FEPM ESP 80P

FEPM-ESP80P-01 · FEPM · 80 Shore A · Peroxide cure · −5 °C to +225 °C

HPHT

The bag that keeps the well out of the motor.

READ THE CODE FEPM-ESP80P-01 = FEPM, ESP duty (electric submersible pumps), 80 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 80 Shore A FEPM for electric submersible pump protector bags, bonded parts and diaphragms: flex-fatigue resistance with FEPM resistance to H2S, amines, brines and hot oil.

Applications

- ESP motor protector bags
- Bonded seals and diaphragms in hot sour service
- Downhole tool boots and bladders
- Pump and compressor diaphragms

POLYMER	FEPM (TFE/propylene)
DUTY	ESP: Electric submersible pumps
CHEMISTRY	Peroxide-cured TFE/propylene (FEPM), flex grade
CURE	Peroxide
HARDNESS	80 Shore A nominal
DESIGN RANGE	−5 °C to +225 °C
COLOUR	Black
PORTFOLIO	Wave 2, probable
POLE MARKS	HPHT

Properties: targets and release limits

PROPERTY	TARGET	RELEASE LIMIT	UNIT	TEST METHOD
Hardness	**80**	**75 to 85**	Shore A	ASTM D2240 / ISO 48-4, 1 s
Specific gravity	**1.58**	**±0.02 of approved value**	—	ASTM D297 / ISO 2781
Tensile strength	**16**	**min 13**	MPa	ASTM D412 die C / ISO 37 type 2
Elongation at break	**260**	**min 200**	%	ASTM D412 die C / ISO 37 type 2
Tear strength	**30**	**min 25**	kN/m	ASTM D624 die C
Compression set, 22 h at 200 °C	**30**	**max 40**	%	ASTM D395 method B, button
Flex fatigue (DeMattia)	**To be measured**	**Reported, no limit yet**	cycles	ISO 132
IRM 903, 168 h at 150 °C, volume change	**+12**	**max +20**	%	ASTM D471 / ISO 1817
TR10	**+3**	**max +5**	°C	ASTM D1329 / ISO 2921

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 ESP duty: Immersion in well fluids and motor oil at temperature.

TEST	STANDARD OR METHOD	CONDITIONS	STATUS
Flex fatigue	ISO 132 (DeMattia)	Before and after hot sour ageing	Planned
Hot sour fluid ageing	ISO 23936-2 Annex A	Sour multiphase fluid	Planned
Bag qualification	ESP OEM test	On the OEM's protector design	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.