

Hydrogen Sealing Systems in Motorsport

Hydrogen production capacity is growing due to the drive towards Net Zero by 2050.

Many countries are developing a Hydrogen economy to fuel this drive, for example Germany has announced a 9 billion Euro national Hydrogen strategy, Sweden has several projects in development which will use Green Hydrogen in the steel production process. The UK has announced plans to support “low carbon” Hydrogen, which includes blue or green hydrogen projects.

Hydrogen's most likely uses, at least initially, are in heavy industry, and in heavy transport including trucks, buses, and rail. It could also be used in home heating if the technology can allow for a transition from natural gas.

Motorsport is already taking on the challenge of producing its first “hydrogen powered” vehicles. In 2024 there will be a Hydrogen category in the 24 Hours of Le Mans, and other genres are starting to embrace this fuel.

However, one of the major challenges in this developing world will be the transport, storage & use of the hydrogen at its point of use. Hydrogen gas has a very small molecule, and as such may have the ability to find its way into the polymer matrix, this could result in problems from Rapid Gas Decompression in certain scenarios. It is also small enough that it may even be able to escape. Good understanding of the material characteristics allied with careful material choice will be essential.

Sealing systems that consider all of these scenarios: *permeation : high pressure : low temperature* will need to be carefully developed in collaboration with experts in the design of Motorsport applications.



Lanson Polymers offers a broad range of materials and experience in low temperature, high pressure, gas applications.

High Performance without compromise

All applications for seals, bearings & components are different – in many instances engineers have to compromise by using a standard “off the shelf” item when they would prefer a bespoke solution.

Lanson Polymer’s competitive lead times allied with our vast experience in the design and supply of high performance seals, bearings & components into the motorsport arena will allow you to specify the optimum solution.

- Precision O-Rings (FKM, FFKM)
- Rotary Seals
- Spring Energised Seals
- T-Seals
- PEEK machined components
- PTFE machined components
- Elastomeric mouldings
- PTFE seals
- Bespoke solutions