

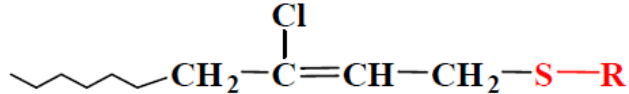
Polychloroprene Rubber

Application: Bridge Bearing Pads, Anti-Vibration Mounts, Air Suspension, Belts, Adhesives

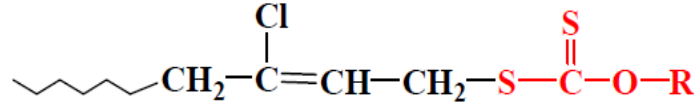
Control by:

- Mooney Viscosity
- Crystallization Rate (very slow, slow, medium, fast)
- Molecular Weight (Mn, Mw, PDI)
- Modified Types

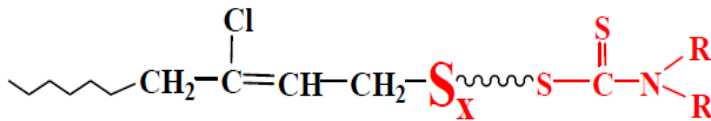
- **Mercaptan Modified CR**



- **Xanthogen Modified CR**

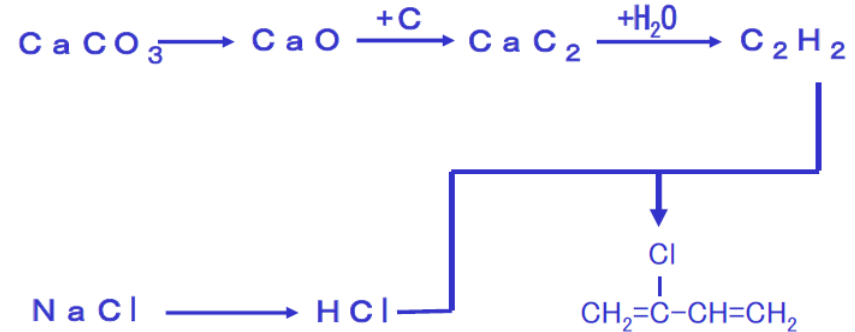


- **Sulfur Modified CR**



For:

- Inherent Flame Retardant due to halogen group.
- Increasing Mooney viscosity/Molecular Weight increases strength but also compound viscosity.
- Higher percent of Trans structure causes CR to crystallize easily (fast crystallization rate) and possess high cohesive strength. i.e. adhesives
- Very slow crystallization rates are used for cold temperature performance (down to -48C).



Polychloroprene Rubber (Mercaptan modified)

Type	Crystallization Rate	Mooney Viscosity (ML1+4, 100 °C)	Typical Applications / Properties
M-40	Medium	48 ± 5	General purpose, cables, belts, hoses, other industrial goods
M-41	Medium	48 ± 5	General purpose, version of M-40 with less roll sticking and mold contamination
M-30	Medium	38 ± 4	General purpose, low viscosity version of M-40
M-31	Medium	38 ± 4	Same purpose as M-30 with less roll sticking and mold staining
M-70	Medium	70 ± 10	General purpose as M-40 with high viscosity
M-100	Medium	100 ± 10	Industrial goods (for high loading)
M-120	Medium	120 ± 10	Sheets, packings, hoses, or other industrial goods (for high loading)
S-40	Slow	48 ± 5	Industrial goods / low temperature resistance
S-41	Slow	48 ± 5	Same purpose as S-40 with less roll sticking and mold staining
S-40V	Very Slow	48 ± 5	Same purpose as S-40 / improved on low temperature resistance, less roll sticking and mold staining
DCR-30	Very Slow	120 ± 10	Industrial goods / low temperature resistance (for high loading)
DCR-31	Very Slow	80 ± 10	Same purpose as DCR-30 with low viscosity
DCR-34	Slow	65 ± 7	Industrial goods / high heat resistance and mechanical strength
DCR-36	Very Slow	80 ± 10	Industrial goods, suitable for injection molding / low temperature resistance



Polychloroprene Rubber (Cont'd)

Type	Crystallization Rate	Mooney Viscosity (ML1+4, 100 °C)	Typical Applications / Properties
ES-40	Very Slow	43 ± 5	Calendared sheet, extruded goods with precise shape and low temperature resistance
ES-70	Very Slow	75 ± 5	Same purpose as ES-40 with high viscosity (for high loading)
EM-40	Medium	48 ± 5	Calendared sheet, extruded goods with precise shape
MT-40	Medium	48 ± 5	Calendared sheet, extruded goods / well-balanced on extrudability and mechanical strength
MT-100	Medium	95 ± 10	Extruded goods (for high loading)
DCR-42A	Medium	40~55	Cable, Hose, / high performance and high loading
DCR-66	Very Slow	60-80	Auto parts (CVJ boots etc.) / high loading and high performance with low temperature resistance
PM-40	Medium	50 ± 10 *	Sulfur-modified type, suitable for belt, sponge, cable sheath, and shock absorber
PM-40NS	Medium	50 ± 10 *	Same purpose as PM-40, especially for non-discoloring or non-staining goods
DCR-40	Slow	40~55 *	Sulfur-modified type, suitable for belt, sponge, and molded goods
DCR-40A	Slow	35~50 *	Sulfur-modified / improved heat resistance and storage stability
PS-40A	Slow	30~55 *	Same purpose as PM-40NS / improved on storage stability and low temperature resistance

Extrusion Type

Xanthogen Modified

Sulfur Modified



Polychloroprene Rubber (Mercaptan modified)

Neoprene	Omi	Crystallization Rate	Mooney Viscosity (ML1+4, 100° C)	Typical Applications / Properties
W	M-40	Medium	48 ± 5	General purpose, cables, belts, hoses, other industrial goods
WM-1	M-30	Medium	38 ± 4	General purpose, low viscosity version of M-40
WHV-100	M-100	Medium	100 ± 10	Industrial goods (for high loading)
WHV	M-120	Medium	120 ± 10	Sheets, packings, hoses, or other industrial goods (for high loading)
WRT	S-40V	Very Slow	48 ± 5	Same purpose as S-40 / improved on low temperature resistance, less roll sticking and mold staining
WD	DCR-30	Very Slow	120 ± 10	Industrial goods / low temperature resistance (for high loading)
-	DCR-31	Very Slow	80 ± 10	Same purpose as DCR-30 with low viscosity
-	DCR-34	Slow	65 ± 7	Industrial goods / high heat resistance and mechanical strength
-	DCR-36	Very Slow	80 ± 10	Industrial goods, suitable for injection molding / low temperature resistance



Polychloroprene Rubber (Cont'd)

Neoprene	Omi	Crystallization Rate	Mooney Viscosity (ML1+4, 100° C)	Typical Applications / Properties
WK	ES-70	Very Slow	75 ± 5	Same purpose as ES-40 with high viscosity (for high loading)
WB	EM-40	Medium	48 ± 5	Calendared sheet, extruded goods with precise shape
TW	MT-40	Medium	48 ± 5	Calendared sheet, extruded goods / well-balanced on extrudability and mechanical strength
TW-100	MT-100	Medium	95 ± 10	Extruded goods (for high loading)
--	DCR-42A	Medium	40~55	Cable, Hose, / high performance and high loading
--	DCR-66	Very Slow	60-80	Auto parts (CVJ boots etc.) / high loading and high performance with low temperature resistance
GNA	PM-40	Medium	50 ± 10 *	Sulfur-modified type, suitable for belt, sponge, cable sheath, and shock absorber
GS	PM-40NS	Medium	50 ± 10 *	Same purpose as PM-40, especially for non-discoloring or non-staining goods
GW	DCR-40A	Slow	35~50 *	Sulfur-modified / improved heat resistance and storage stability
GRT	PS-40A	Slow	30~55 *	Same purpose as PM-40NS / improved on storage stability and low temperature resistance

Extrusion Type

Xanthogen Modified

Sulfur Modified



Polychloroprene Liquid Dispersion (Latex)

Application Types:

Adhesives: Pressure sensitive, heat or solvent activated for laminating and contact bond: also for mastics

Binders: As saturants and wet-end additives for fibrous products such as paper, nonwovens and bonded batts, and for aggregates such as resilient surfacings

Coatings: Industrial and Decorative

Dipped Goods: Supported and Unsupported Films

Elasticized Asphalt & Concrete Foam

For:

- **Excellent Film Formation**
- **High Cohesive Strength Without Curing**
- **Elastomeric Properties over a Wide Temperature Range**
- **Considerable Resistance to the Degrading Effects of Flame, Weather, Ozone, Heat, Water, Oils, & Chemicals**

As Crystallization Rate Increases

Increase

Wet contactability
Water resistance
Modulus
Hardness
Low temperature performance

Decrease

Dry contactability
Elongation
Oil swell
Resistance to permanent set



Properties of CR Liquid Dispersions

	571	671A	750	842A
Main Feature	High Tensile Strength	High-Solids, General Purpose	Excellent Flexibility	Fast Curing, Low Modulus
Solids Content, % (Approximate)	50	59	50	50
Initial pH, min.	12	12	12	12
Specific Gravity				
LD Polymer	1.10	1.13	1.10	1.10
	1.23	1.23	1.23	1.23
Emulsifying Agent	Potassium Rosinate	Potassium salt of disproportionated rosin acids and potassium salts of naphthalene sulfonic acid, formaldehyde polymer	Potassium salt of disproportionated rosin acids	Potassium rosinates
Crystallization Rate	Moderate	Moderate	Very Slow	Moderate
Wet Gel Properties				
Tensile Strength	Very High	High	High	High
Elongation	Medium	High	High	Medium
Cure Rate	Medium	Medium	Medium	Fast
Modulus	Medium	Medium	Low	Low



Chloroprene Latex Grades

Grade		ALX-310	ALX-600	LC-100	LC-501	LC-700	LA-50	LM-61	LV-60N
Solid Content [%]		55	60	55	47	50	50	60	60
pH		≥ 12.0	≥ 12.0	6.5~7.5	6.5~7.5	6.0~9.0	≥ 12.0	≥ 12.0	≥ 12.0
Viscosity [mPa·S]		10~100	50~600	300~3000	100~300	70~900	10~40	60~200	50~200
Ion Type		Anion	Anion	Nonion	Nonion	Nonion	Anion	Anion	Anion
Crystallization Rate	Very Rapid		•				•		
	Rapid	•							
	Medium			•	•	•		•	
	Slow								
	Very Slow								•
Typical Applications	Dipping Goods							•	•
	Adhesive	•	•	•	•	•	•	•	•
	Paper Treatment							•	•
	Fiber Treatment						•	•	•
	Foam Rubber							•	•

