Japan Association for Nonlinear CAE

Identification result of material property and analysis model: Hardness (65), Damping (Large)

ABAQUS.Standard

Prony series

$$G(t) = G_0\left(g^{\infty} + \sum_{n=1}^{N} g_n \exp\left(-t/\tau_n\right)\right)$$

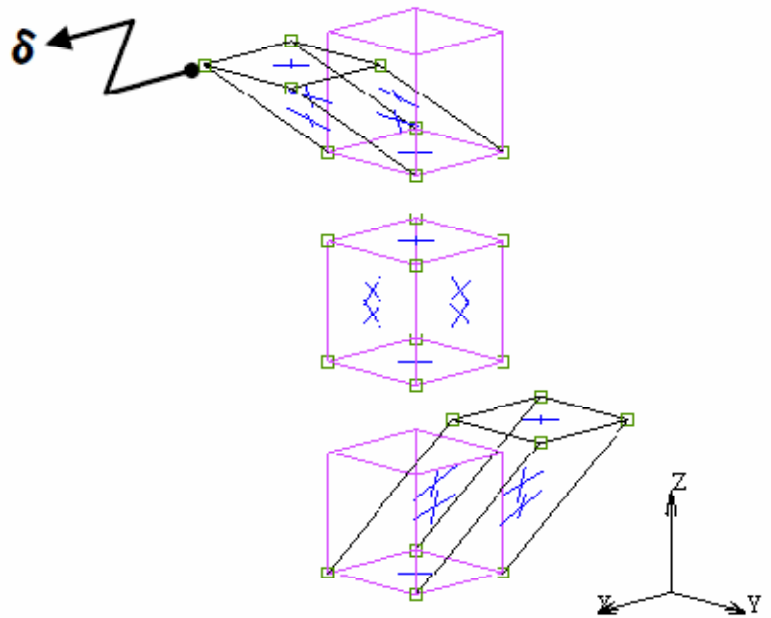
where $G_0 = \dfrac{E}{2(1+\nu)}$

Parameter

Young's Modulus E (MPa)	2.0768e+01
Poisson's ratio ν	0.49999

g_n (MPa)		τ_n	
g_1	0.696943359	τ_1	1.0000e-03
g_2	2.64572E-09	τ_2	1.0000e-02
g_3	0.069213643	τ_3	1.0000e-01
g_4	0.060971614	τ_4	1.0000e+00

Amplitude: $A = 1$ mm ($A^{*} = 0.25$)
Frequency: $f = 0.2 \sim 15$ Hz
Displacement: $\delta = A^{*} \sin 2\pi f$



Analysis model

Analytical result of shear test (Constant amplitude)
Hardness (65), Damping (Large)

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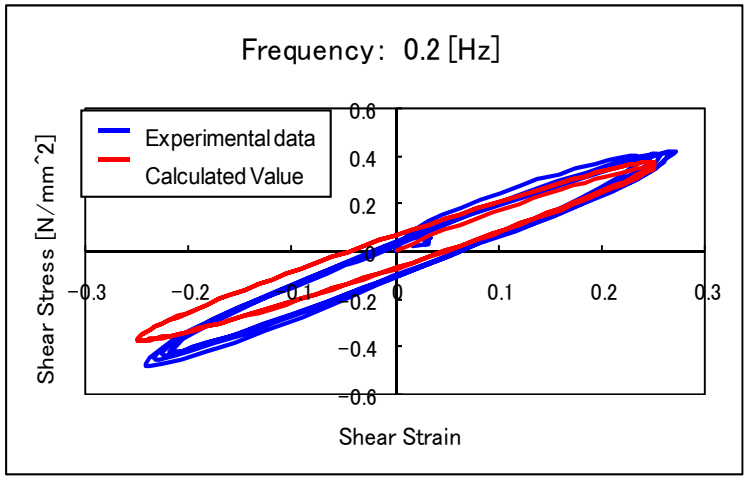
Software



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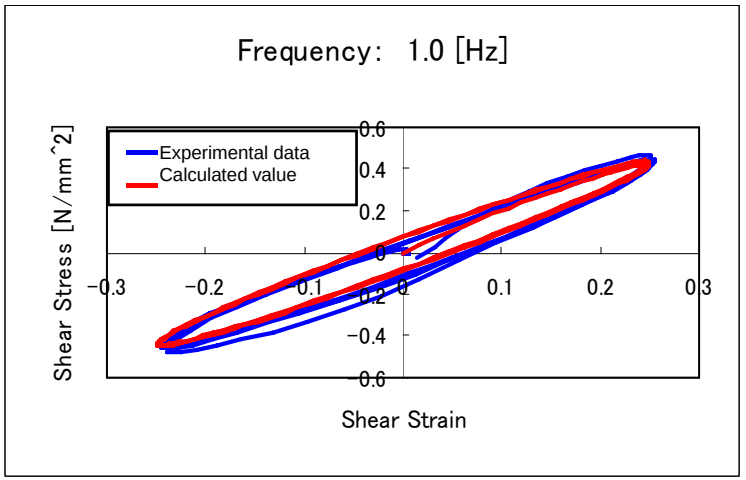

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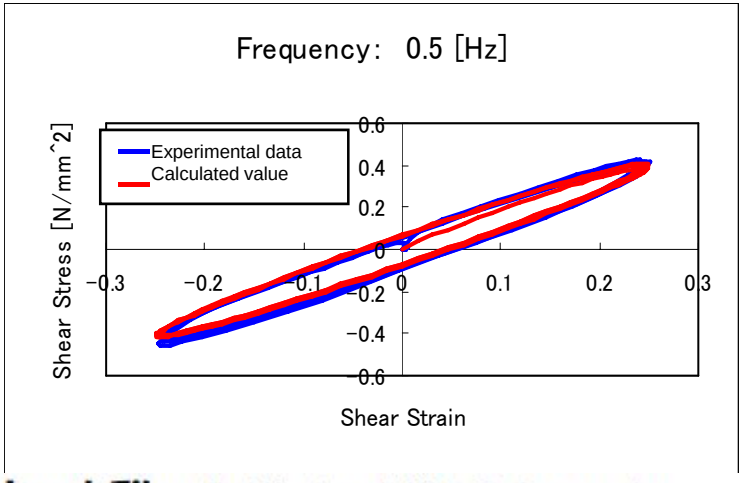

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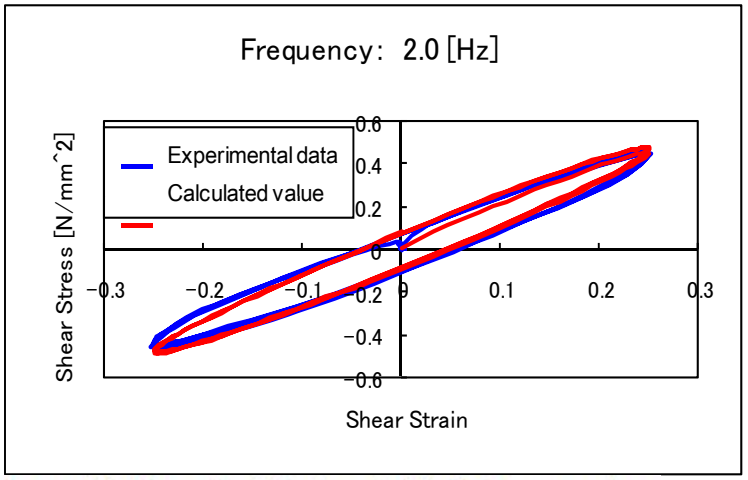

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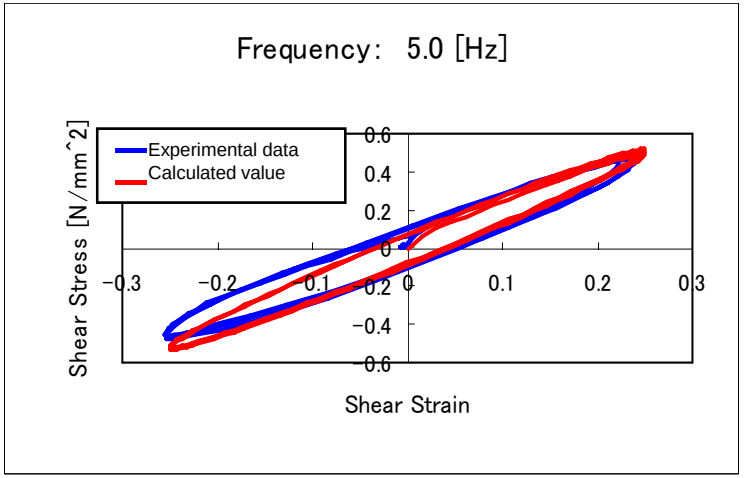
Analytical result of shear test (Constant amplitude)
Hardness (65), Damping (Large)

Japan Association for Nonlinear CAE

Software



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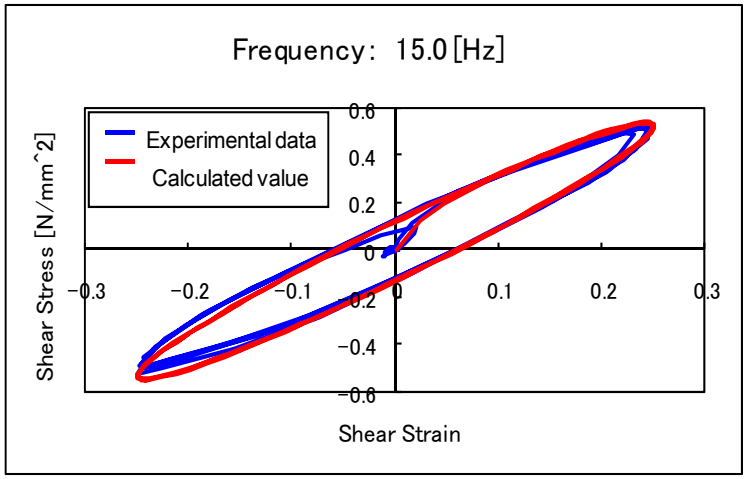

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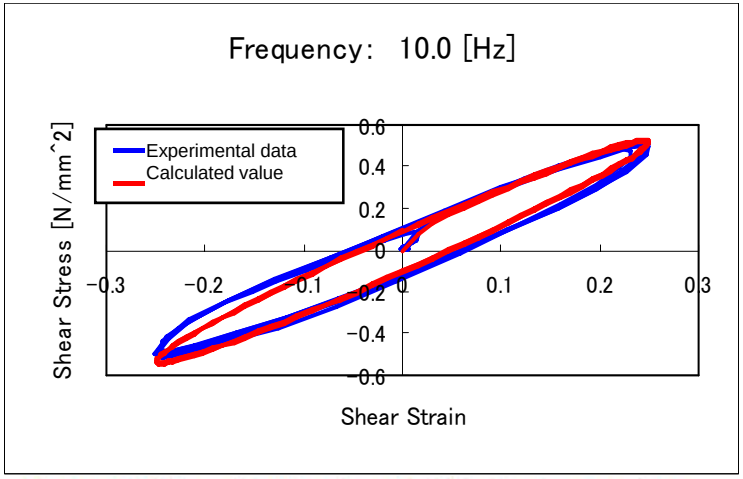

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