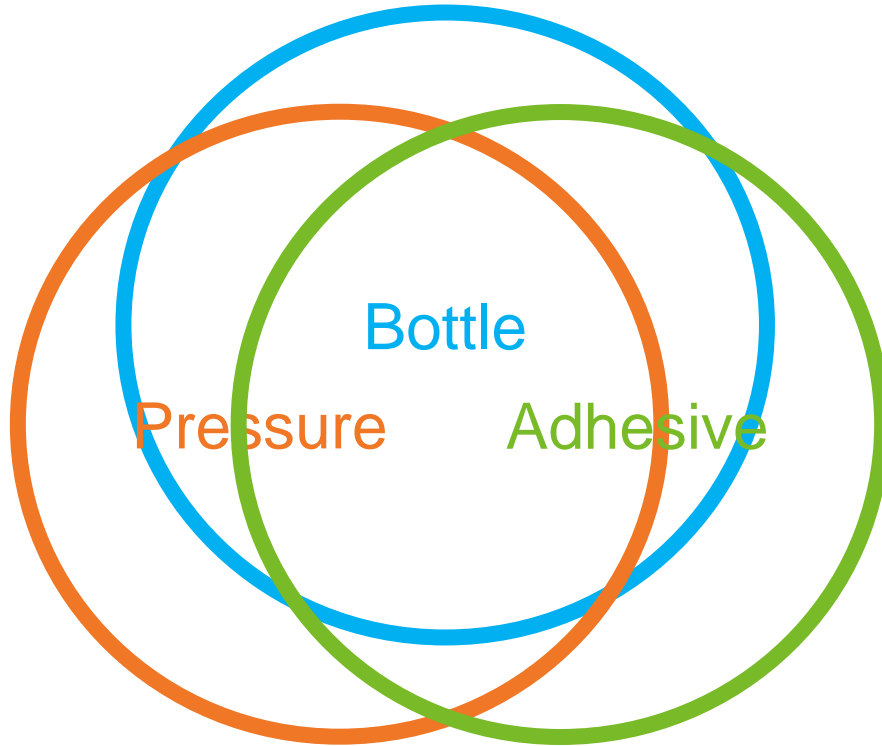


# Pressure sensitive adhesive

Leo Jin

Nov 2019

# Outline



- How adhesive works: Two steps of adhesion
- Initial adhesion (initial adhesive wetting)
- Ultimate adhesion (post application wet-out)

## Initial adhesion

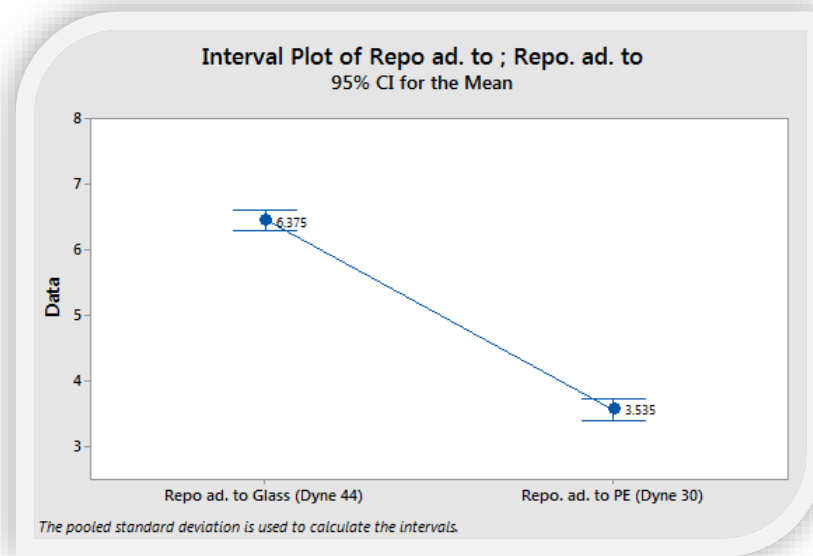
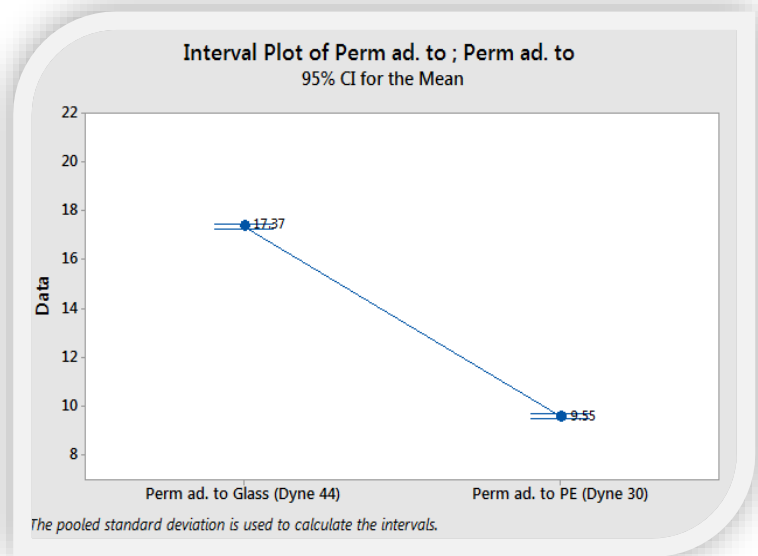
- Initial adhesion is based on adhesive's ability of initial wetting.
- According to FINAT FTM 9 loop tack test method, degree of an adhesive's initial wetting is expressed as the force required to separate the adhesive from a substrate immediately after initial contact.



Low Surface Energy

High Surface Energy

# Initial adhesion- high energy vs. low energy



- Sample preparation: same face sheet, conditioned the same way
- **Test method:** FINAT FTM 9 Loop Tack

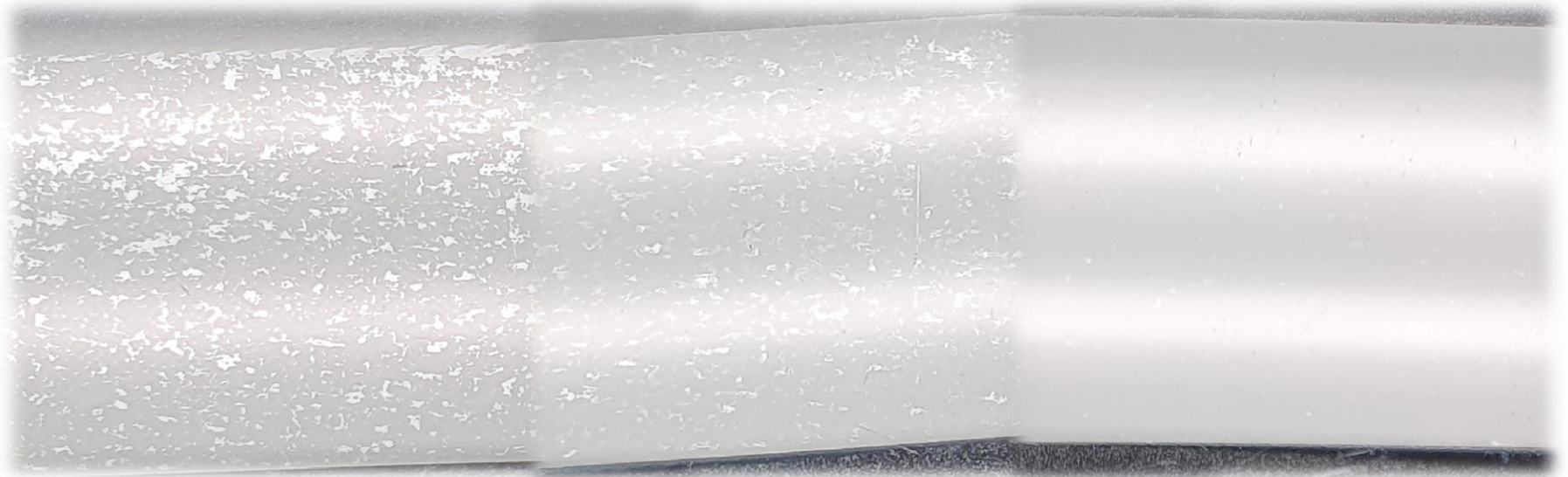
- **Conclusion:** Positive correlation between initial adhesion and substrate's surface energy

## Initial adhesion- light pressure vs. firm pressure



Conclusion: positive correlation between initial wetting and pressure.

# Post-application wet-out



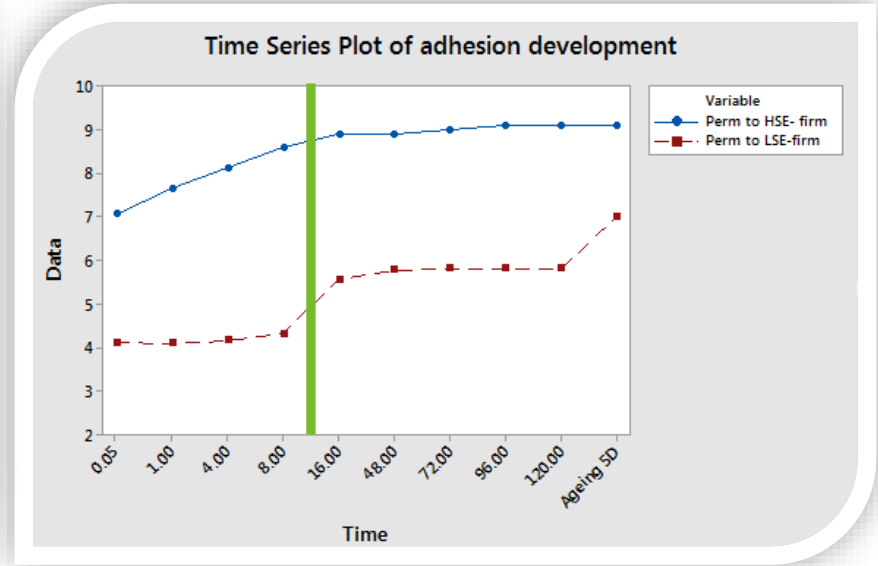
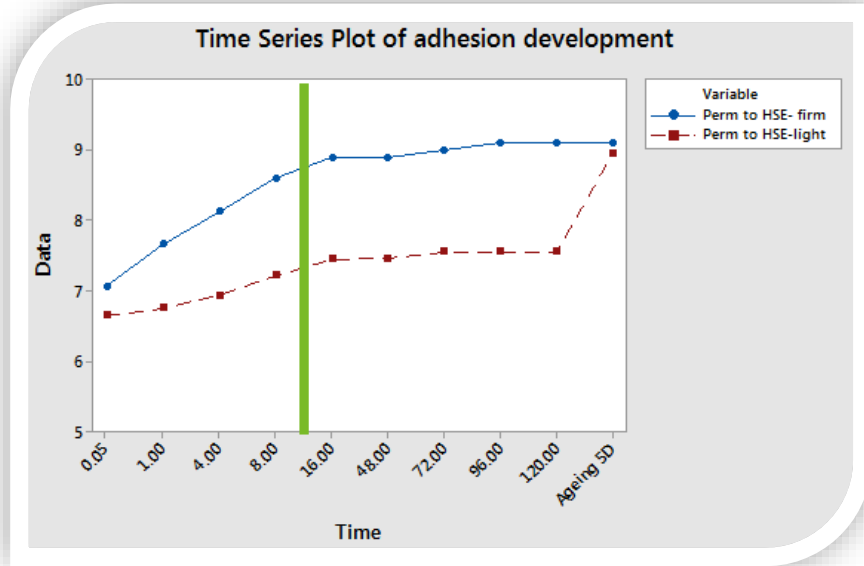
*Immediate*

*Developing*

*Ultimate*

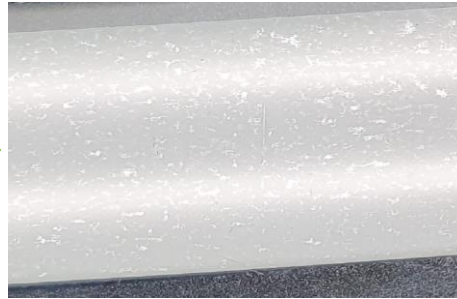
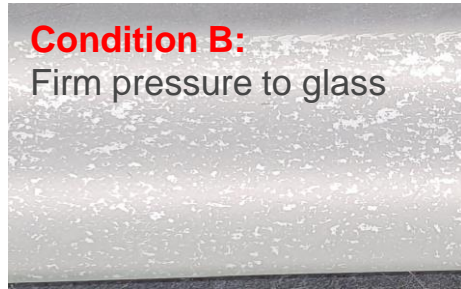
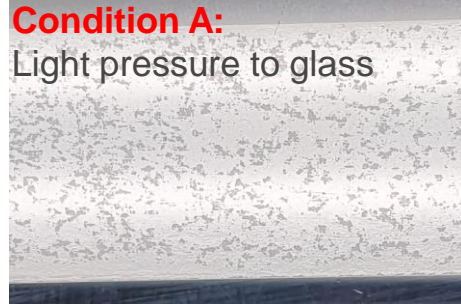
Time

# Post-application wet-out



- Speed of wet-out is the key. Who reaches the destination (ultimate adhesion) first, who wins.
- Wet-out takes longer, exposed to more risks.

# Post-application wet-out



*Immediate*

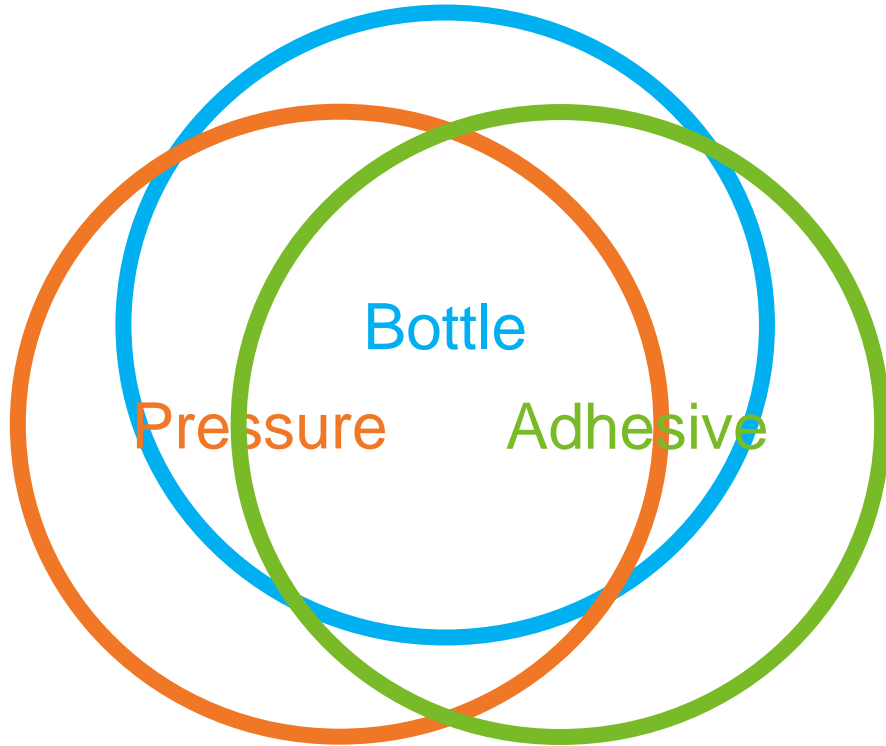
*5 days*

*Ageing 5D*

Time



## Conclusion



- Adhesion two steps: initial wetting and post-application wet-out
- Surface energy and pressure affects initial wetting
- Speed of post-application wet-out is important

UPM **BIOFORE**  
**BEYOND** FOSSILS

