Polyethylene, acid copolymer and ionomer sealants on aluminium foil - What really makes them different?

Poster 9-7

Contributors

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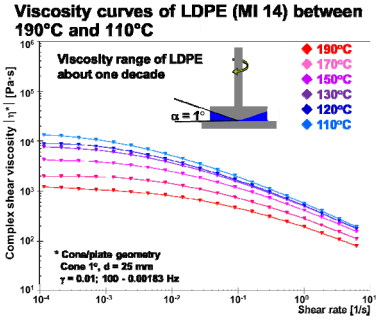
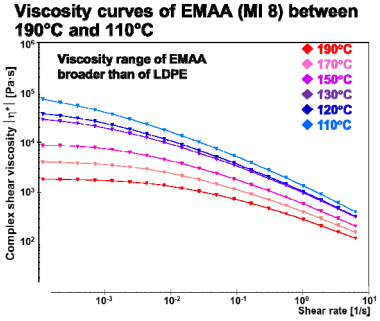
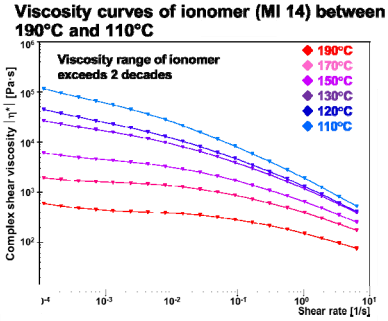
Viscosity curves of LDPE (MI 14) between 190°C and 110°C



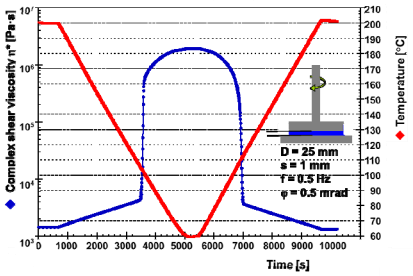
Viscosity curves of EMAA (MI 8) between 190°C and 110°C



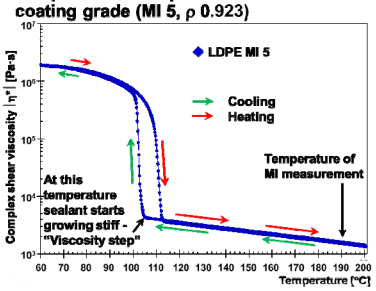
Viscosity curves of ionomer (MI 14) between 190°C and 110°C



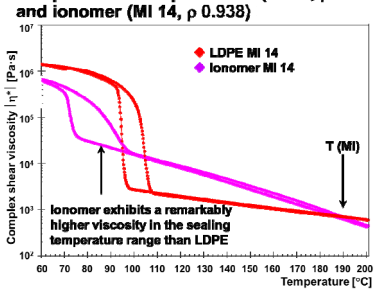
Temperature sweep of an LDPE (MI 5)



Temperature sweep of an LDPE extrusion coating grade (MI 5, ρ 0.923)

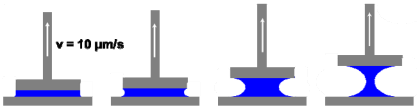


Temperature sweep of LDPE (MI 14, ρ 0.918) and ionomer (MI 14, ρ 0.938)

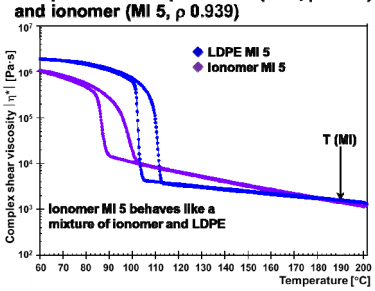


Melt tack procedure in principle

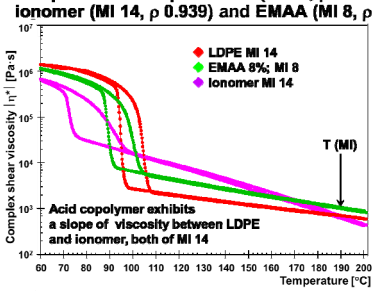
Principle:
Lifting the upper geometry, here plate with a constant speed
Monitoring the normal force along with the plate/plate distance at constant temperature
Plate D = 8 mm
Initial gap = 0.4 mm
Final gap = 2 mm
Repeat the measurement in the desired temperature range



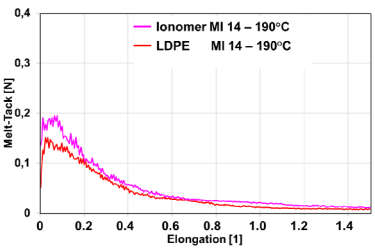
Temperature sweep of LDPE (MI 5, ρ 0.923) and ionomer (MI 5, ρ 0.939)



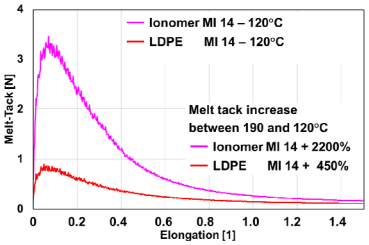
Temperature sweep of LDPE (MI 14, ρ 0.918), ionomer (MI 14, ρ 0.939) and EMAA (MI 8, ρ 0.938)



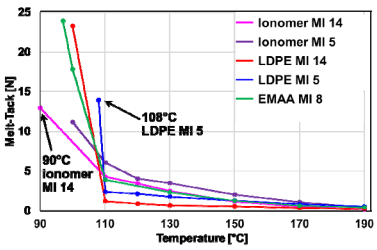
Comparison of the melt tack curve of ionomer (MI 14) and LDPE (MI 14) at 190°C



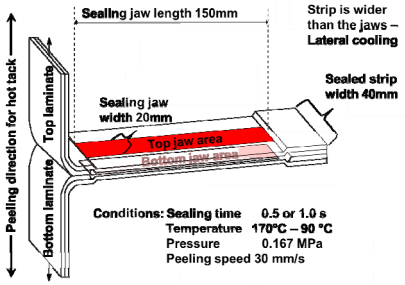
Comparison of the melt tack curve of ionomer (MI 14) and LDPE (MI 14) at 120°C



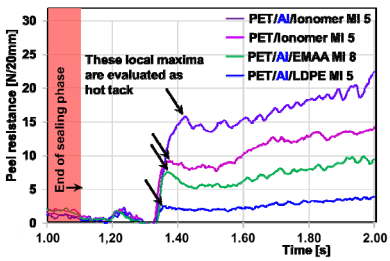
Comparison of the melt tack maxima between 190°C and 90°C



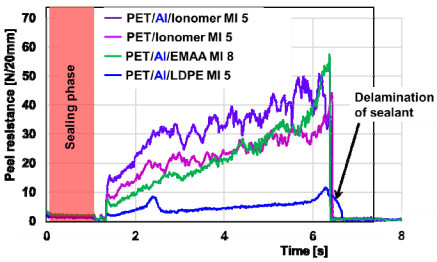
Hot tack peeling conditions



Hot tack curves (detail) of different sealants in aluminium laminates (120°C - 1s - 0.167 MPa)



Hot tack curves of different sealants in aluminium laminates (120°C - 1s - 0.167 MPa)



The flow behaviour of sealant polymers and their hot tack are highly temperature-dependant and differ characteristically, aluminium foil in laminates accelerates cooling and seal seam solidification after sealing and so facilitates speeding-up packaging processes

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