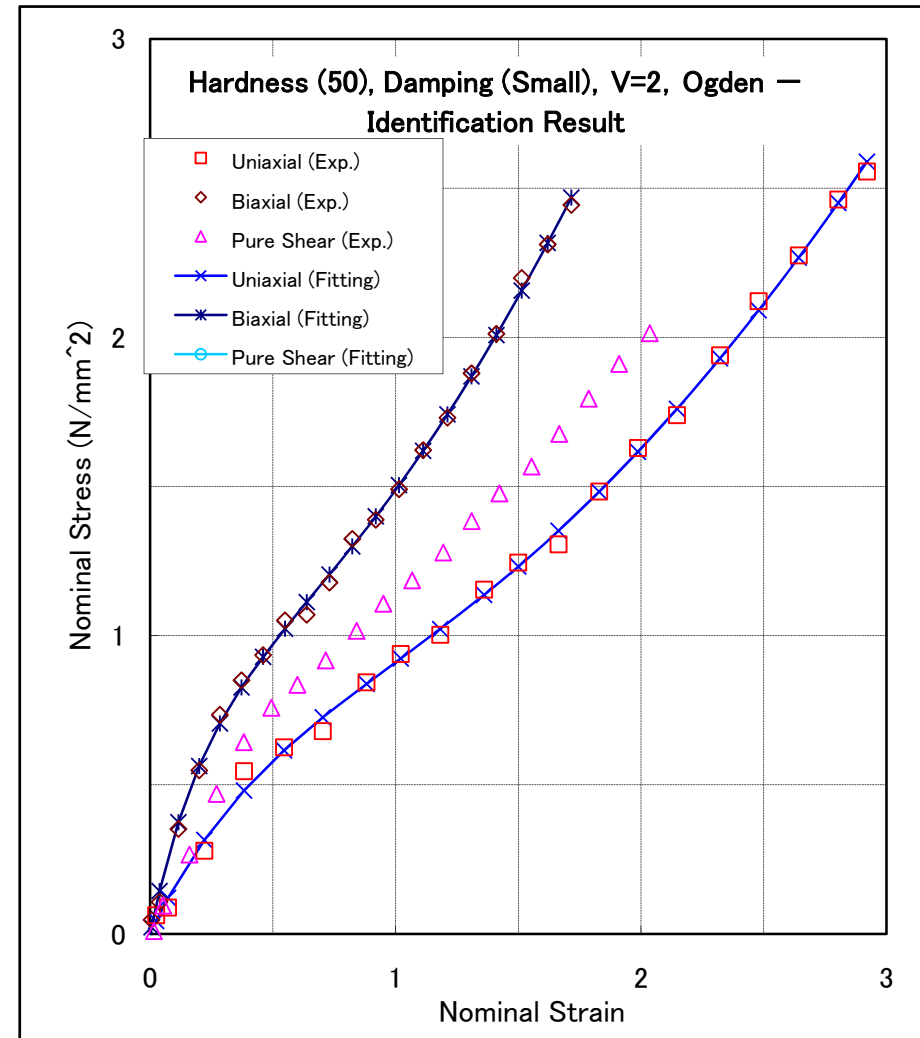
$$W = \sum_{i=1}^3 \sum_{j=1}^N \frac{\mu_j}{\alpha_j} (\lambda_i^{\alpha_j} - 1)$$

Rate of Loading in Tension Test(s)

2 mm/s

Coefficient

Coefficient		
Order	$\mu$	$\alpha$
1	-25.699	0.068899
2	-17.793	-1.9477
3	20.796	-2.8643
4	-7.5314	-3.704



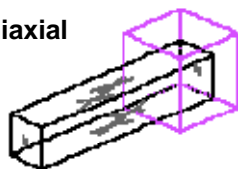
Identification result:  
Stress-strain relationship

# Analysis with Ogden Model: Hardness (50), Damping (Small), $V=2$ ,

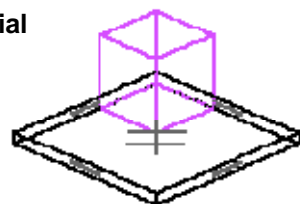
LS-DYNA

**Input File:** input1.dat (Uniaxial)  
input2.dat (Biaxial)  
input3.dat (Pure Shear)

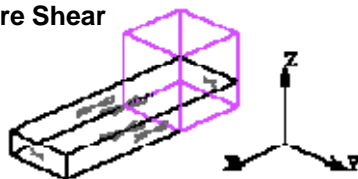
Uniaxial



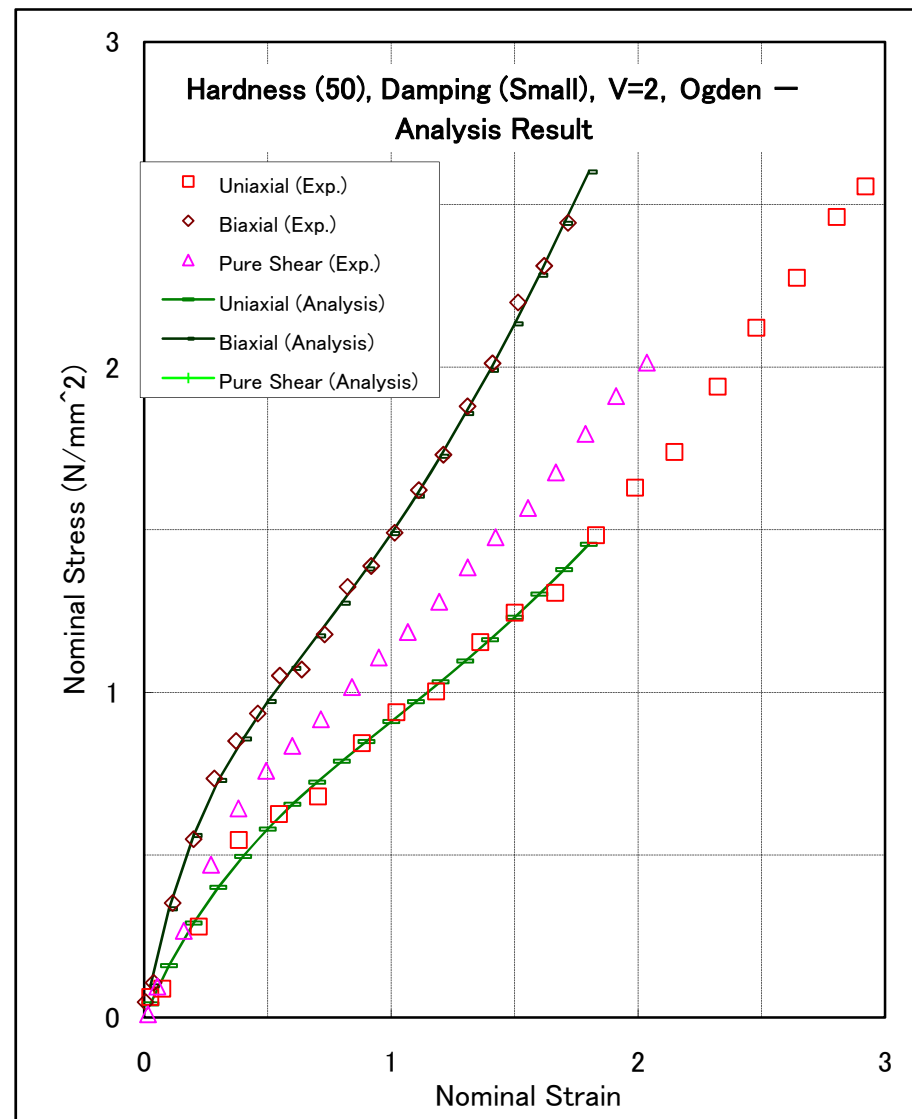
Biaxial



Pure Shear



Analysis Model



**Analysis result:**  
Stress-strain relationship

# Identification for Ogden Model: Hardness (50), Damping (Small), V=20

LS-DYNA

Ogden model

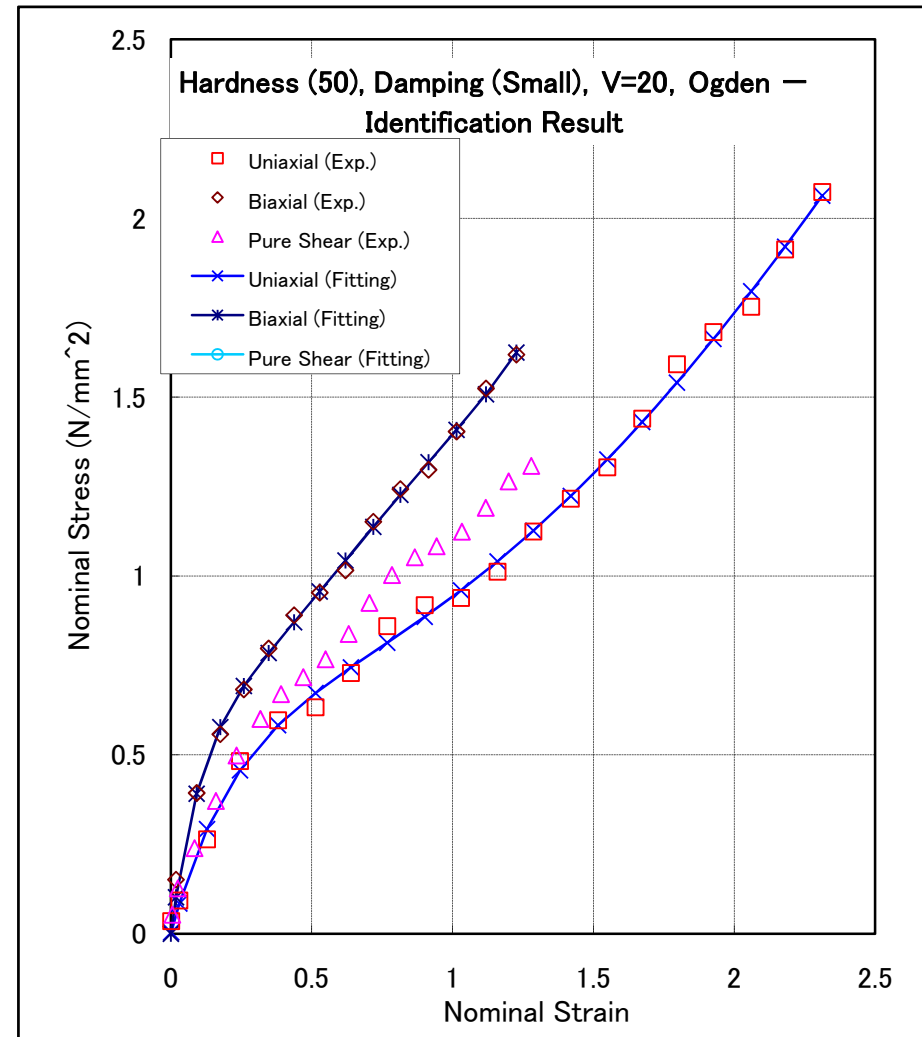
$$W = \sum_{i=1}^3 \sum_{j=1}^N \frac{\mu_j}{\alpha_j} (\lambda_i^{\alpha_j} - 1)$$

Rate of Loading in Tension Test(s)

20 mm/s

Coefficient

Coefficient		
Order	$\mu$	$\alpha$
1	0.021232	2.0939
2	1.2867	2.122
3	-9.3282	0.87231
4	-12.808	-0.57201



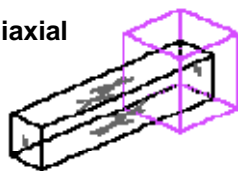
Identification result:  
Stress-strain relationship

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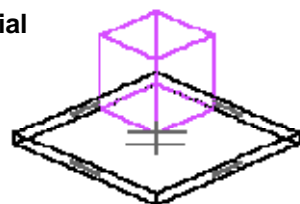
LS-DYNA

Input File: input1.dat (Uniaxial)  
input2.dat (Biaxial)  
input3.dat (Pure Shear)

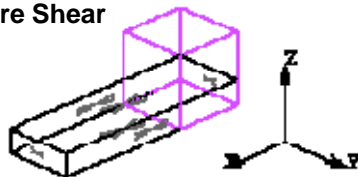
Uniaxial



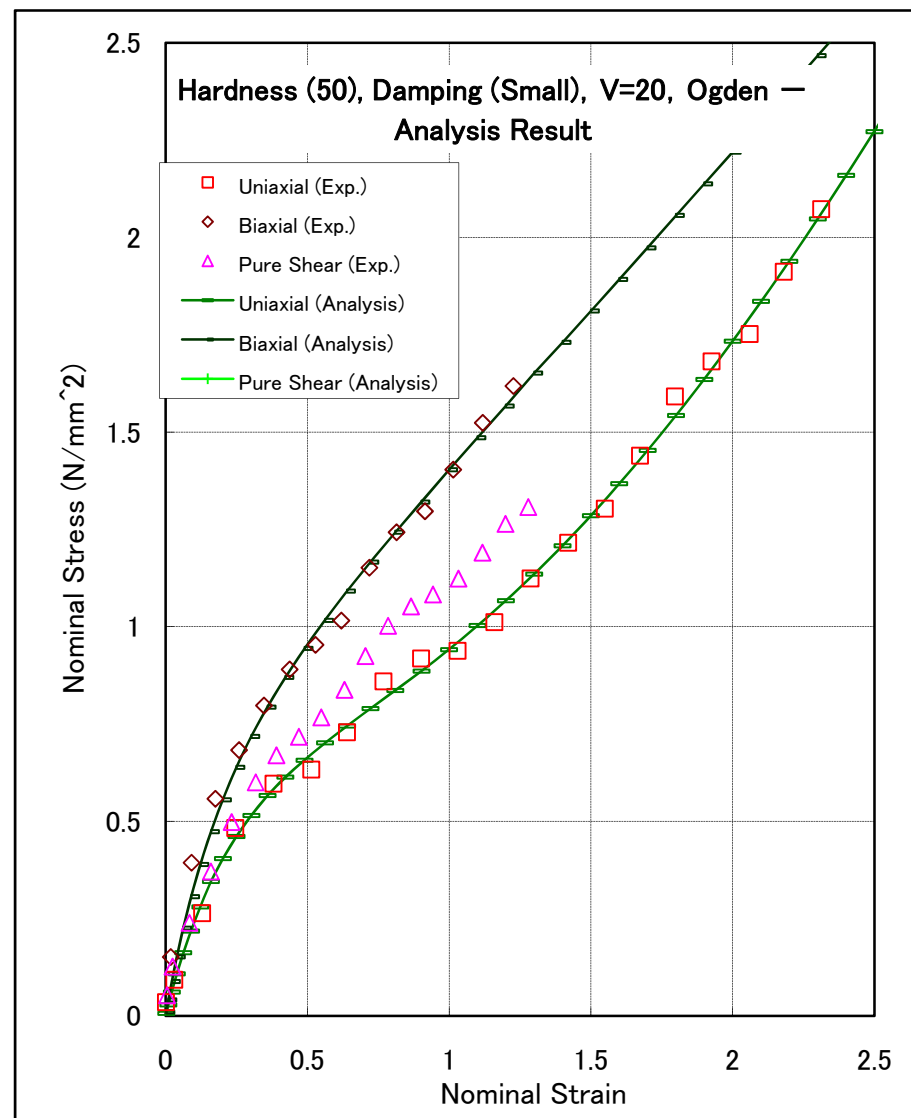
Biaxial



Pure Shear



Analysis Model



Analysis result:  
Stress-strain relationship