



| <u>Material</u> | <u>Type</u> | <u>Approximate Linear shrinkage</u> |
|---------------------|-------------|-------------------------------------|
| PVC Compound | | |
| | | |
| PVC/U | Moulding | 0.4% - 0.6% |
| Flexible | BSS 1 | 0.5% - 1.0% |
| PVC/P | BSS 20 | 0.7% - 1.2% |
| | BSS 30 | 0.8% - 1.3% |
| | BSS 40 | 0.9% - 1.4% |
| | BSS 50 | 1.1% - 1.6% |
| | BSS 60 | 1.2% - 1.7% |
| | BSS 70 | 1.4% - 1.9% |
| | BSS 80 | 1.5% - 2.0% |
| | BSS 90 | 1.7% - 2.2% |
| | BSS 100 | 2.3% - 2.8% |

The shrinkage of Plasticised PVC is determined by many factors. The harder highly filled grades with an S.G of between 1.40 - 1.50 will shrink less.

For moulds with larger gate sizes, long flow paths and fast cycle times the shrinkage can increase, as with increased temperatures and lower processing pressures.

The information contained in the document is a guide only. Customers must therefore complete their own tests to ensure that finished products are suitable for their intended purpose.



| <u>Material</u> | <u>Type</u> | <u>Approximate Linear shrinkage</u> |
|-------------------------------|--------------------|-------------------------------------|
| ABS | Medium impact | 0.4 - 0.5 % |
| | High impact | 0.5 - 0.6 % |
| Acetal | Standard | 2.0% |
| | Glass Bead | 1.6% |
| | Glass Fibre | 0.6% |
| Acrylic | Standard | 0.2% - 0.7% |
| Cellulose Acetate | Standard | 0.2% - 0.7% |
| EVA | VA 5 -28% | 0.7 - 2.0% |
| HDPE | Standard | 2.0% - 3.0% |
| LDPE | Standard | 2.0% - 3.0% |
| LLDPE | Standard | 2.0% - 3.0% |
| Polypropylene Homo polymer | Standard | 1.5% - 2.5% |
| | Talc 20% | 1.0% - 1.2% |
| | FR Glass Filled | 1.0% - 1.4% 0.3% - 0.7% |
| PC/ABS Blend | Standard | 0.4% - 0.7% |
| Polycarbonate | Standard | 0.5% - 0.5% |
| | Lubricated | 0.3% - 0.5% |
| | Glass Filled | 0.1% - 0.3% |
| Polystyrene HIPS | Standard | 0.2% - 0.8% |
| Polystyrene GPPS | Standard | 0.3% - 0.6% |
| PBT | Standard | 1.7% - 2.3% |
| | Glass Filled | 0.3% - 1.0% |
| PET | Standard | 0.2% - 1.2% |
| | Glass Filled | 0.2% - 0.8% |
| NYLON 6 | Standard | 1.2% - 1.6% |
| | Imp-Mod | 1.5% - 1.25% |
| | High Viscosity | 0.9% - 1.3% |
| | Glass 18% | 0.4% - 0.5% |
| | Glass 30% | 0.3% - 0.4% |
| | Glass 40% | 0.2% - 0.3% |
| | Glass 50% | 0.1% - 0.2% |
| NYLON 66 | Standard | 1.9% |
| | Imp-Mod | 2.2% |
| | Glass 20% | 0.6% - 0.9% |
| | Glass 30% | 0.5% - 0.8% |
| | Glass 40% | 0.2% - 0.6% |
| | Glass Bead | 1.8% |



Component Shrinkage - Injection Moulding

Shrinkage

The shrinkage of a moulded part can be affected by many factors such as the injection speed and pressure, the viscosity and melt of the polymer, wall thickness and tool temperature. The sprue, runner and gate design of the mould are also major factors, which determine shrinkage. Many grades contain fillers such as chalk, talc and glass which all affect the degree of shrinkage.

Processing

Any one or combination of the following measures should reduce shrinkage.

- 1 Increase injection pressure.
- 2 Increase injection speed.
- 3 Increase screw forward holding time.
- 4 Increase cooling time.
- 5 Reduce mould temperature, in line with melt temp: differential.
- 6 Increase nozzle size.
- 7 Increase gate size or gate land.
- 8 Install multiple gates.
- 9 Increase cavity venting.

To increase shrinkage employ the opposite procedure to those listed above.