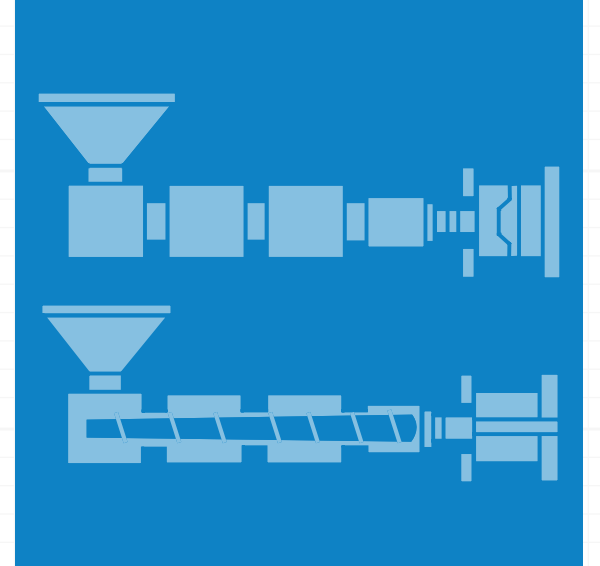


Lifolit[®]

Soft PVC processing guide



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INTRODUCTION

Lifolit are a family of high-quality, soft polyvinyl chloride (PVC) compounds, custom formulated to your requirements.

PVC is a building block of our daily lives, its versatility and performance benefits make it an ideal choice for a wide variety of applications in the construction, consumer, industrial, toy and automotive markets.

We have engineered flexible PVC compounds with very high flowability, ideal for injection moulding, as well as highly viscous grades for extrusion. Lifolit PVC compounds result in fast cycling times, meaning low energy costs during manufacture of the final application. Recycling of finished products is also possible

In the following pages we provide processing guidelines for the injection moulding and extrusion of Lifolit PVC compounds. The following process temperatures and parameters are suggested as starting conditions. Optimization of these suggestions may be necessary. The actual parameters will depend on the machine and the mould being used.

INJECTION MOULDING GUIDELINES

MOULD: Stainless steel with a minimum chromium content of 13% (preferably 16%) is recommended for mould building. If the application allows, highly polished or chrome plated mould and runner surface is beneficial for steel protection.

INJECTION SPEED: Slow to medium

BACK PRESSURE: Low

The Injection and holding pressures are determined by filling properties, mould design and part size.

COMPRESSION RATIO: 2:1 to 2.5 : 1

L/D RATIO: $\geq 20 D$

BARREL CAPACITY: 1.5 to 2 times the shot capacity

GATING: Due to the thermal and shear sensitivity of all PVC compounds, liberal gating is recommended. If possible, use full round runners.

INJECTION MOULDING GUIDELINES

DRYING: Predrying is normally not necessary

COLOURING: Only use pigments. Due to the risk of colour bleeding, migration or leaching, dyes should not be used

PURGING: PVC compounds are thermal and shear sensitive and care must be taken to avoid excessive heating or delays during the moulding process. Do not allow the PVC to sit idle in the screw for more than 10 - 15 minutes. Turn off heat. During stoppage, the machine should be purged with polyethylene (PE) until all the PVC compound is removed. Then purge the remainder of the PE and turn off the heat.

TYPICAL SHRINKAGE VALUES: See table, exact values should be determined by independent testing

GRADE HARDNESS	FILLED	UNFILLED
50 to 70 Shore A	1.8 - 2.1%	1.5 - 1.8%
70 to 80 Shore A	1.2 - 1.5%	1.0 - 1.2%

INJECTION MOULDING RECOMMENDED TEMPERATURES

MELT TEMPERATURE: The melt temperature should not exceed 200°C. PVC is heat sensitive, decomposition could occur.

MOULD TEMPERATURES: 30 - 60 °C

Hardness Shore A	Barrel Temperatures °C	Melt Temperatures °C
50 - 70	130 - 170	170 - 180
70 - 80	140 - 175	175 - 185
80 - 90	145 - 185	180 - 195

EXTRUSION GUIDELINES

SCREW DESIGN: Standard 3 zone screws with a length of (L/D ratio) 20- 24 D and compression ratio of 2:1 to 2.5:1 are recommended. Highly polished or plated, streamlined dies are recommended for PVC.

DRYING: Predrying is normally not necessary

COLOURING: Only use pigments. Due to the risk of colour bleeding, migration or leaching, dyes should not be used

PURGING: PVC compounds are thermal and shear sensitive materials. We recommend that you do not leave the material in the screw for more than 15 minutes at an elevated temperature. However, if this is unavoidable, allow the extruder to run at a slow speed so that the material is kept moving. During stoppage, open the head and clean the adapter, tooling and all other parts immediately. Then reduce the temperatures and allow the machine to empty.

EXTRUSION RECOMMENDED TEMPERATURES

MELT TEMPERATURE: The melt temperature should not exceed 200°C. PVC is heat sensitive and decomposition could occur. Normally, the standard temperature profiles used are low to high from feed to die. Running a reverse temperature profile is also possible.

Hardness Shore A	Barrel Temperatures °C	Melt Temperatures °C
50 - 70	125 - 160	155 - 165
70 - 80	135 - 165	165 - 175
80 - 90	140 - 180	175 - 180

WANT TO LEARN MORE?

Contact us at

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or visit

www.hexpoltpe.com/en/lifolit.htm

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[Lifolit soft PVC compounds](#)

[Lifocork cork compounds](#)

[Lifobatch coloured and additive masterbatch](#)

ABOUT HEXPOL TPE

HEXPOL TPE is a global compounding group specialising in Thermoplastic Elastomers (TPE) for key industries such as consumer, medical, packaging, automotive and construction. We have a core belief in being the easiest company to do business with. That's why we invest in our operations, teams and technologies to offer our customers the most reliable, relevant and cost-effective TPE compounds, backed by highly responsive support, technical know-how and application expertise. Our teams work together, across boundaries, applying the knowledge, experience and talents we have all around the world to meet the needs of our customers.

LEGACY NAMES: From 2017, the ELASTO and Müller Kunststoffe businesses were renamed to HEXPOL TPE.

All the information about chemical and physical properties consists of values measured in tests on injection moulded test specimens. We provide written and illustrated advice in good faith. This should only be regarded as being advisory and does not absolve the customers from doing their own full-scale tests to determine the suitability of the material for the intended applications. You assume all risk and liability arising from your use of the information and/or use or handling of any product. Figures are indicative and can vary depending on the specific grade selected and the production site. HEXPOL TPE makes no representations, guarantees, or warranties of any kind with respect to the information contained in this document about its accuracy, suitability for particular applications, or the results obtained or obtainable using the information. Some of the information arises from laboratory work with small-scale equipment which may not provide a reliable indication of performance or properties obtained or obtainable on larger-scale equipment. We retain the right to make changes without prior notice. HEXPOL TPE makes no warranties or guarantees, express or implied, respecting suitability of HEXPOL TPE's products for your process or end-use application. Lifolit® is a registered trademark, property of the HEXPOL TPE group of companies.

