

The Periodic Table of the elements by Mendeleev was a historic achievement in chemistry and enabled chemists to see the relationship between structure and properties of the basic elements.

Polymers also have a strong relationship between structure and properties and this 'Periodic Table of Polymers' is a first attempt to provide a simple codification of the basic polymer types and structures.
The diversity of polymer types makes it impossible to include all of the variations in one simple table and this table only includes the most common polymers.

Tangram Technology Periodic Table of Thermoplastics

TANGRAM
TECHNOLOGY

Consulting
Engineers

Increasing performance

Commodity

Engineering

Performance

Amorphous

Increasing crystallinity

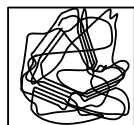
Semicrystalline

Random molecular orientation in both molten and solid phases.



General Characteristics
Soften gradually.
Generally transparent.
Lower Tensile Strength and Tensile Modulus.
Lower Density.
Low Creep Resistance.
High Dimensional Stability.
Low fatigue resistance.
Easy to bond using adhesives and solvents (high surface energy).

Random molecular orientation in molten phase, densely packed crystallites in solid phase.



General Characteristics
Sharp melting point.
Generally translucent or opaque.
Higher Tensile Strength and Tensile Modulus.
Higher Density.
High Creep Resistance.
Low Dimensional Stability.
High fatigue resistance.
Difficult to bond using adhesives and solvents (low surface energy).

PS-HI High Impact Polystyrene	PS-GP General Purpose Polystyrene	ABS Acrylonitrile Butadiene Styrene (Copolymer)	SAN Styrene Acrylonitrile (Copolymer)		PMMA Polymethyl methacrylate (Acrylic)	PPO (Modified) Polyphenylene Oxide	PC Polycarbonate		PAR Polyarylate	PSU Polysulphone	PES Polyethersulphone	PPSU Polyethersulphone (Block copolymer)	
PVC-P Plasticised Polyvinylchloride	SBS Styrene-Butadiene-Styrene (Copolymer)	SMA Styrene-Maleic Anhydride (Copolymer)	ASA Acrylonitrile Styrene Acrylate (Copolymer)	SB Styrene-Butadiene (Copolymer)						PEI Polyetherimide	PAI Polyamideimide	PI Polyimide	PBI Polybenzimidazole
PVC-U Unplasticised Polyvinylchloride	CA Cellulose Acetate	CAB Cellulose Acetate Butyrate	CAP Cellulose Acetate Propionate	CP Cellulose Propionate	PET-G Glycolised Polyethylene terephthalate	PVC-UX Crosslinked Unplasticised PVC	PVC-C Chlorinated PVC						
PVC-U High-Impact Unplasticised PVC								PA 6/3/T Amorphous polyamide	PPA Polyphthalamide (Amorphous)	PARA Polyaryl amide			
PE-LD Low Density Polyethylene	PE-LLD Linear Low Density Polyethylene	PE-MD Medium Density Polyethylene	PMP Polymethyl pentene	EVA Ethylene-vinyl Acetate (12% VA)	PE-X Crosslinked Polyethylene	PB Polybutene-1 (Polybutylene)	PE-UHMW Ultra-high Molecular Weight PE	PA 11 Polyamide 11 (Nylon 11)	PA 12 Polyamide 12 (Nylon 12)	PPA Polyphthalamide	PA 46 Polyamide 46 (Nylon 46)	PEK Polyetherketone	PEEK Polyetherether ketone
		PE-C Chlorinated Polyethylene	PE-VLD Very Low Density Polyethylene	EMA Ethylene-methyl Acrylate	PBT Polybutylene-terephthalate	PA 6 Polyamide 6 (Nylon 6)	PA 66 Polyamide 66 (Nylon 66)		LCP Liquid Crystal Polymer (Aromatic copolyester)	PFA Perfluoroalkoxy	ECTFE Ethylene-chlorotrifluoroethylene	PCTFE Polychlorotrifluoroethylene	PTFE Polytetrafluoroethylene
	PP Polypropylene (Homopolymer)	PP Polypropylene (Copolymer)			PET Crystalline Polyethylene-terephthalate	PA 6/10 Polyamide 6/10 (Nylon 6/10)	PA 6/12 Polyamide 6/12 (Nylon 6/12)	POM Polyoxymethylene (Acetal Copolymer)	EVOH Ethylene-vinyl Alcohol	PPS Polyphenylene Sulphide	FEP Fluorinated ethylene-propylene	ETFE Ethylene-tetrafluoroethylene	PVDF Polyvinylidene-fluoride
	PE-HD High Density Polyethylene							POM Polyoxymethylene (Acetal Homopolymer)					

KEY TO MAJOR POLYMER FAMILIES:

Styrenes

Polyolefins

Vinyls

Cellulosics

Polyesters

Polyamides

Acrylics

Polycarbonates

Acetals

Polysulphones

Imides

Fluoropolymers

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