# Rotor Seals for Manual and Automatic Liquid Samplers used in HPLC and their Material Properties.

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The choice of seal depends on the application and on the PH value of solvents. There are 3 kinds of seals available:

1) Vespel™ Rotor Seal

The standard seal has sealing material made of Vespel. Vespel is suitable for applications using mobile phases within the pH range of 2.3 to 9.5, which is suitable for the majority of applications. However, for applications using mobile phases with pH below 2.3 or above 9.5, the Vespel seal may degrade faster, leading to reduced seal lifetime.

2) Tefzel™ Rotor Seal

For mobile phases with pH below 2.3 or above 9.5, or for conditions where the lifetime of the Vespel seal is drastically reduced, a seal made of Tefzel is available. Tefzel is more resistant than Vespel to extremes of pH, however, is a slightly softer material. Under normal conditions, the expected lifetime of the Tefzel seal is shorter than the Vespel seal, however, Tefzel may have the longer lifetime under more extreme mobile phase conditions.

3) PEEK Rotor Seal

With the High Performance SL+ Auto sampler a PEEK rotor seal is used. This warrants a leak tight system at high pressures and allows the usage of solvents ranging from pH 2.3 to 12. The PEEK material may show a reduced lifetime if used with following solvents:

• Methylene chloride

• DMSO

• THF

• High concentrations of sulfuric acid

• High concentrations of nitric acid.

In general, the different types of rotor seals will have the same lifetime and wear at about the same rate. Tefzel and PEEK rotor seals will require a slightly higher torque to turn the valve.

Stators are available in 316 stainless steel and PEEK. Our materials of construction have been researched and selected for their physical and mechanical strength.



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