

# Natural Rubber vs. Synthetic Rubber

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## ■ Which is better for lab gloves?

- Natural Rubber (latex)
  - More Ductile
  - Stronger
- Synthetic Rubber (Nitrile)
  - Non Allergenic



### Experimental Results:

	<u>Natural</u>	<u>Synthetic</u>
Density	0.9415 g/cm <sup>3</sup>	1.2108 g/cm <sup>3</sup>
Glass Transition	-51.5°C	-23°C

	<u>Natural</u>	<u>Synthetic</u>
Elastic Modulus	1.33 MPa	1.78 MPa
Tensile Strength	11.3 MPa	10.7 MPa
Fracture Elongation	1020%	962%

# Summary

- Both natural and synthetic rubber have high enough TS, E, and  $\varepsilon_f$  for gloves
- Synthetic rubber is more resistant to both temperature and chemical degradation
- Proteins in natural rubber cause allergies.

# Conclusion

**Synthetic rubber (Nitrile) is a better material for gloves.**