HNBR Low-Temp 85P

HNBR-LT85P-01 · HNBR · 85 Shore A · Peroxide cure · −50 °C to +150 °C

HPLT

Flexible at −50 °C. Still an oilfield compound at 150 °C.

READ THE CODE HNBR-LT85P-01 = HNBR, LT duty (low temperature, sealing at −40 °C or below), 85 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

An 85 Shore A low-temperature HNBR for HPLT service: sealing at −50 °C under pressure, with RGD resistance and the mechanical strength of HNBR. The lower acrylonitrile content buys cold flexibility at some cost in oil swell, which the datasheet states.

POLYMER	HNBR (hydrogenated nitrile)
DUTY	LT: low temperature
CHEMISTRY	Peroxide-cured hydrogenated nitrile, low acrylonitrile (about 18 to 21 %)
CURE	Peroxide
HARDNESS	85 Shore A nominal
DESIGN RANGE	−50 °C to +150 °C
COLOUR	Black
PORTFOLIO	Wave 1, must-have
POLE MARKS	HPLT

Applications

- Arctic and cold-climate wellheads and valves (API 6A class L)
- Subsea equipment that is stored, tested or depressurised in the cold
- Blowdown and choke valves exposed to Joule–Thomson cooling
- Hydrogen and gas equipment at low temperature (validation planned)
- Drilling and intervention equipment stored below 0 °C

Properties: targets and release limits

PROPERTY	TARGET	RELEASE LIMIT	UNIT	TEST METHOD
Hardness	**85**	**80 to 90**	Shore A	ASTM D2240 / ISO 48-4, 1 s
Specific gravity	**1.20**	**±0.02 of approved value**	—	ASTM D297 / ISO 2781
Tensile strength	**20**	**min 16**	MPa	ASTM D412 die C / ISO 37 type 2
Elongation at break	**200**	**min 150**	%	ASTM D412 die C / ISO 37 type 2
Modulus at 100 %	**8**	**6 to 10**	MPa	ASTM D412 die C / ISO 37 type 2
Compression set, 22 h at 150 °C	**22**	**max 30**	%	ASTM D395 method B, button
TR10	**−38**	**max −35**	°C	ASTM D1329 / ISO 2921
Low-temperature sealing (product test)	**−50**	**no leak at −50**	°C	Product-configured O-ring test at pressure
Heat ageing 70 h at 150 °C, hardness change	**+4**	**0 to +7**	points	ASTM D573 / ISO 188
IRM 903, 168 h at 150 °C, volume change	**+15**	**max +25**	%	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 LT duty: TR10 (ASTM D1329) and a low-temperature sealing test at the rated temperature.

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
Low-temperature sealing	Product-configured O-ring test (method published with the report)	Sealing at −50 °C at rated pressure; leak onset temperature reported with TR10 of the same lot	Planned
Product low-temperature cycle	API 6A PR2 (with an OEM, on its seal design)	Temperature class L or K cycle on the customer's product	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

HPLT: designed to seal under pressure at −30 °C or below. Neither term has an industry-wide definition. These are Pascalor rules, and every datasheet states the actual numbers.