FEPM Sour 90P

FEPM-SOUR90P-01 · FEPM · 90 Shore A · Peroxide cure · −10 °C to +225 °C

HPHT

For the wells where H2S, amines and steam meet.

READ THE CODE FEPM-SOUR90P-01 = FEPM, SOUR duty (sour service), 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 FEPM for sour wells, amine corrosion inhibitors, completion brines, bases and steam to about 225 °C. Chosen where FKM-type fluoroelastomers lose to chemistry rather than to temperature.

POLYMER	FEPM (TFE/propylene)
DUTY	SOUR: sour service
CHEMISTRY	Peroxide-cured TFE/propylene (FEPM)
CURE	Peroxide
HARDNESS	90 Shore A nominal
DESIGN RANGE	−10 °C to +225 °C
COLOUR	Black
PORTFOLIO	Wave 1, must-have
POLE MARKS	HPHT

Applications

- Sour wells with amine-based corrosion inhibitors
- Packers and bridge plugs in high-temperature sour service
- Wellhead and downhole safety valve seals
- Steam and hot water service, thermal recovery wells
- Completion and stimulation fluid exposure

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	**1.60**	**±0.02 of approved value**	—	ASTM D297 / ISO 2781
Tensile strength	**15**	**min 12**	MPa	ASTM D412 die C / ISO 37 type 2
Elongation at break	**140**	**min 100**	%	ASTM D412 die C / ISO 37 type 2
Modulus at 100 %	**11**	**8 to 14**	MPa	ASTM D412 die C / ISO 37 type 2
Compression set, 22 h at 200 °C	**30**	**max 40**	%	ASTM D395 method B, button
TR10	**+3**	**max +5**	°C	ASTM D1329 / ISO 2921
Low-temperature sealing (product test)	**−10**	**no leak at −10**	°C	Product-configured O-ring test at pressure
5 % amine inhibitor in water, 168 h at 150 °C, volume change	**+3**	**max +8**	%	ASTM D471 / ISO 1817
Saturated steam, 168 h at 200 °C, volume change	**+3**	**max +8**	%	In-house autoclave method (published with report)
IRM 903, 168 h at 150 °C, volume change	**+12**	**max +20**	%	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 SOUR duty: A sour test to ISO 23936-2 Annex A, API 6A Annex F or NACE TM0187.

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 177 °C; NORSOK-style acceptance limits	Planned
Amine and steam ageing	In-house method, published with results	Amine inhibitor and saturated steam at rated temperature	Planned
Sour gas	NACE TM0187	Per standard	Planned

Processing

Press cure guide: 10 min at 177 °C. Post-cure guide: 4 h at 200 °C.

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.

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