MCM

HIGH-PERFORMANCE SEALING

supralast

Oilfield Sealing Solutions

supralast for Petrochemical Applications

Oil drilling is one of the most complex fields due to the peculiar environmental conditions to be faced by the seal. Huge downtime costs are the fee to be paid in case of breakdown or failure of a sealing element.

In oil drilling plants, depending on the different possible positions, one can find harsh mixtures of hydrocarbons even sulfonated, superheated steam, H_2S, CO_2, methane, amine based corrosion inhibitors, temperatures well below 0°C and over 200°C, high pressure.

To cope with so aggressive and diversified combinations the following features must be granted at the same time:

- chemical resistance
- outstanding physical properties
- elasticity in a wide range of temperatures
- resistance against explosive decompression (AED)

We have a **long time experience** in solving all kinds of difficult sealing problems inside the Oil & Gas sector.

MCM High-Performance Sealing has a wide range of O-Ring/Rubber gasket, standard PTFE based seals and energized seals for cryogenic service, high temperature and high pressure. Compounds: PTFE vergin, Modified PTFE, PEEK, PCTFE, DEVLON®, and other special materials with springs made of ELGILOY®, HASTELLOY®, INCONEL, in dimension up to Ø 2.300 mm (Ø 90") . . .

With success we have made sealing solutions to following equipment in this sector:
Ball valves – Gate valves – Butterfly valves – Regulating valves – Plug valves – Seat valves – Check valves – Metering valves – Control valves – Valve actuators – BOP – Couplings for flexible pipes – Xmas trees – Drill drives – Marine cranes.

As a matter of fact the following elastomers are of common use

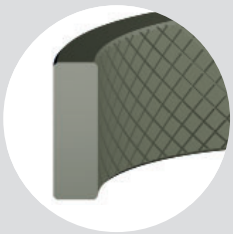
FKM, bisphenolic cured
Maximum thermal rating (short time +250°C), excellent resistance against hydrocarbons also aromatic, good physical properties, limited resistance to steam and H_2S (max 2000 ppm). Special compounds for explosive decompression (AED).

FKM, peroxide cured
Excellent thermal rating (+220/230°C, short time +250°C), special grades for low temperatures, good resistance to bases, limited resistance to H_2S. Special compounds for explosive decompression (AED).

FEPM, AFLAS®
Excellent thermal rating (+230°C), outstanding resistance against bases and H_2S (up to 30%), limited resistance to hydrocarbons and aromatic substances, limited low temperature flexibility. Special compounds for explosive decompression (AED).

FFKM, evolast®
Outstanding thermal rating (+320°C, short time +340°C), outstanding resistance towards aggressive chemicals, acids, organic and inorganic fluids, ketones, esters, solvents, amines, hot water and steam. Special compounds for explosive decompression (AED).

HNBR
Maximum physical properties, good thermal rating (+160°C, short time +180°C), good steam and H_2S (max 5000 ppm) resistance, limited resistance to aromatic hydrocarbons. Special compounds for explosive decompression (AED).



Oilfield Sealing Solutions

Material	Material No.	Hardness Shore A	Colour	Temperature °C from	to	Remarks *approvals available
FKM 90 ED	N9001	90	black	-30	+230 (+250)	oil/gas applications, **AED** ***NORSOK M710 (AED – RGD) – 5.33 mm – 10.82 mm** ***NACE TM0297 100% CO_2 (AED – RGD) – 5.33 mm** ***NACE TM0187 (sour gas environment) – 5% + 20% H_2S** ***TOTALFINA SP-TCS-142** ***SHELL (80°C – 138 bar)** ***API6A (sour gas environment) – 10% H_2S** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***Life prediction & AED test – Arrhenius ISO 23936-2** ***Saudi Aramco 06-SAMSS-001**
FKM 90 PLT/ED	N9012	90	black	-41	+220 (+250)	low temperature, **AED – 10.82 mm** ***NORSOK M710 (AED – RGD) – 5.33 mm** ***NACE TM0297 100% CO_2 (AED – RGD) – 5.33 mm** ***TOTALFINA SP-TCS-142** ***ITN 84700/A (AED) – 10 mm** ***NACE TM0187 (sour gas environment) – 5% + 20% H_2S** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***Life prediction & AED test – Arrhenius ISO 23936-2** ***SHELL - MESC SPE 85/301** ***Saudi Aramco 06-SAMSS-001** tested for H_2 service
FKM 90 LT40/ED	N9034	90	black	-41	+220	low temperature, **AED** very good performance in Methanol ***NORSOK M710 (AED – RGD) – 5.33 mm** ***SHELL - MESC SPE 85/301** ***API6A 10% H_2S FFHH** ***Saudi Aramco 06-SAMSS-001**
FKM 90 LT50/ED	N9035	90	black	-51	+225 (+250)	low temperature, **AED** ***NORSOK M710 (AED – RGD) – 5.33 mm** ***NACE TM0187 (sour gas environment) – 5% H_2S** ***NACE TM0297 100% CO_2 (AED – RGD) – 5.33 mm** tested for H_2 service
FKM 90 LT60/ED	N9036	90	black	-61	+225 (+250)	ultra low temperature, **AED** ***NORSOK M710 (AED – RGD) – 5.33 mm – 10.82** ***NACE TM0187 (sour gas environment) – 5%, 20% H_2S** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***NACE TM0297 100% CO2 (AED – RGD) – 5.33 mm**
FKM 90 GF	N9004	90	black	-25	+230 (+250)	peroxide cured, oil/gas applications
FKM 90 GF/ED	N9024	90	black	-25	+230 (+250)	peroxide cured, oil/gas applications, **AED** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***NORSOK M710 (AED – RGD) – 5.33 mm – 10.82 mm** ***Saudi Aramco 06-SAMSS-001**
FKM 90 GFLT®ED	N9015	90	black	-40	+230 (+250)	low temperature, high chemical resistance, **AED** ***NORSOK M710 (AED – RGD) – 5.33 mm** ***NACE TM0187 (sour gas environment) – 20% H_2S** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***Saudi Aramco 06-SAMSS-001**
AFLAS® 90 ED	AFL9G	90	black	-20	+200 (+230)	oil/steam, **AED,** ***NORSOK M710 (AED – RGD) – 5.33 mm** ***NACE TM0187 (sour gas environment) – 5%, 20% H_2S** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]**

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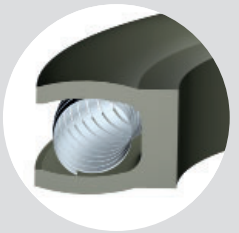
Material	Material No.	Hardness Shore A	Colour	Temperature °C from	to	Remarks *approvals available
FKM 90 BR ED	N90BR	90	black	-30	+220 (+240)	oil/steam applications, **AED** ***NORSOK M710 (AED) – 5.33 mm** ***NACE TM0187 (sour gas environment) – 5% + 20% H_2S** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***Life prediction & AED test – Arrhenius ISO 23936-2** ***Saudi Aramco 06-SAMSS-001**
FKM 98 ED	N9801	98	black	-27	+230 (+250)	oil/gas applications, **AED** ***BS EN ISO 23936-2**
FKM 98 PLT/ED	N9812	98	black	-40	+225 (+250)	PLT, low temperature, **AED** ***NORSOK M710 (AED – RGD) – 5.33 mm**
FKM 98 LT50/ED	N9835	98	black	-50	+225 (+250)	low temperature, **AED**
FKM 98 LT60/ED	N9836	98	black	-61	+225 (+250)	ultra low temperature, **AED**
FKM 98 GF	N9804	98	black	-25	+230 (+250)	peroxide cured, oil/gas applications
FKM 98 GF/ED	N9824	98	black	-25	+230 (+250)	peroxide cured, oil/gas applications, **AED**
FKM 98 GFLT®ED	N9815	98	black	-37	+230 (+250)	low temperature, high chemical resistance, **AED**
HNBR 90 ED	HN90G	90	black	-35	+160 (+180)	oil/gas applications, **AED** ***ED Total Fina-Shell,** ***NORSOK M710 (AED – RGD) – 5.33 mm – 10.82 mm** ***NORSOK M710 (sour fluid resistance) 2% H_2S** ***EN 14141-2003 (natural gas transportation pipeline)** ***NACE TM0187 (sour gas environment) – 2%, 5%, 20% H_2S** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***Saudi Aramco 06-SAMSS-001** tested for H_2 service
HNBR 90 ED-L	HN90L	90	black	-55	+160 (+180)	oil/gas applications, low temperature, **AED** ***NORSOK M710 (AED – RGD) – 5.33 mm** ***NACE TM0187 (sour gas environment) – 5% H_2S** ***SHELL** ***MESC SPE 85/301** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]** ***NACE TM0297 100% CO_2 (AED – RGD) – 5.33 mm** tested for H_2 service
HNBR 98 ED	HN98G	98	black	-35	+160 (+180)	oil/gas applications, **AED**
HNBR 98 ED-L	HN98L	98	black	-55	+160 (+180)	oil/gas applications, low temperature, **AED**
EPDM 90 PX	EP90P	90	black	-54	+150	peroxide cured, tested for H_2 service
evolast® N9ED	PN9ED	90	black	-15	+260 (+280)	**AED** ***NORSOK M710 (AED – RGD) – 5.33 mm – ISO 23936-2** ***NACE TM0187 (sour gas environment) – 5% - 20% H_2S** ***Sour fluid test Arrhenius ISO 23936-2/NORSOK M710-3** ***API6A (sour gas environment) – 10% H_2S - [FF/HH]**
evolast® N9EX	PN9EX	90	black	-15	+320 (+340)	high temperature, **AED**
						***NORSOK M710 (AED – RGD) – 5.33 mm – ISO 23936-2**
evolast® N9LT	PN9LT	90	black	-46	+250 (+270)	low temperature, **AED**
						***NORSOK M710 (AED – RGD) – 5.33 mm**
evolast® N9HC	PN9HC	90	black	-20	+260 (+280)	high temperature application, hot water, steam
						amine resistance
evolast® N7HC	FFKM	70	black	-20	+260	steam, hot water, amine
evolast® N7LT	FFKM	75	black	-46	+250	ultra low temperature
evolast® N894	FFKM	75	black	-25	+275	designed for the chemical process industry



AED – (Anti-Explosive-Decompression) / RGD – (Rapid Gas Decompression)

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