

APPENDIX

Table 1 : Young's modulus of PS/PPO compositions at different aging times: fixed ΔT , $(T_g - T_a) = 12^\circ\text{C}$.

| Aging time, t_a (min) | Young's modulus (Pa) | | | |
|----------------------------|----------------------|--------------|--------------|----------|
| | 100% PS | 70:30/PS:PPO | 50:50/PS:PPO | 100% PPO |
| 5 | 5.03E+08 | 5.41E+08 | 3.49E+08 | 6.95E+08 |
| 10 | 4.92E+08 | 5.47E+08 | 3.69E+08 | 7.18E+08 |
| 20 | 5.17E+08 | 5.42E+08 | 3.85E+08 | 7.66E+08 |
| 40 | 5.04E+08 | 5.76E+08 | 3.99E+08 | 7.87E+08 |
| 80 | 5.42E+08 | 5.68E+08 | 4.25E+08 | 8.39E+08 |
| 160 | 5.15E+08 | 6.30E+08 | 4.65E+08 | 8.49E+08 |
| 210 | 5.10E+08 | 7.15E+08 | 4.94E+08 | - |
| 260 | 5.38E+08 | 6.72E+08 | 5.35E+08 | - |
| 320 | 5.32E+08 | 7.01E+08 | 5.22E+08 | 8.37E+08 |
| 400 | 5.54E+08 | 6.96E+08 | 5.45E+08 | 9.39E+08 |
| 480 | 5.43E+08 | 7.44E+08 | 5.68E+08 | 9.13E+08 |

Table 2 : Young's modulus of 50:50/PS:PPO at different aging times and temperatures: $\Delta T = 7, 12$ and 17°C .

| Aging time, t_a (min) | Young's modulus (Pa) | | |
|----------------------------|----------------------------|-----------------------------|-----------------------------|
| | $\Delta T=7^\circ\text{C}$ | $\Delta T=12^\circ\text{C}$ | $\Delta T=17^\circ\text{C}$ |
| 5 | 2.15E+08 | 3.49E+08 | 4.28E+08 |
| 10 | 2.20E+08 | 3.69E+08 | 4.13E+08 |
| 20 | 2.32E+08 | 3.85E+08 | 4.46E+08 |
| 40 | 2.45E+08 | 3.99E+08 | 4.20E+08 |
| 80 | 2.72E+08 | 4.25E+08 | 4.53E+08 |
| 160 | 3.00E+08 | 4.65E+08 | 4.75E+08 |
| 210 | 3.36E+08 | 4.94E+08 | 4.99E+08 |
| 260 | 3.34E+08 | 5.35E+08 | 4.85E+08 |
| 320 | 3.51E+08 | 5.22E+08 | 5.02E+08 |
| 400 | 3.57E+08 | 5.45E+08 | 5.53E+08 |
| 480 | 3.73E+08 | 5.68E+08 | 5.45E+08 |

Table 3 : Values for β of PS/PPO compositions at different aging times: fixed $\Delta T = 12^\circ\text{C}$.

| t_a (min) | 100% PS | 70:30/PS:PPO | 50:50/PS:PPO | 100% PPO |
|----------------------|---------|--------------|--------------|----------|
| 10 | 3.80 | - | - | - |
| 20 | 2.49 | - | - | - |
| 40 | 1.41 | 1.72 | 28.13 | - |
| 80 | *0.68 | 1.54 | 2.10 | 2.09 |
| 160 | 0.82 | 0.85 | 0.85 | *0.65 |
| 210 | - | - | *0.72 | - |
| 260 | *0.55 | *0.65 | *0.56 | - |
| 320 | - | *0.57 | *0.52 | *0.45 |
| 400 | *0.49 | *0.58 | - | *0.40 |
| 480 | - | - | *0.49 | - |
| β_{avg} | 0.57 | 0.60 | 0.57 | 0.50 |

* used to calculate β_{avg}

- cannot be obtained by computer fitting

Table 4 : Values for β of 50:50/PS:PPO at different aging times and temperatures: $\Delta T = 7, 12$ and 17°C .

| t_a (min) | $\Delta T=7^\circ\text{C}$ | $\Delta T=12^\circ\text{C}$ | $\Delta T=17^\circ\text{C}$ |
|----------------------|----------------------------|-----------------------------|-----------------------------|
| 20 | - | - | 8.85 |
| 40 | - | 28.13 | 9.09 |
| 80 | - | 2.10 | 3.33 |
| 160 | 2.15 | 0.85 | *0.53 |
| 210 | *0.70 | *0.72 | *0.58 |
| 260 | *0.82 | *0.56 | *0.55 |
| 320 | *0.62 | *0.52 | *0.76 |
| 400 | - | - | - |
| 480 | - | *0.49 | - |
| β_{avg} | 0.71 | 0.57 | 0.60 |

* used to calculate β_{avg}

- cannot be obtained by computer fitting

Table 5 : Values for t_0 and shift factor (a) obtained by computer fitting of tensile creep data of PS/PPO compositions at different aging times: fixed $\Delta T = 12^\circ\text{C}$.

| t_a (min) | 100% PS | | 70:30 / PS:PPO | | 50:50/ PS:PPO | | 100% PPO | |
|----------------|-------------|------|----------------|------|---------------|------|-------------|------|
| | t_0 (sec) | a | t_0 (sec) | a | t_0 (sec) | a | t_0 (sec) | a |
| 80 | 1484 | 0.57 | - | - | - | - | - | - |
| 160 | 2249 | 0.86 | 2553 | 0.63 | - | - | 8283 | 0.41 |
| 210 | - | - | - | - | 8647 | 0.66 | - | - |
| 260 | 2606 | 1.00 | 3121 | 0.77 | 10919 | 0.83 | - | - |
| 320 | - | - | 4032 | 1.00 | 13097 | 1.00 | 20333 | 1.00 |
| 400 | 3173 | 1.22 | 4727 | 1.17 | - | - | 26317 | 1.29 |
| 480 | - | - | - | - | 13608 | 1.04 | - | - |

- cannot be obtained by computer fitting

Table 6 : Values for t_0 and shift factor (a) obtained by computer fitting of tensile creep data of 50:50 / PS:PPO blend varied temperature: $\Delta T = 7, 12$ and 17°C .

| t_a (min) | $\Delta T = 7^\circ\text{C}$ | | $\Delta T = 12^\circ\text{C}$ | | $\Delta T = 17^\circ\text{C}$ | |
|----------------|------------------------------|------|-------------------------------|------|-------------------------------|------|
| | t_0 (sec) | a | t_0 (sec) | a | t_0 (sec) | a |
| 160 | - | - | - | - | 27575 | 0.45 |
| 210 | 19330 | 0.58 | 8647 | 0.66 | 52514 | 0.86 |
| 260 | 24692 | 0.73 | 10919 | 0.83 | 52998 | 0.87 |
| 320 | 33609 | 1.00 | 13097 | 1.00 | 61247 | 1.00 |
| 480 | - | - | 13608 | 1.04 | - | - |

- cannot be obtained by computer fitting

Table 7 : Aging rate (μ) obtained from slope of log a plotted against log t_a of PS/PPO compositions: fixed $\Delta T = 12^\circ\text{C}$.

| % PPO | μ (sec^{-1}) |
|-------|-----------------------------|
| 0 | 0.46 |
| 30 | 0.67 |
| 50 | 0.99 |
| 100 | 1.26 |

Table 8 : Aging rate (μ) obtained from slope of log a plotted against log t_a of 50:50/PS:PPO blend varied $\Delta T = 7, 12$ and 17°C .

| ΔT ($^\circ\text{C}$) | μ (sec^{-1}) |
|---------------------------------|-----------------------------|
| 7 | 1.31 |
| 12 | 0.99 |
| 17 | 1.08 |

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