FKM Chemical 90P

FKM-CHEM90P-01 · FKM · 90 Shore A · Peroxide cure · −10 °C to +210 °C

HPHT

Fluoroelastomer performance where amines, bases and steam say no.

READ THE CODE FKM-CHEM90P-01 = FKM, CHEM duty (chemical resistance), 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 base-resistant FKM for amines, high-pH completion fluids, steam and sour gas to 210 °C, with better low-temperature flexibility and compression set than FEPM.

POLYMER	FKM (fluoroelastomer)
DUTY	CHEM: chemical resistance
CHEMISTRY	Peroxide-cured base-resistant fluoroelastomer
CURE	Peroxide
HARDNESS	90 Shore A nominal
DESIGN RANGE	−10 °C to +210 °C
COLOUR	Black
PORTFOLIO	Wave 2, probable
POLE MARKS	HPHT

Applications

- Downhole safety valve flapper seats and seals
- Bonded seals in amine and high-pH service
- Steam-exposed valve seals
- Packer components where FEPM is too stiff

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	**1.80**	**±0.02 of approved value**	—	ASTM D297 / ISO 2781
Tensile strength	**14**	**min 11**	MPa	ASTM D412 die C / ISO 37 type 2
Elongation at break	**120**	**min 90**	%	ASTM D412 die C / ISO 37 type 2
Compression set, 70 h at 200 °C	**25**	**max 35**	%	ASTM D395 method B, button
TR10	**−8**	**max −5**	°C	ASTM D1329 / ISO 2921
5 % amine in water, 168 h at 150 °C, volume change	**+4**	**max +10**	%	ASTM D471 / ISO 1817
5 % amine in water, 168 h at 150 °C, tensile change	**−20**	**max −35**	%	ASTM D471 / ISO 1817
Saturated steam, 168 h at 200 °C, volume change	**+3**	**max +8**	%	In-house autoclave method
IRM 903, 168 h at 150 °C, volume change	**+4**	**max +10**	%	ASTM D471 / ISO 1817

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 CHEM duty: Immersion data in the named fluids (ASTM D471 / ISO 1817).

TEST	STANDARD OR METHOD	CONDITIONS	STATUS
Amine and steam ageing	In-house method, published with results	Amine inhibitor and saturated steam at rated temperature	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
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
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 177 °C; NORSOK-style acceptance limits	Planned

Processing

Press cure guide: 10 min at 177 °C. Post-cure guide: 4 h at 230 °C. Confirm on the rheometer curve for each lot.

Storage and lot record

Target 6 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.