



Chlorinated Polyethylene

ELASLEN™

*Showa Denko America
Elastomer Group
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About the company

- **Company Name** : **SHOWA DENKO K.K.**
- **Type of Industry** : **Diversified Chemical Company**
- **Head Office** : **13-9, Shiba Daimon 1-Chome, Minato-ku, Tokyo
105-8518 Japan**
- **Formed** : **June 1, 1939**
- **Capital** : **140,564 million (as of December 31,2011)**
- **Employee** : **4,168(in December 31,2011)**
- **Net sales** : **854 billions Yen (in 2011)**
- **Net income** : **47 billions Yen (in 2011)**
- **Business Sectors** : **Petrochemicals, **Chemicals**, Inorganic Materials,
Aluminium, Electronics**

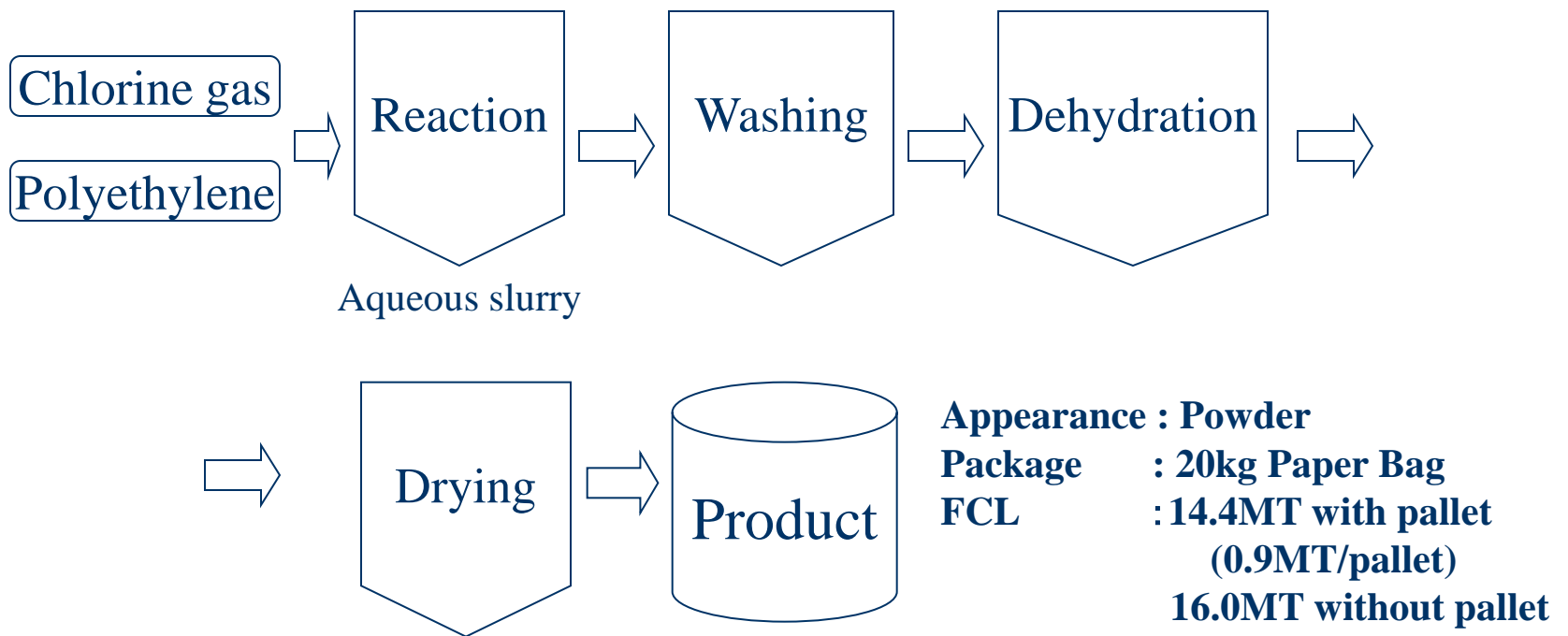
Our CPE Business

- **Product Name** : **ELASLEN®**
- **Chemical Name** : **Chlorinated Polyethylene**
- **CAS Number** : **64754-90-1**
- **HS code Number** : **3901.90.10**
- **Start of Sales** : **Oct.1968**
- **Production Capacity** : **5000MT/Y**
- **Plant Location** : **Kawasaki City, Japan**
- **Quality Control Program** : **ISO 9002(Registered in 1998)**
- **Environmental Control Program** : **ISO14001(Registered in 1997)**

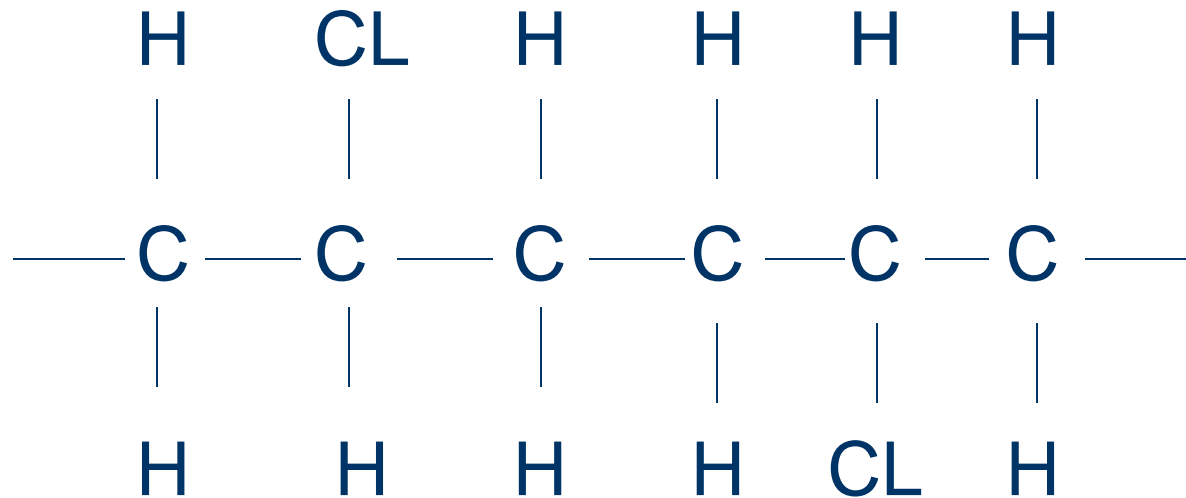
WHAT IS ELASLEN ?

- ELASLEN is the product name of our Chlorinated Polyethylene.
- ELASLEN is a thermoplastic polymer, which is manufactured by chlorinating high density polyethylene.
- ELASLEN has an excellent flexibility, weatherability, heat aging resistance, flame retardancy and chemical resistance.

Production Process



Chemical Structure



*Hydrogen is displaced by Chlorine at random.

Applications

Sector	Major Effect	Applicable Grades	Application
Rigid PVC	Impact resistance, Processability	301AS, 351AYS	Modified Pipe Window Profiles
Flexible PVC	Low Temperature characteristics	301AS, 401AY	Cable jacket Insulating tape
FR ABS	Flame retardancy, Elimination of flame droplets	252B , 303BS 302NAC	FR ABS for UL94 V-0 grades
PE	Flame retardancy	402B , 404B	Cable jacket
Rubber	Chemical resistance Filler acceptance	301AS, 401AY 351AYS, 302NAC	Magnetic rubber Automotive hose OA rollers

ELASLEN for Rigid PVC

	Items	CPE	MBS	Acrylic
Physical Properties	Impact Strength Without Filler	Good	Excellent	Good
	With Filler	Excellent	Not Good	Not Good
	Weather resistance	Good	Not Good	Excellent
	Chemical resistance	Excellent	Not Good	Not Good
Processability	Torque	Excellent (Low)	Not Good (High)	Not Good (High)
	Resin Temperature	Excellent (Low)	Not Good (High)	Not Good (High)
	Gelation	Slow	Fast	Fast

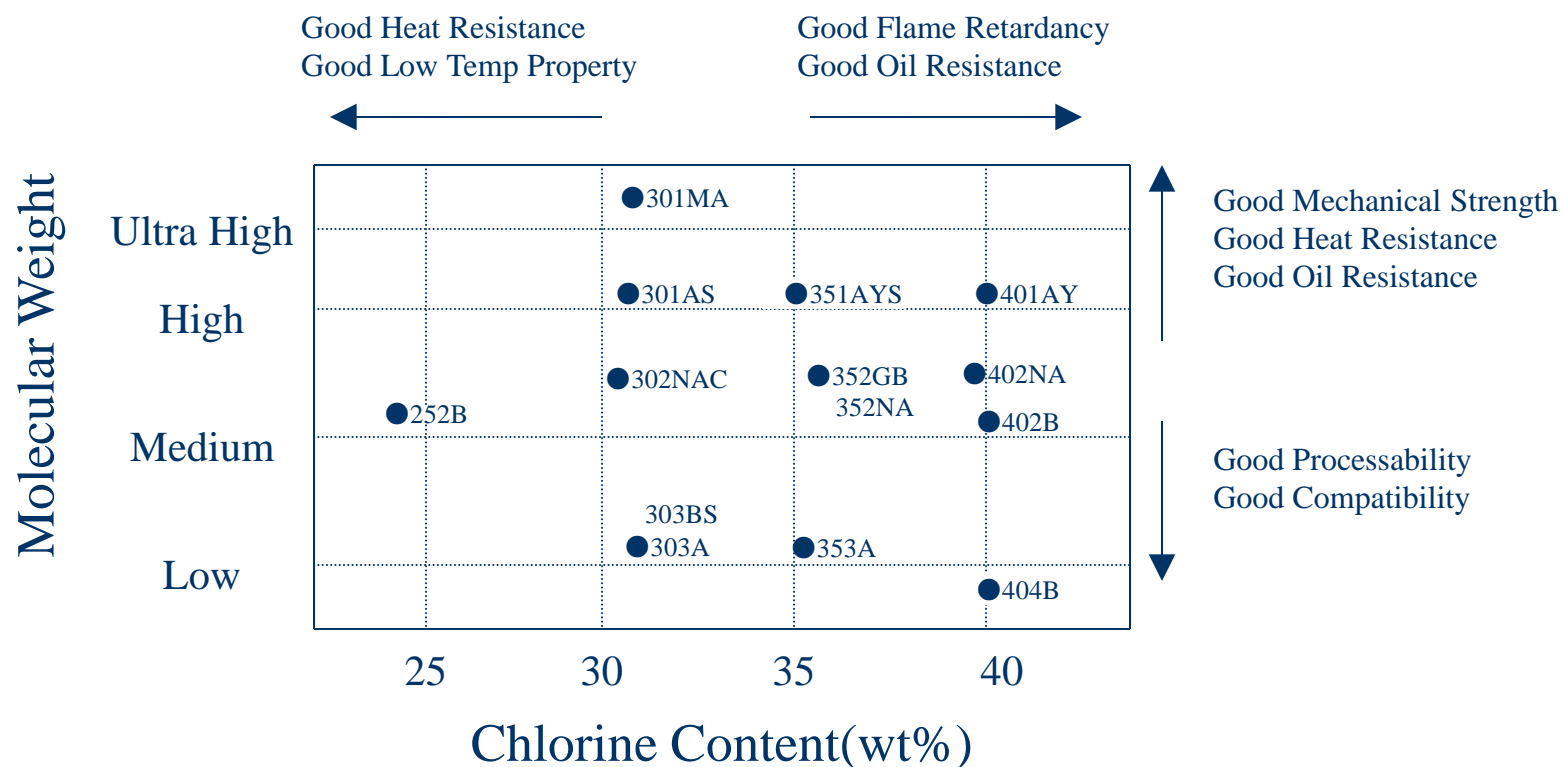
Three Factors of CPE

	Flame Retardancy	Oil&Chemical resistance	Mechanical strength	Heat aging resistance
Chlorine Content ↗	↗	↗	↘	↘
Molecular Weight ↗	—	↗	↗	↗
Crystallization ↗	—	—	↗	—

Comparison with other rubbers

Item	CPE	CSM	CR	EPDM	NBR
Flame retardancy	Excellent	Excellent	Excellent	Poor	Poor
Oil resistance	Good	Good	Good	Poor	Excellent
Ozone resistance	Excellent	Excellent	Fair	Excellent	Poor
Weather resistance	Excellent	Good	Fair	Excellent	Poor
Heat resistance	Good	Good	Fair	Excellent	Fair
Electrical insulation	Good	Good	Fair	Excellent	Fair
Coloring	Excellent	Excellent	Poor	Fair	Poor

Various Grades (Chlorine content vs Molecular Weight)



Various Grades (Chlorine content vs Crystallization)

