HNBR RGD 90P

HNBR-RGD90P-01 · HNBR · 90 Shore A · Peroxide cure · −30 °C to +160 °C

HPHT

Hydrogenated nitrile that keeps its shape after the gas leaves.

READ THE CODE HNBR-RGD90P-01 = HNBR, RGD duty (rapid gas decompression), 90 Shore A, P for peroxide cure, recipe 01.

DEVELOPMENT TARGETS: NOT MEASURED RESULTS. Every value on this sheet is a design target or a release limit for development. Replace targets with measured typical values (mean of production lots, with the number of lots) and the test report reference before external use.

Description

A 90 Shore A peroxide-cured HNBR for high-pressure gas and sour oilfield service to 160 °C. High modulus, tear strength and extrusion resistance, at a lower cost than FKM.

Applications

- Wellhead and valve seals in oil and gas to 160 °C
- Subsea and topside O-rings and T-seals
- Gas compression and pipeline equipment
- Packer back-up and anti-extrusion components
- Downhole tool seals

POLYMER	HNBR (hydrogenated nitrile)
DUTY	RGD: Rapid gas decompression
CHEMISTRY	Peroxide-cured hydrogenated nitrile, medium acrylonitrile (about 34 to 36 %)
CURE	Peroxide
HARDNESS	90 Shore A nominal
DESIGN RANGE	−30 °C to +160 °C
COLOUR	Black
PORTFOLIO	Wave 1, must-have
POLE MARKS	HPHT

Properties: targets and release limits

PROPERTY	TARGET	RELEASE LIMIT	UNIT	TEST METHOD
Hardness	**90**	**85 to 95**	Shore A	ASTM D2240 / ISO 48-4, 1 s
Specific gravity	**1.24**	**±0.02 of approved value**	—	ASTM D297 / ISO 2781
Tensile strength	**22**	**min 18**	MPa	ASTM D412 die C / ISO 37 type 2
Elongation at break	**160**	**min 120**	%	ASTM D412 die C / ISO 37 type 2
Modulus at 100 %	**12**	**9 to 15**	MPa	ASTM D412 die C / ISO 37 type 2
Tear strength	**40**	**min 30**	kN/m	ASTM D624 die C
Compression set, 22 h at 150 °C	**18**	**max 25**	%	ASTM D395 method B, button
TR10	**−22**	**max −20**	°C	ASTM D1329 / ISO 2921
Heat ageing 70 h at 150 °C, hardness change	**+3**	**0 to +6**	points	ASTM D573 / ISO 188
IRM 903, 168 h at 150 °C, volume change	**+6**	**max +12**	%	ASTM D471 / ISO 1817

Typical values are indicative and are not a warranty. Targets are design values, not measured results. The user is responsible for confirming suitability in the actual application. Pascalor · Compounds with a paper trail.

Qualification plan

The grade code says what this compound is designed for. This table says what it has passed: a duty is claimed only once its report is on file. Evidence for the RGD duty: An ISO 23936-2 Annex B or NORSOK M-710 RGD report on the same grade.

TEST	STANDARD OR METHOD	CONDITIONS	STATUS
Rapid gas decompression	ISO 23936-2 Annex B / NORSOK M-710	90/10 CH4/CO2, 15 MPa, 100 °C, 8 cycles, about 2 MPa/min decompression; 5.33 mm and 6.99 mm sections; target rating 0000 to 1111 (0 to 3 passes)	Planned
Sour ageing and life prediction	ISO 23936-2 Annex A / NORSOK M-710	Sour multiphase fluid (hydrocarbon liquid, water, gas with H2S) at three temperatures; Arrhenius extrapolation to service temperature	Planned
Elastomer immersion	API 6A Annex F, material class FF/HH	10 % H2S / 80 % CO2 / 10 % CH4 gas phase, at least 6.9 MPa, at least 160 h at 149 °C; NORSOK-style acceptance limits	Planned
Sour gas	NACE TM0187	Per standard	Planned

Processing

Press cure guide: 10 min at 180 °C. Post-cure guide: 4 h at 150 °C (optional, for lowest compression set).

Storage and lot record

Target 4 months at or below 25 °C. Every lot ships with its Passport: results against these limits, the rheometer cure curve and the raw-material lots.

How to read this sheet

Target: the value the compound is designed to reach, used until measured data exists.

Typical: the mean of measured production lots, stated with the number of lots. Replaces the target.

Release limit: the window every lot is tested against. A lot outside it does not ship.

Method: the standard, specimen and conditions behind each number.

Supply

Supplied as uncured compound by the batch, with the lot Passport. Test slabs, buttons and trial quantities are available for qualification.

Tell us the fluid, the temperature range, the pressure and the seal design, and we will say whether this grade fits, and which one does if it does not.

Pole marks on this grade

HPHT: designed for high-pressure duty (rapid gas decompression, extrusion or sour gas at pressure) at 160 °C or above. Neither term has an industry-wide definition. These are Pascalor rules, and every datasheet states the actual numbers.