NBR Swell 60S

NBR-SWELL60S-01 · NBR + SAP · 60 Shore A · Sulfur cure · −20 °C to +120 °C

NO POLE MARK

For zones where the water arrives first.

READ THE CODE NBR-SWELL60S-01 = NBR, SWELL duty (swellable elements), 60 Shore A, S for sulfur 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 60 Shore A nitrile compound containing a superabsorbent polymer, for water-swell packers and seals in water-producing zones up to about 120 °C. Swelling is fastest in fresh water and slows as salinity rises.

Applications

- Water-swell packers for water shut-off
- Hybrid completions with oil-swell elements
- Annular barriers in injection wells

POLYMER	NBR + SAP (nitrile)
DUTY	SWELL: swellable elements
CHEMISTRY	Nitrile with a superabsorbent polymer, water-swellable
CURE	Sulfur
HARDNESS	60 Shore A nominal
DESIGN RANGE	−20 °C to +120 °C
COLOUR	Black
PORTFOLIO	Wave 3, probable
POLE MARKS	None

Properties: targets and release limits

PROPERTY	TARGET	RELEASE LIMIT	UNIT	TEST METHOD
Hardness	**60**	**55 to 65**	Shore A	ASTM D2240 / ISO 48-4, 1 s
Tensile strength	**8**	**min 6**	MPa	ASTM D412 die C / ISO 37 type 2
Elongation at break	**400**	**min 300**	%	ASTM D412 die C / ISO 37 type 2
Volume swell, deionised water, 7 days at 90 °C	**+200**	**min +150**	%	ASTM D471 / ISO 1817
Volume swell, 3 % NaCl, 7 days at 90 °C	**+120**	**min +80**	%	ASTM D471 / ISO 1817
Maximum service temperature	**120**	**max 120**	°C	Design limit

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 SWELL duty: Swell-versus-time curves in the named fluid at the stated temperature.

TEST	STANDARD OR METHOD	CONDITIONS	STATUS
Swell rate in brines	In-house method, published with results	Customer brine at well temperature	Planned
Pressure holding	In-house fixture	After swelling	Planned

Processing

Press cure guide: 10 min at 160 °C. Keep dry before moulding.

Storage and lot record

Target 3 months, sealed from moisture. 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

This is a reference or general grade and carries no pole mark. The red HPHT mark is for high-pressure duty at 160 °C or above; the blue HPLT mark is for sealing under pressure at −30 °C or below.

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.