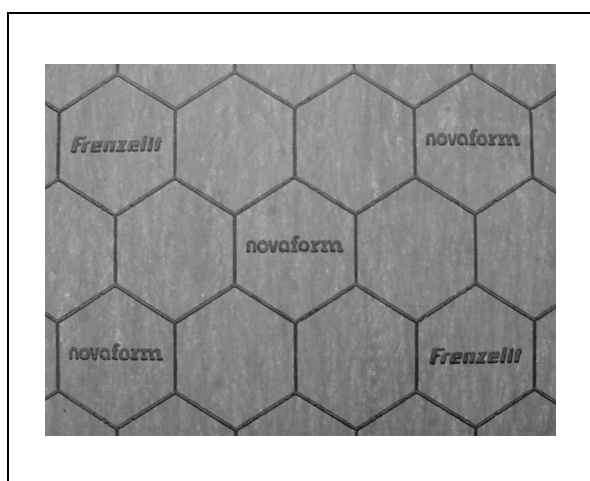


# novaform 220 S

## Compressed sheet material with controlled swell in oil properties (SBR-Binder)



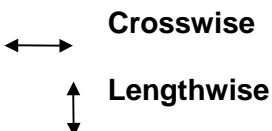
Manufacturer: **Frenzelit**

Material: **novaform 220 S**

Density **1.55 g/cm<sup>3</sup>:**

Sample: **1**

Scale: **2 : 1**

Position: 

- Technical Description
- Swell behavior in oil
- Application Examples
  - Valve cover gasket
  - Oil pan gasket
  - Diesel injection pumps
- Data Comparison (Bosch Specification)
- Creep (Temp-Test)
- Technical Data Sheet

GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

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 **Frenzelit**

creating  
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solutions

# novaform 220 S

## Product description

**novaform 220 S** is a **Frenzelit** grade with controlled swell properties in oil. This has been realised by taking the approved **novaform 220** formulation and exchanging the NBR latex binder-system against a **SBR** type.

The intention of the development was to offer our customers a controlled swell product on a high performance level of the top products, but for a much more competitive price.

With additional ingredients and by using a special type of high quality aramid fibre it was possible to give the product a very good stabile structure even after oil immersion. This behaviour is important in applications with an increased demand for tensile strength.

The controlled swell behaviour enables the gasket to fill out and follow the gaps of the components and their distortions. The swell is activated in oil, diesel & petrol fuel, but not in coolant 50:50. In ASTM oil III more than 30 % thickness increase can be achieved.

The TEMP-Test Diagramm shows a very good temperature resistance up to 240°C.

In case of the 1.0 mm sample even up to 400°C the gradient runs very similar parallel to the Frenzelit top grade **novapress 805** (released by Bosch).

A further technical highlight is the very competitive tightness against gas, e.g. 0.02 mg/s\*m similar to DIN 3535/6 (depending on thickness class).

The material properties were designed for typical gasket applications like:

- Valve covers
- Oil pans
- Gears
- Transmissions
- Hydraulic seals
- Gaskets in diesel injection pumps

**novaform 220 S** is produced in the compressed sheet process which provides a very homogeneous and highly vulcanised material structure. The original sheet size is 3000 x 1500 mm.

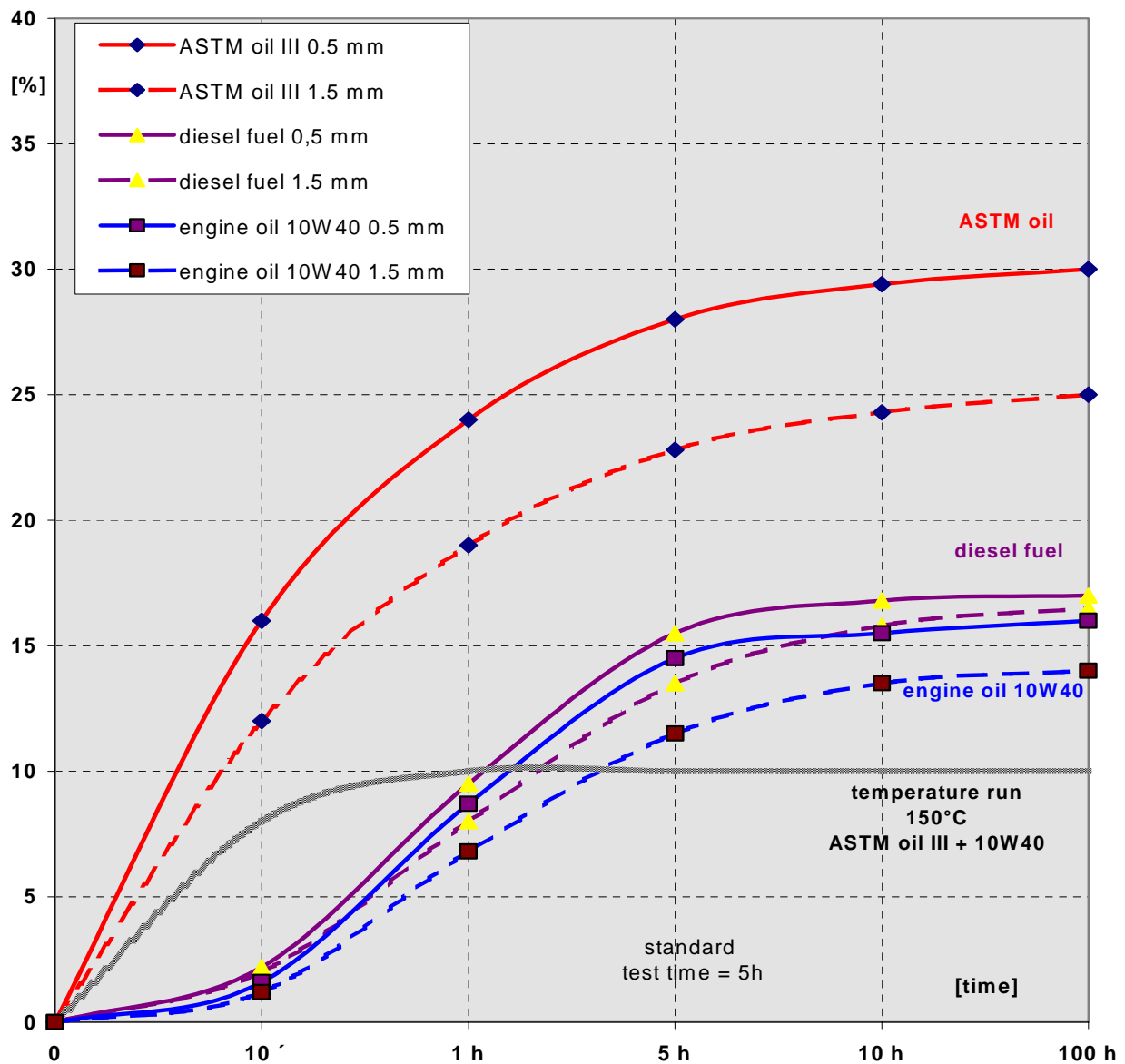
The standard thickness range is :

**0.30 ... 0.40 ... 0.50 ... 0.75/0.80 ... 1.00 ... 1.50 ... 2.00 mm.**

# novaform 220 S

## Thickness increase in immersion tests versus time

**Test temperature:**    **ASTM oil III**                    **150°C**  
                                  **diesel fuel**                        **23°C**  
                                  **engine oil 10W40**                **150°C**

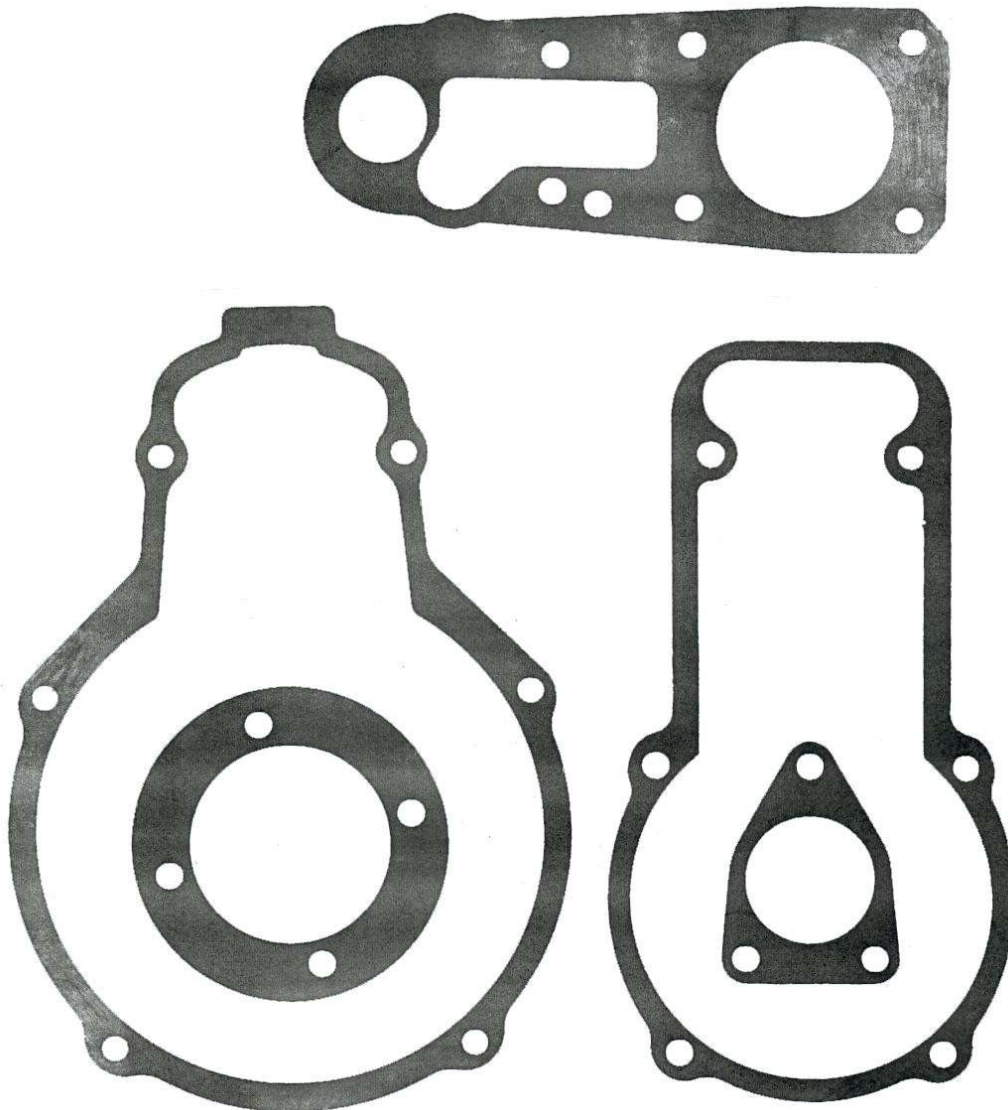




## **novaform 220 S**

### **Gasket examples of use**

**Diesel injection pumps**  
typical thickness 0.5 mm



# novaform 220 S

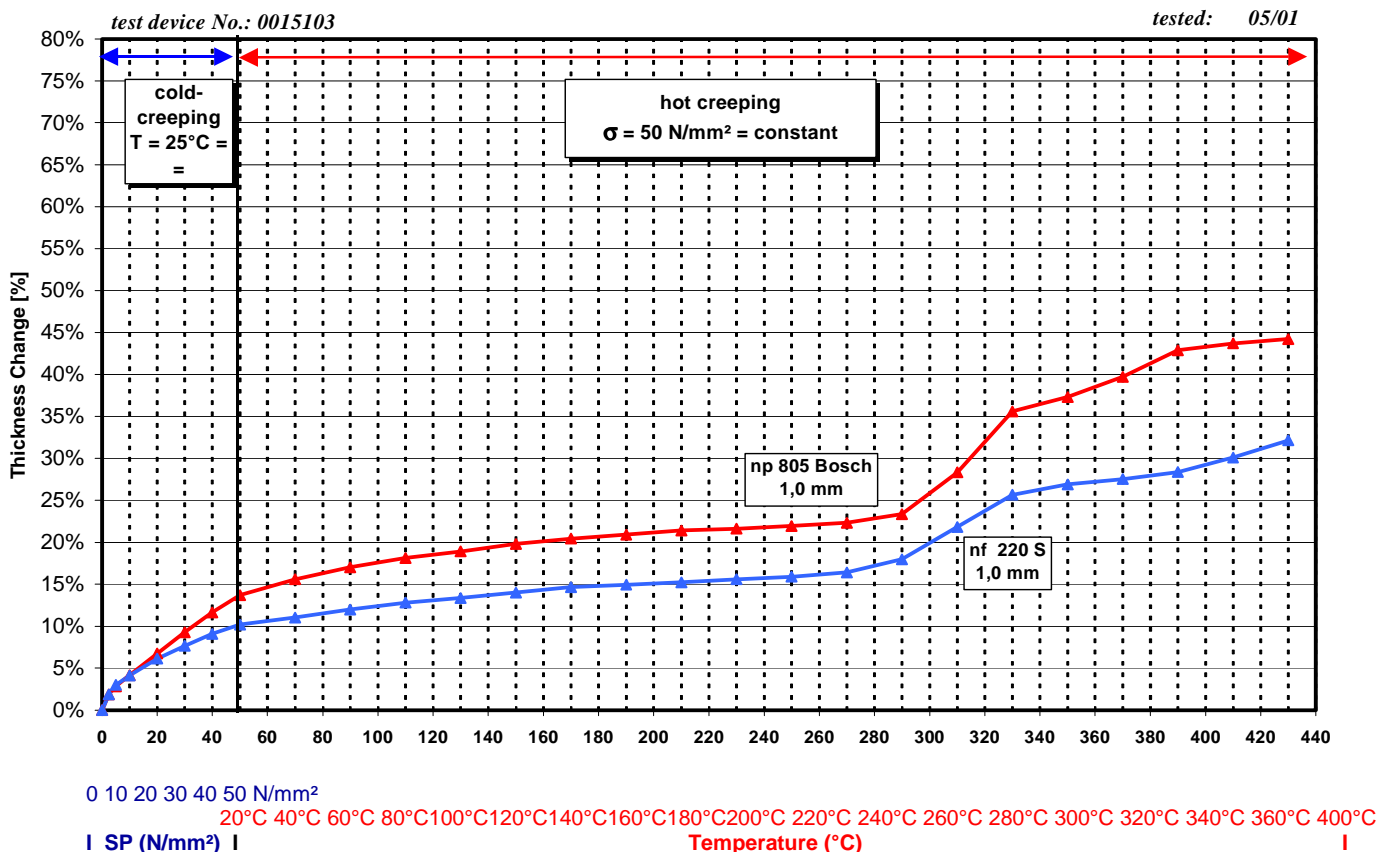
## Data comparison to the original Bosch grade novapress 805 B and specification

(\* All information based on the typical data according actual Technical Data Sheet !)

Parameter	Dimension	Bosch Spec.	novapress 805 B *	novaform 220 S *
Thickness	[mm]	0.50	0.50	0.51
Colour		--	brown/brown	brown/beige
Density	[g/cm]	1.50 +- 0.05	1.50	1,55
Tensile strength long.	[N/mm <sup>2</sup> ]	> = 18	23,3	20.0
Tensile strength trans.	[N/mm <sup>2</sup> ]	> = 8	8,9	6.0
Compressibility	[%]	9 .. 15	10.8	8.0
Recovery	[%]	>= 45	64.2	53.0
Ignition loss	[%]	30 .. 36	30	29
Bending behaviour as received				
- longitudinal 2 mm radius		no breaking	- OK -	- OK -
- transverse 2 mm radius		no breaking	- OK -	- OK -
Storage in warm air 24h / 150°C				
- longitudinal		no breaking	- OK -	- OK -
- transverse		no breaking	- OK -	- OK -
<b>Fluid resistance</b>				
ASTM oil No. 2				
Change in volume 24 h / 100°C [%]		20 .. 40	21.4	22.7
Tensile strength, trans. 500h/100°C [N/mm <sup>2</sup> ]		> = 4	--	--
For <b>short time - quality checks</b> the following short tests can be conducted :				
ASTM oil No. 2				
Tensile strength, long. 24 h/100°C [N/mm <sup>2</sup> ]		> = 8	12.8	13
Tensile strength, trans. 24h/100°C [N/mm <sup>2</sup> ]		> = 2	4.1	3.4

# novaform 220 S

## Frenzelit - TEMP-Test



SP = Surface pressure

The TEMP-Test gives an information about the adaptability (cold creep) comparable with the real installation of the gasket and show the temperature stability (hot creep) of the material under the constant surface pressure of 50 N/mm<sup>2</sup>.