Polyethele-Chlorosufonated Rubber

(HYPALON® - CSM)

Classification

Polyethylene-chlorosulfonated Hypalon, introduced by DuPont in 1952, is an elastomer used for a vast series of applications because of its particular characteristics that:

- ✓ good behavior in a wide range of temperatures (from -460 to +135ºC)
- ✓ excellent mechanical characteristics
- ✓ excellent resistance to ozone and atmospheric agents
- ✓ good chemical resistance to mainly oxidizing and corrosive agents
- ✓ low permeability to humidity and other vapors
- ✓ good resistance to flame
- ✓ good diaelectric characteristics

Polymer type

The Hypalon derives from the chlorosulfonacation of the polyethylene. The crystalline polyethylene is made amorphous through the introduction of chlorine in varying quantities from 25 to 45%. The vulcanization, obtainable with an ample range of systems, it happens for the presence of small quantities of groups sulfonyl-cloride or through the reaction with the alkyl-chloride structure. There are available, different types of polymers characterized by varying content of chlorine.

The characteristic physical-mechanics, compression set, chemical, and low temperature resistance are influenced by the content of chlorine.

Cl % Content		35	43	25	35 (heat res.)	35 (white cpd)
Hardness ShA	Pti	70	70	70	75	75
Tensile strength	Mpa	22	23	12	26	16
Elongation	%	250	200	150	240	350
Tear	Kg/cm	30	28	20	38	
Compression set 22 H @ 70ºC	%	14	28	35	18	30
Heat ageing 7 days @ 121ºC						
Tensile strength	%	5	-20	+10	+5	+20
Elongation	%	-15	-25	-55	0	-30
Hardness ShA	Pti	+11	+10	+16	+1	+4
ASTM N.3 70H @ 100ºC						
Volume	%	+41	+12	+80	+45	+50
Water/Glycol 1/1 7 days @ 100ºC						
Volume	%	+3	+2	+6	+15	
Clash Berg	ºC	-17	-1	-25	-15	-16

Applications

The applicatops concern the greater part of industry for instance: automotive, electric, house construction, cables and rolls.

- pipes for the transport of inorganic aggressive chemical solutions
- insulation cover
- membranes for waterproofing roofs, reservoirs and basins
- conveyor belts for minerals
- colored profiles for housing construction (very good color stability)
- rubber and textiles
- “food grade” items