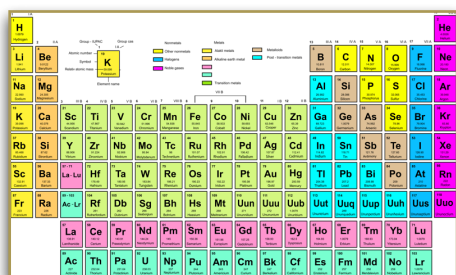
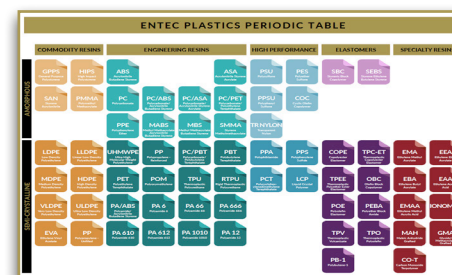


ENTECC PLASTICS PERIODIC TABLE

Currently, there are 118 known elements; 92 of them occur naturally on the Earth's surface. Within the material science world, polymer chemistry focuses on the set of reactions and dynamics that govern these man-made products. Below, we transition from the classical periodic table and introduce the Entec Polymers Periodic table! Here, we distinguish between amorphous and semi-crystalline materials and offer a guide that groups materials by type: commodity, engineering, elastomers, and specialty polymers. Each class offers a unique and market and application specific advantage. Our technical department can help you navigate the material selection process to ensure you have the right material for your application.





Just as atoms bond together to form molecules, monomers react to form polymers. There is no single definition that declares at what molecular weight a material transitions from being an oligomer to a polymer. There are several overlapping concepts that are shared between atomic and polymer chemistry; however, the concept of molecular weight and polymer backbone structure create significant opportunities for a variety of solutions for various applications. This creates a versatile set of materials whose physical and mechanical properties are a strong function of temperature and composition.

Atomic Chemistry	Polymer Chemistry Analogue
Atomic Weight	Number Average / Weight Average Molecular Weight
Atomic Group	Polymer Type Reactivity
Atomic Packing Factor	Polymer Morphology
Boiling / Melting Temperature	Glass Transition / Melting Temperature
Absolute Viscosity (Temperature)	Relative Viscosity (MW, MWD, Temperature, LCB, etc.)
Primary Intermolecular Forces (Ionic, Metallic, Dipole-Dipole)	Primary Intermolecular Forces (London Dispersion, Hydrogen Bonding, Dipole-Dipole)
Nature Creates Circular Recovery	21st Century Solutions To Close The Plastics Loop!

In future publications and forthcoming in the Entec Polymers Handbook, we will explore various material properties unique to each class of polymer (structure vs properties, effects of molecular weight, morphology, thermal events, viscosity, etc.).

ENTEC PLASTICS PERIODIC TABLE

AMORPHOUS

SEMI-CRYSTALLINE

COMMODITY RESINS

GPPS General Purpose Polystyrene	HIPS High Impact Polystyrene
SAN Styrene Acrylonitrile	PMMA Polymethyl Methacrylate

ENGINEERING RESINS

ABS Acrylonitrile Butadiene Styrene	RTPU Rigid Thermoplastic Polyurethane	ASA Acrylonitrile Styrene Acrylate
PC Polycarbonate	PC/ABS Polycarbonate/Acrylonitrile Butadiene Styrene	PC/ASA Polycarbonate/Acrylonitrile Styrene Acrylate
PPE Polyphenylene Ether	MABS Methyl Methacrylate Acrylonitrile Butadiene Styrene	MBS Methyl Methacrylate Butadiene Styrene
UHMWPE Ultra High Molecular Weight Polyethylene	PP Polypropylene - Reinforced	PC/PBT Polycarbonate/Polybutylene Terephthalate
PET Polyethylene Terephthalate	POM Polyoxymethylene	TPU Thermoplastic Polyurethane
PA/ABS Polyamide/Acrylonitrile Butadiene Styrene	PA 6 Polyamide 6	PA 66 Polyamide 66
PA 610 Polyamide 610	PA 612 Polyamide 612	PA 1010 Polyamide 1010
		PA 12 Polyamide 12

HIGH PERFORMANCE

PSU Polysulfone	PES Polyether Sulfone
PPSU Polyphenyl Sulfone	COC Cyclic Olefin Copolymer
TR NYLON Transparent Nylon	
PPA Polyphthalamide	PPS Polyphenylene Sulfide
PCT Polycyclohexylene Terephthalate	LCP Liquid Crystal Polymer

ELASTOMERS

SBC Styrenic Block Copolymer	SEBS Styrene Ethylene Butylene Styrene
COPE Copolyester Elastomer	TPC-ET Thermoplastic Copolyester Elastomer
TPEE Thermoplastic Polyether Ester Elastomer	OBC Olefin Block Copolymer
POE Polyolefin Elastomer	PEBA Polyether Block Amide
TPV Thermoplastic Vulcanizate	TPO Thermoplastic Polyolefin
PB-1 Polybutene-1	

SPECIALTY RESINS

EMA Ethylene Methyl Acrylate	EEA Ethylene Ethyl Acrylate
EBA Ethylene Butyl Acrylate	EAA Ethylene Acrylic Acid
EMAA Ethylene Methyl Acrylic Acid	IONOMER
MAH Maleic Anhydride Grafted	GMA Glycidyl Methacrylate Grafted
CO-T Carbon Monoxide Terpolymer	