FKM CO2 90P

FKM-CO2-90P-01 · FKM · 90 Shore A · Peroxide cure · −40 °C to +200 °C

HPHT HPLT

For CO2 that is dense, cold on release and full of methanol.

READ THE CODE FKM-CO2-90P-01 = FKM, CO2 duty (carbon dioxide 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 FKM for carbon capture and storage, CO2 injection and methanol-dosed gas systems: designed for decompression in 100 % CO2, methanol resistance and low-temperature sealing to −40 °C.

POLYMER	FKM (fluoroelastomer)
DUTY	CO2: Carbon dioxide
CHEMISTRY	Peroxide-cured low-temperature fluoroelastomer, high fluorine
CURE	Peroxide
HARDNESS	90 Shore A nominal
DESIGN RANGE	−40 °C to +200 °C
COLOUR	Black
PORTFOLIO	Wave 2, probable
POLE MARKS	HPHT + HPLT

Applications

- CCS injection wellheads and valves
- CO2 pipelines and compressors
- Methanol injection and hydrate-control systems
- CO2 enhanced oil recovery

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	**1.87**	**±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	**130**	**min 100**	%	ASTM D412 die C / ISO 37 type 2
Compression set, 22 h at 200 °C	**20**	**max 30**	%	ASTM D395 method B, button
TR10	**−28**	**max −26**	°C	ASTM D1329 / ISO 2921
Low-temperature sealing (product test)	**−40**	**no leak at −40**	°C	Product-configured O-ring test at pressure
Methanol, 168 h at 40 °C, volume change	**+8**	**max +15**	%	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 CO2 duty: CO2 decompression (NACE TM0297 or ISO 23936-2 Annex B in CO2) and immersion data.

TEST	STANDARD OR METHOD	CONDITIONS	STATUS
Rapid gas decompression in CO2	ISO 23936-2 Annex B adapted to 100 % CO2	15 MPa, 50 to 100 (to be confirmed) °C, 8 cycles, 5.33 mm and 6.99 mm sections	Planned
CO2 decompression	NACE TM0297	Per standard	Planned
Methanol immersion	ASTM D471	With dry-out and re-test	Planned
Low-temperature sealing	Product-configured O-ring test (method published with the report)	Sealing at −40 °C at rated pressure; leak onset temperature reported with TR10 of the same lot	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. 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.