PolyOne

Troubleshooting Guide

Specialty Engineered Materials

# Edgetek™ AT Acetal (POM) Compounds

| Problem | Cause | Solution |
|---|---|---|
| **Weld Lines** | Melt front temp are too low | 1. Increase pack and hold pressure<br>2. Increase melt temperature<br>3. Increase vent width and locations<br>4. Increase injection rate<br>5. Increase mold temperature |
| | Mold design | 1. Reduce injection rate<br>2. Increase gate size<br>3. Perform short shots to determine fill pattern and verify proper vent location<br>4. Add vents and/or false ejector pin<br>5. Move gate location |
| **Flash** | Injection pressure too high | 1. Decrease injection pressure<br>2. Increase clamp pressure<br>3. Decrease injection rate<br>4. Increase transfer position |
| | Excess material volume | 1. Decrease pack pressure<br>2. Reduce shot size<br>3. Decrease injection rate |
| | Melt and/or mold too hot | 1. Decrease nozzle and barrel temperatures<br>2. Decrease mold temperature<br>3. Decrease screw speed |
| **Sink Marks** | Part geometry too thick | 1. Reduce wall thickness<br>2. Reduce rib thickness |
| | Melt too hot | 1. Decrease nozzle and barrel temperatures<br>2. Decrease mold temperature |
| | Insufficient material volume | 1. Increase shot size<br>2. Increase injection rate<br>3. Increase packing pressure<br>4. Increase gate size |
| **Burning** | Melt and/or mold too hot | 1. Decrease nozzle and barrel temperatures<br>2. Decrease mold temperature<br>3. Reduce injection rate<br>4. Consult PolyOne for specific grade of Edgetek AT compounds |
| | Mold design | 1. Clean, widen and increase number of vents<br>2. Increase gate diameter or number of gates. Clean, widen a |
| **Incomplete Fill** | Melt and/or mold too hot | 1. Increase nozzle and barrel temperatures<br>2. Increase mold temperature<br>3. Increase pack and hold pressure<br>4. Increase injection rate<br>5. Check thermocouples and heater bands |
| | Mold design | 1. Enlarge or widen vents and increase number of vents<br>2. Check that vents are unplugged<br>3. Check that gates are unplugged<br>4. Enlarge gates and/or runners<br>5. Perform short shots to determine fill pattern and verify proper vent location<br>6. Increase wall thickness to move gas trap to parting line |
| | Shot size | 1. Increase shot size<br>2. Increase cushion |
| **Brittleness** | Low melt temperature | 1. Increase melt temperature<br>2. Increase injection rate<br>3. Measure melt temperature with pyrometer |
| | Degraded/Overheated material | 1. Decrease back pressure<br>2. Decrease melt temperature<br>3. Use smaller barrel/excessive residence time |
| | Gate location and/or size | 1. Relocate gate to nonstress area<br>2. Increase gate size to allow higher flow rate |
| **Sticking in Mold** | Cavities are overpacked | 1. Reduce injection rate<br>2. Reduce pack and hold pressure<br>3. Reduce nozzle and barrel temperatures<br>4. Reduce mold temperature<br>5. Increase cooling time |

| Problem | Cause | Solution |
|---|---|---|
| **Sticking in Mold** | Mold design | 1. Increase draft angle |
| | Part is too hot | 1. Decrease nozzle and barrel temperatures<br>2. Decrease mold temperature<br>3. Increase cooling time |
| **Warp** | Excessive orientation | 1. Increase cooling time<br>2. Increase melt temperature<br>3. Reduce injection pressure and injection rate |
| | Mold design | 1. Increase number of gates |
| **Uneven Surface Appearance** | Melt temperature too low | 1. Increase melt temperature<br>2. Increase mold temperature<br>3. Increase injection speed |
| | Insufficient packing | 1. Increase pack and hold pressure and time<br>2. Increase shot size |
| **Excessive Shrink** | Too much orientation | 1. Increase packing time and pressure<br>2. Increase hold pressure<br>3. Reduce melt temperature<br>4. Reduce mold temperature<br>5. Reduce injection speed<br>6. Reduce screw rpm<br>7. Increase venting<br>8. Increase cooling time |
| **Not Enough Shrink** | Too little orientation | 1. Decrease packing time and pressure<br>2. Decrease hold pressure<br>3. Increase melt temperature<br>4. Increase mold temperature<br>5. Increase injection speed<br>6. Increase screw rpm<br>7. Decrease cooling time |
| **Color Streaks** | Incomplete color dispersion | 1. Increase back pressure<br>2. Verfiy color concentrate compatibility<br>3. Reduce rear zone temperature<br>4. Increase injection rate |

***CONTACT INFORMATION***

**Europe**
Germany – Gaggenau
+49 (0) 7225 680 20
Spain – Barbastro
+34 (0) 97431 0314
Turkey – Istanbul
+90 (0) 212 549 2241

**Americas**
U.S. – Avon Lake, Ohio
+1 440 930 1000

**Asia**
China – DongGuan
+86 (0) 769 8587 8800
China – Shenzhen
+86 (0) 755 2969 2888
India – Mumbai
+91 9820 194 220
Singapore
+65 (0) 6861 9325

PolyOne™

*Beyond Polymers.*
*Better Business Solutions.*℠

**www.polyone.com**


**PolyOne Americas**
33587 Walker Road
Avon Lake, OH 44012
U.S.A.
Tel.: +1 440 930 1000

**PolyOne Asia**
Guoshoujing Road No. 88
Z.J Hi-Tech Park, Pudong
Shanghai, 201203, China
Tel.: +86 (0) 21 5080 1188

**PolyOne Europe**
Rue Melville Wilson 2
5330 Assesse, Belgium
Tel.: +32 (0) 83 660 211


POL75477