



Ethylene Propylene Diene Monomer (EPDM) :

EPDM is the abbreviated name for Ethylene Propylene Diene Monomer. In general industry, one may see other abbreviations or trade names such as EPT, Nordel[®], ECD, or EPR. All of these are the same material as EPDM.

EPDM is the standard seat material offered in the resilient seated DelTech butterfly valves. It is the most universal and economical of seat materials.

General characteristics :

- Temperature ranges from -13⁰F (- 25⁰C) to 250⁰F (120⁰C).
- Excellent abrasion resistance.
- Good resistance to tearing.
- Generally resistant to the following media :
 - Alcohols, Acidic salts, Alkaline salts, Alkaline solutions, Beverages, Bleach, Inorganic acids (dilute)
 - Neutral salts, Water (cooling, brackish, salt), Hot Water, Steam.
- Generally not resistant to the following media :
 - Chlorinated hydrocarbons, hydrocarbon solvents & oils, petroleum-based oils, turpentine.

Mechanical Properties : (At ambient temperature)

Specific Gravity (g/cm ³)	1.1 ± 0.05
Tensile Strength (Mpa), min.	12
Elongation break (%), min.	300
Hardness (Shore A)	70 ± 5
Compression Set (%) max. (24hr / 70°C / 25% def.)	20
Curing	Peroxide Curing

Nordel[®] Registered trademark of Dupont.





Buna-N :

Buna-N is the commonly used name for Nitrile synthetic rubber. Nitrile is a copolymer of acrylonitrile and butadiene. Buna-N is sometimes referred to as NBR or Nitrile.

Buna-N is an excellent general-purpose seat material, which is particularly suitable for hydrocarbon service.

General characteristics :

- Temperature ranges from -13^oF (-25^oC) to 212^oF (100^oC).
- Good abrasion resistance.
- Fair resistance to tearing.
- Fair gas permeability resistance.
- Generally resistant to the following media :
 - Alcohols, Alkaline Salts, Automobile Gasoline, Butane, Dry Bulk Materials, Food Medias, Fuel Oils, L-P Gases, Petroleum Oils and Greases, Propane.

Mechanical Properties : (At ambient temperature)

Specific Gravity (g/cm ³)	1.2 ± 0.05
Tensile Strength (Mpa), min.	13
Elongation break (%), min.	300
Hardness (Shore A)	75 ± 5
Compression Set (%) max. (24hr / 70°C / 25% def.)	20
Curing	Peroxide Curing



Viton (FKM) :

FKM is the ASTM D1418 designation for Fluorinated Hydrocarbon Elastomers (Fluoroelastomers) such as Viton[®] (DuPont) and Fluorel[®] (3M).

General characteristics :

- Temperature ranges from 23⁰ F (- 5⁰ C) to 392⁰ F (200⁰ C).
- Fair abrasion resistance.
- Fair resistance to tearing.
- Exceptionally good resistance to compression set.
- Good gas permeability resistance.
- Generally resistant to the following media :
 - Alcohols, aliphatic, aromatic and halogenated hydrocarbons, dilute and concentrated mineral acids, esters of aromatic acids, hot hydrocarbons and phosphoric acid.
- Not suitable for – Fireproof hydraulic fluids, ketones, alkalis

Mechanical Properties : (At ambient temperature)

Specific Gravity (g/cm ³)	1.81 ± 0.05
Tensile Strength (Mpa), min.	11
Ultimate elongation (%), min.	250
Hardness (Shore A)	70 ± 5
Compression Set (%) max. (70hr / 200°C.)	15
Curing	Peroxide Curing

Viton[®] - Registered trademark of Dupont Dow elastomers.



Silicone (VMQ) :

Silicone elastomers are part of a large group of siloxane polymers, based on a structure consisting of alternate silicone and oxygen atoms with various organic radicals attached to the silicone.
ASTM D1418 Designation for silicone is VMQ (Vinyl Methyl Polysiloxane).

General characteristics :

- Temperature ranges from - 58⁰ F (- 50⁰ C) to 356⁰ F (180⁰ C).
- Maximum pressure rating PN3.5 for all valve sizes.
- Uneconomical seat cost for most applications where EPDM is used but economical for applications where FKM is used.
- Poor abrasion resistance.
- Good resistance to compression set.
- Poor resistance to tearing.
- Good resistance to dry heat.
- Generally resistant to the following media :
 - Hot dry air, sunlight, ozone, high aniline point oils and chlorinated diphenyls.
- Generally not resistant to the following media :
 - Most of the petroleum fluids, ketones, water and steam.

Mechanical Properties : (At ambient temperature)

Specific Gravity (g/cm ³)	1.18 ± 0.05
Tensile Strength (Mpa), min.	8.5
Elongation break (%), min.	300
Hardness (Shore A)	70 ± 5
Compression Set (%) max. (24hr / 70 ⁰ C / 25% def)	15
Curing	Peroxide Curing





HYPALON[®] (Chlorosulphonated Polyethene) :

In general industry, one may see other abbreviations or trade names such as Chlorosulphonated Polyethylene or CSM.

General characteristics :

- Temperature ranges from -4⁰F (- 20⁰C) to 250⁰F (120⁰C).
- Good resistance to swelling in : hot water, steam, washing liquids, oxidizing media, acids, bases, polar organic media, ketones, fire retardant hydraulic fluids of group HFC and some types of group HFD, brake fluids, e.g. ATE-SL.
- Moderate swelling in : aliphatic hydrocarbons and greases.
- High swelling in : aromatic and chlorinated hydrocarbons and esters.

Mechanical Properties : (At ambient temperature)

Specific Gravity (g/cm ³)	1.4 ± 0.05
Tensile Strength (Mpa), min.	13
Elongation break (%), min.	250
Hardness (Shore A)	70 ± 5
Compression Set Method B (22hr / 100°C) (%) max.	27
Curing	Peroxide Curing

Hypalon[®] - Registered trademark of Dupont Dow etastomers.

