



GE Bayer Silicones

Gel Promotion Package



GE Bayer Silicones

Gel Key Features

1) Dampening or Resilience

2) Penetration

3) Viscosity

4) Cure Time



Applications High Dampening

- any application that requires heat
 - > Thermal cycle test required
 - > Low modulus for low stress (small G')
- Protection against shock and vibration required
- > High dampening (large G'') for good parts support



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Applications High Resilience

- any application where physical support is required
 - > low dampening
 - > quick response



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Strain & Stress

Stress = E x Strain

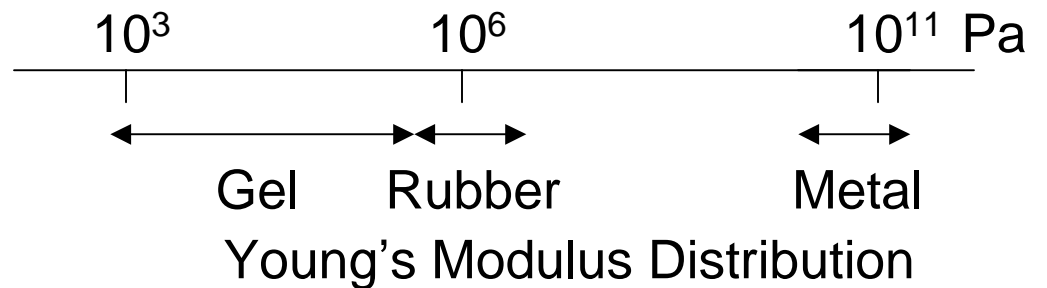
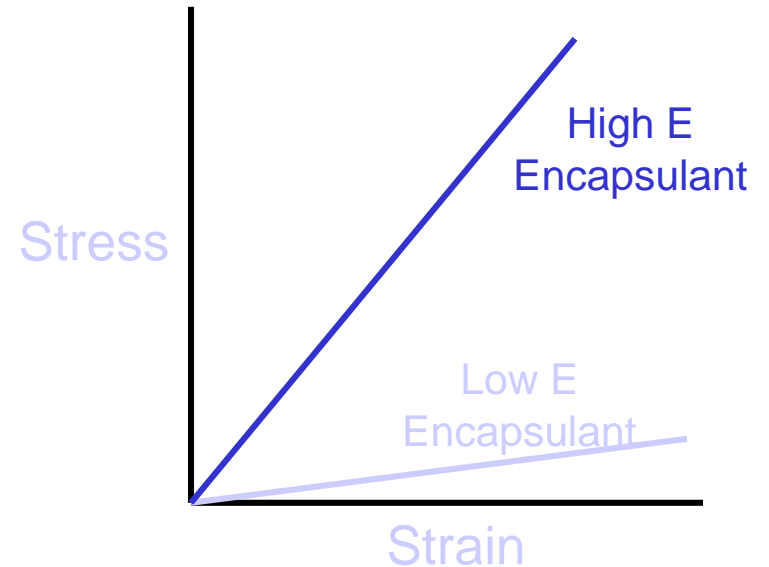
E : Young's Modulus

Stress : F/A

Strain : $\Delta\text{CTE} \times \Delta\text{T}$

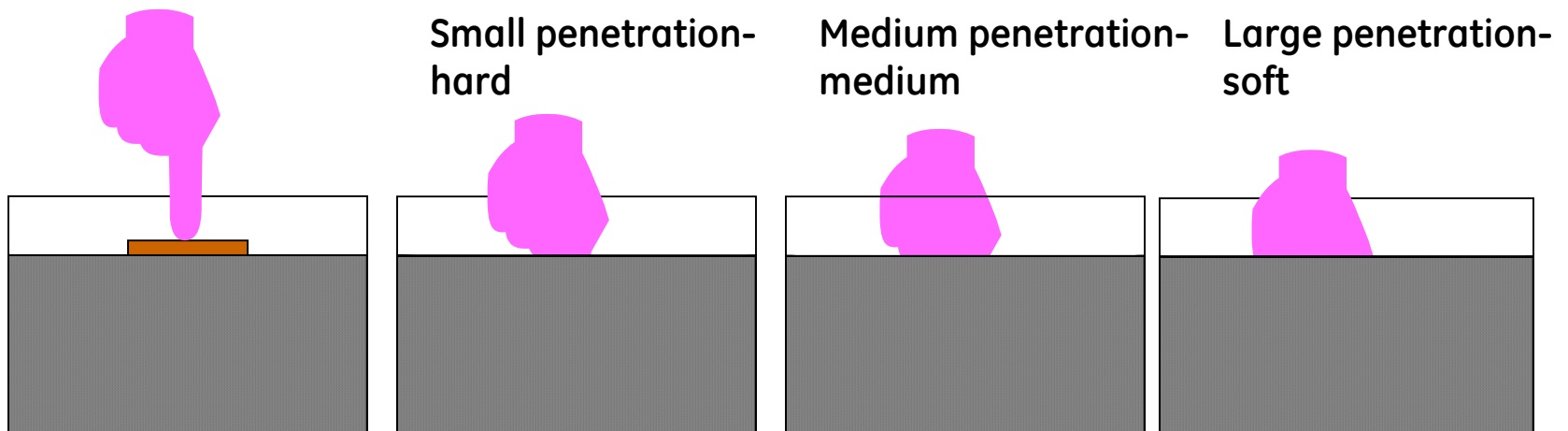
Low stress under high strain
=> Gel

Low stress under low strain
=> Gel or Rubber





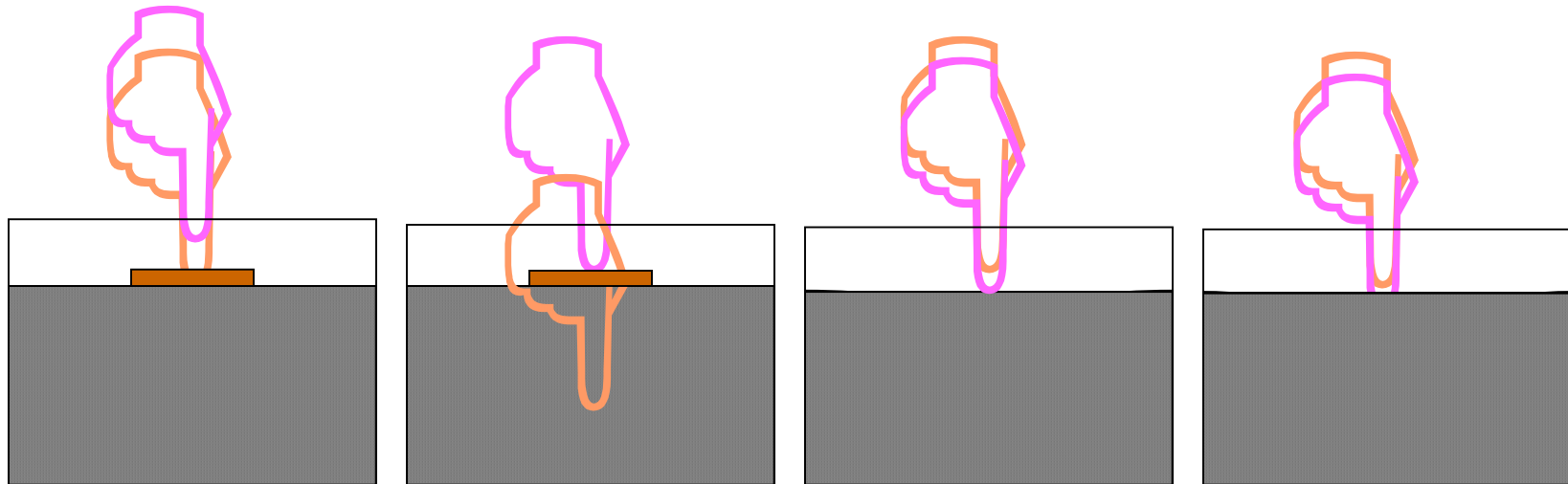
Test method – G'



- Press each gel slowly
- Realize different depth of intake
- (penetration) under same pressure



Test method – G''



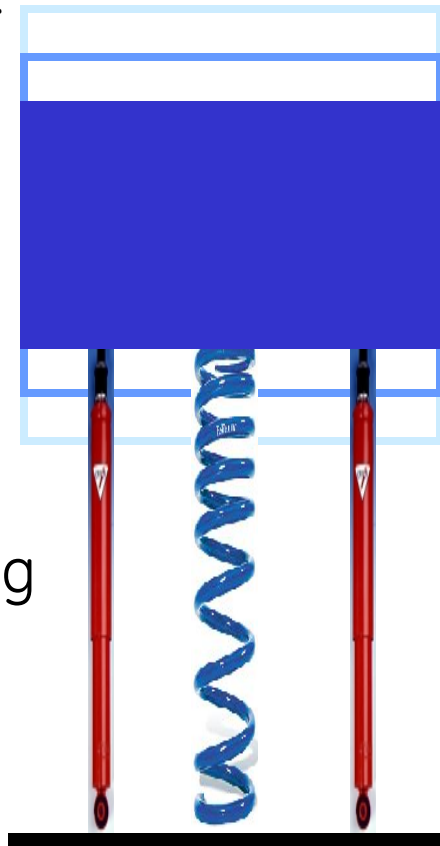
- Hit each gel with high frequency (4-5 times/s)
- Realize different depth of intake (penetration) vs. vibration



Low dampening gel

- Small static support (G')
- Small dynamic support ($G=G'+G''$)
- Insufficient support
= Parts Failure

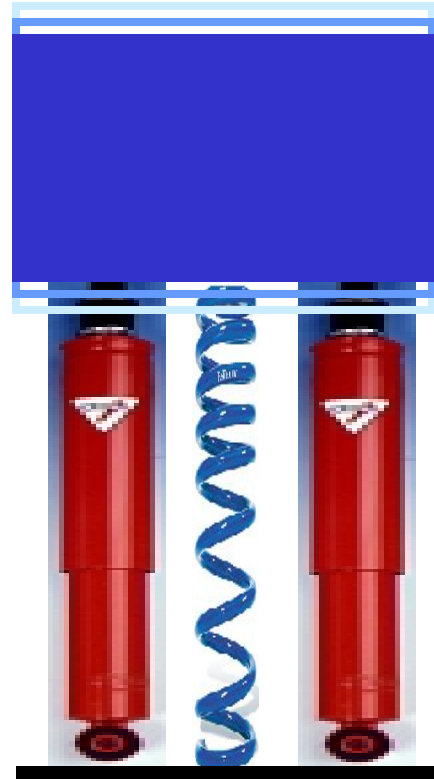
Low Dampening
Big Vibration



High dampening gel

- Small static support (G')
- Large dynamic support ($G=G'+G''$)
- Sufficient support

High Dampening
Small Vibration





Filling of the sample box for gel promotion

TP	W W B	
3966	16123	Offset to RTV 6166 with European inputs Highly elastic gel with small dampening capability
3973	16034-2	Similar to TP 3636 but slightly harder Dampening gel with higher modulus at high frequencies
3974	16035-1	Lower cost gel comparable to TP 3636 Dampening gel currently used for potting
3975	16037	Elastomeric grade (Hardness 10 Shore A) For potting applications where an elastic rubber is needed
3976	16008-8	“Slow“ gel with high modulus and long relaxation time Dampening with very slow relaxation and high modulus at high frequencies

Classification code	L / M / H
Viscosity [mPas]	200 / 1000 / >1000
Cure time at ambient temperature [min]	<15 / 15-60 / >60
Penetration ¼ cone [1/10 mm]	<60 / 60-80 / >80
Dampening, phase angle delta at frequency 1 s ⁻¹ [°]	<20 / 20-40 / >40



Filling of the sample box for gel promotion

Classification

	TP 3973	TP 3974	TP 3966	TP 3976	TP 3975
Classification code	MMMM	MMHH	MHML	MLMH	MMLL
Viscosity A/B [mPas]	925/591	925/626	930/870	900/600	925/536
Cure time under ambient conditions manually [min]	67	63	120	14	53
Penetration ¼ cine [1/10 mm] (beaker 70 mm diameter)	68	89	64	78	7 Shore A
Dampening, phase angle delta at 60°C after cure for 90 min in the rheometer [°]	36,8	41,9	5,9	48	not measurable, highly elastic