

Gasket Materials for Hydrogen Applications

The following Frenzelit gasket materials are recommended for the use in hydrogen applications:

- novapress® 850
- novapress® 880 (also with Frenzelit Inner Eyelet Technology)
- novaphit® SSTC TA-L (also with Frenzelit Inner Eyelet Technology)
- novaphit® MST (also with Frenzelit Inner Eyelet Technology)
- novamica® THERMEX



Due to tests in the Frenzelit inhouse laboratories and based on case studies from practice these products are particularly suitable for the use with hydrogen. The inhouse trials cover tests for chemical resistance of hydrogen and leakage tests with hydrogen as test medium.

Test of chemical resistance

This test is orientated to the carrier test procedure for refrigerants. The test objects are stored in an autoclave filled with hydrogen gas. Test parameters:

- Test pressure: 3 bar
- Test period: 6 weeks
- Test temperature: room temperature

The dimensions and the weight of the test objects are measured before and after the test procedure. The gasket materials passed the test with very low geometric and gravimetric changes (far below the limits).

Leakage tests

These tests are orientated to the DIN 28090-2 (09-1995) and take place in the test bench for hydrogen which was developed inhouse by Frenzelit. Test parameters are:

- Nominal flange size and compression level: DN 40 / PN 40
- Pressure of medium: 40 bar
- Surface pressure during assembly: 32 MPa
- Operational pressure: 30 MPa
- Testing time: 1 h

Based on the results of the leakage tests and the case studies, the gasket materials mentioned above are well suited for hydrogen applications. The use of gaskets combined with the New Inner Eyelet Technology significantly decreases the leakage values during the tests.



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Moreover, is it inevitable to pay attention to the situation of assembly in hydrogen applications. A high surface pressure during assembly, an adequate proportion of gasket width to gasket thickness (at least 5:1) and low gasket thicknesses are recommended. The design of the sealing can be supported by the online calculation software novaDISC 8, which is already established in practice:

[novaDISC: novadisc.de](http://novadisc.de)

We will be happy to assist you with any application-related questions:

dichtungen@frenzelit.com, Phone: +49 9273 72-419

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