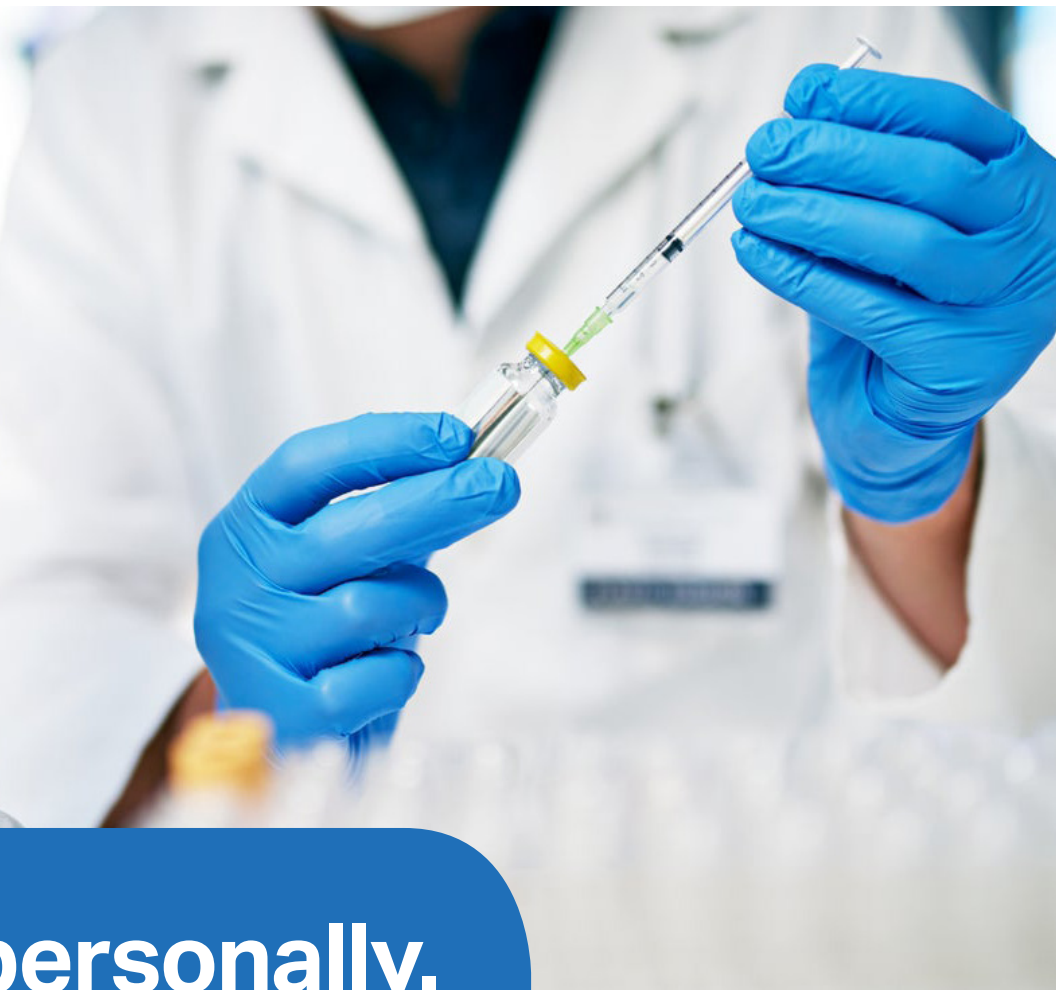
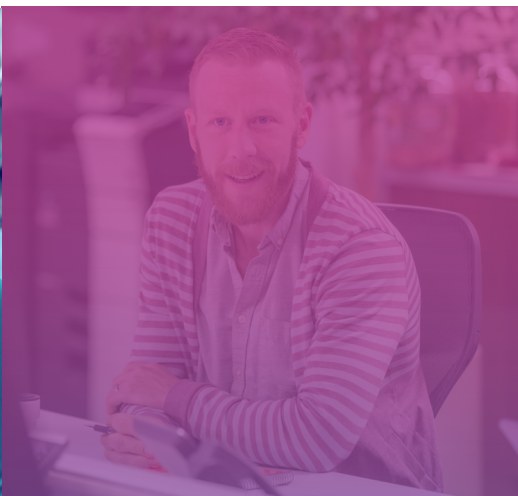




Medical Resin Selection Booklet



We take healthcare **personally.**

Healthcare companies need medical-grade plastic resin that meets a wide range of specifications and regulatory requirements. **That's why M. Holland has developed deep expertise in helping our clients optimize material selection and purchase these raw materials.**

We offer a full line of medical grade resins, each with full regulatory documentation. Our industry experts support your team in early-stage product development with material selection, and advise on supply chain risk and regulatory qualifications.

Our goal is the same as yours — supporting the creation of safe and effective medical devices and pharmaceutical packaging from design to global commercialization.



We offer:

Globally sourced resin

We distribute a full range of medical grade resins used in the manufacture of medical devices — from complex orthopedics and surgical tools to packaging, from reusables to disposables, from medical electronics to in-vitro diagnostics.

Formulation control

Our medical grade resins have fixed formulations. We have carefully selected materials that carry the lowest levels of supply chain risk — giving you the highest levels of consistency and reliability.

Risk management

We reduce supply chain risk by using globally committed suppliers and driving selection toward widely accepted medical grade resins that are commonly stocked in our warehouses.

Biocompatibility statement

You will have access to biocompatibility statements on all medical grade resins, which have ISO 10993, U.S. Pharmacopeia (USP), European Union or other similar regulatory body testing available through our product stewardship department.

Change management

We provide immediate notification of any changes to our medical grade resins. To minimize change and disruption, we secure “last buy” opportunities when possible and regularly provide guidance on alternative solutions and materials. We also provide dual sourcing resin selections to diversify the supply chain risk where possible.



Our Healthcare Suppliers



CHIMEI



INEOS
STYROLUTION



PLASKOLITE



BASF

Petra® PET Polyester
Ultradur® PBT Polyester
Ultraform® POM Acetal
Copolymer
Ultrason® Polysulfones
PESU, PPSU, PSU

CHEVRON PHILLIPS CHEMICAL

MARLEX®
HDPE, HMW, LDPE, LLDPE,
Metallocene LLDPE

CHIMEI

MABS Polylac®
PC Wonderlite®

COVESTRO

Apec® high-heat PC
Bayblend® PC/ABS
Makroblend® PC/Polyester
Makrolon® PC
Desmopan® TPU
Texin® TPU

ELASTRON

SEBS
SBS
TPV

HANWHA

EVA

INEOS STYROLUTION

Lustran® ABS
Novodur® ABS
Terlux® MABS
Clearblend® MBS
Zylar® MBS
Lustran® SAN
K-Resin® SBC
Styroxflex® SBC
Styrolux® SBC
NAS® SMMA
Styrolution® PS
GPPS, HIPS

INVISTA

Polypropylene
Homopolymer,
Impact Copolymer,
Random Copolymer

LYONDELLBASELL

Purell Polyethylene
HDPE, HMW, LDPE,
LLDPE
Pro-fax Polypropylene
Homopolymer,
Impact Copolymer,
Random Copolymer

PLASKOLITE

Acrylic Resins
OPTIX® PMMA

TEKNOR APEX

Apex® PVC

TOTALENERGIES

Polypropylene
Homopolymer,
Impact Copolymer,
Random Copolymer

M. HOLLAND

MH Resolute™
Mtegrity™ Plus



Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
ABS	INEOS Styrolution	Lustran® 248 FC	13 MFR [220C/10kg], high gloss, medium impact, excellent dimensional stability, high flow	EtO, Gamma/E-Beam	DMF, USP VI, ISO, FDA, EU No.10/2011	Natural (opaque)
ABS	INEOS Styrolution	Lustran® 348*	14 MFR, industry proven, excellent property retention after sterilization, great ESCR, excellent balance of properties	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA	Natural (opaque), Black, White
ABS	INEOS Styrolution	Novodur® HD 15	15 MVR [220C/10kg], easy to mold, good chemical resistance	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU No. 10/2011	Natural (opaque), White
ABS	INEOS Styrolution	Novodur® HD M203FC	31 MVR, enhanced flow, good dimensional stability	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Natural (opaque), White
ABS	INEOS Styrolution	Novodur® HD M203FC G3	28 MVR, glass fiber containing, easy processability (highest flow), rigid parts	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU No. 10/2011	Natural (opaque), White
Acrylic	Plaskolite	OPTIX® CA-1000IG	1.6 MVR, fracture toughness, high impact	Gamma	USP VI	Transparent
Acrylic	Plaskolite	OPTIX® CA-82F	2.4 MVR, high heat resistance, injection molding grade	Gamma	FDA	Transparent
Acrylic	Plaskolite	OPTIX® CA-71F	4.3 MVR, high heat resistance, injection and extrusion process grade	Gamma	FDA	Transparent
Acrylic	Plaskolite	OPTIX® CA-927G	2.5 MVR, injection molding grade, medium impact strength, high flow	Gamma ray sterilizable	FDA	Transparent
Acrylic	Plaskolite	OPTIX® CA-924G	6.3 MVR, transparent, good impact, insulating, weather resistant	Radiation sterilizable	FDA	Transparent
Acrylic	Plaskolite	OPTIX® CA-41 UVT	26 MVR, ultra violet light transmitting	Gamma	FDA	Transparent
EVA	Hanwha	2910MED	0.8 MI, 9.5% VA	EtO, Gamma radiation	USP VI	Clear
EVA	Hanwha	1918MED	0.7 MI, 18% VA	EtO, Gamma radiation	USP VI	Clear
EVA	Hanwha	1928MED	3 MI, 28% VA	EtO, Gamma radiation	USP VI	Clear
EVA	Hanwha	1931MED	25MI, 28% VA	EtO, Gamma radiation	USP VI	Clear

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
GPPS	INEOS Styrolution	Styrolution® 1200	1.6 MFI, high molecular weight and strength, excellent clarity	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, Transparent only for Risk Class I	
GPPS	INEOS Styrolution	Styrolution® 1300*	3 MFI, high heat resistance and strength	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, Transparent only for Risk Class I	
GPPS	INEOS Styrolution	Styrolution® 1301*	3 MFI, high heat resistance and strength, external lube	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, Transparent only for Risk Class I	
GPPS	INEOS Styrolution	Styrolution® 3600	14 MFI, excellent flow characteristics for thin wall and complex parts	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, Transparent only for Risk Class I	
GPPS	INEOS Styrolution	Styrolution® 3601*	14 MFI, excellent flow characteristics for thin wall and complex parts, external lube	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, Transparent only for Risk Class I	
GPPS	INEOS Styrolution	Styrolution® 1200	1.6 MFR, high melt strength and stiffness	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
GPPS	INEOS Styrolution	Styrolution® 1300*	3 MFR, good balance of flow and stiffness	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
GPPS	INEOS Styrolution	Styrolution® 1301*	3.0 MFR, same as 1300 with mold release	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
GPPS	INEOS Styrolution	Styrolution® 3100*	10 MFR, good balance of flow and set	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
GPPS	INEOS Styrolution	Styrolution® 3601G	14 MFR, exceptional flow, thin wall	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
GPPS	INEOS Styrolution	Styrolution® 3601*	14 MFR, exceptional flow, with mold release	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
HIPS	INEOS Styrolution	Styrolution® 5400	3 MFI, good balance of ESCR and toughness, trims cleanly, low gloss	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, only for Risk Class I	Natural (opaque)
HIPS	INEOS Styrolution	Styrolution® 5601*	8 MFR, high impact, balance of properties, mold release	EtO, Gamma/E-Beam	USP Class VI	Transparent, blue tint
HIPS	INEOS Styrolution	Styrolution® 5801*	14 MFI, excellent processibility, high toughness	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, FDA, EU FC, only for Risk Class I	Natural (opaque)

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
HDPE	Chevron Phillips Chemical	Marlex® HHM5502BN*	0.955 density, tailored for lightweight blow molding		DMF, USP VI, USP 26	Natural
HDPE	Chevron Phillips Chemical	Marlex® HHM5202BN*	0.951 density, tailored for lightweight blow molding		DMF, FDA	Natural
HDPE	Chevron Phillips Chemical	Marlex® 9012*	Ethylene-hexene copolymer injection molding, good flow, impact strength and stiffness; 12 melt		DMF, USP VI, FDA	Natural
HDPE	Chevron Phillips Chemical	Marlex® 9018*	0.952 HDPE injection molding grade; 20 melt		DMF, USP VI, FDA	Natural
HDPE	Chevron Phillips Chemical	Marlex® 9006*	0.953 HDPE injection molding grade; 6.5 melt		DMF, USP VI, FDA	Natural
HDPE	Chevron Phillips Chemical	Marlex® 9708*	8 MFR, 0.962 HDPE injection molding grade		USP 39, USP 26, FDA	Natural
HDPE	LyondellBasell	Purell ACP 6031D	0.25 MFR, ACP technology bottle grade, increased density and barrier properties, injection, blow, film	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HDPE	LyondellBasell	Purell GF4750	0.4 MFR, injection, blow, tubing and IVD applications	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HDPE	LyondellBasell	Purell GF4760	0.4 MFR, injection, blow, high barrier for water sensitive products like pills	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HDPE	LyondellBasell	Purell ACP 6541A	1.5 MFR, cap grade, high ESCR and good flowability, injection grade	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HDPE	LyondellBasell	Purell 5531B	9.5 MFR, blow molding, excellent stiffness, crack resistance, light weight packaging	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HDPE	LyondellBasell	Purell GB2750	10 MFR, closures, seals, tube shoulders, injection molding	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HDPE	LyondellBasell	Purell GA7760	18 MFR, high stiffness, injection grade	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
HMWHDPE	Chevron Phillips Chemical	Marlex® HXM 50100	0.948 density, extra high molecular weight grade for large part blow molding		DMF, FDA, USP 39	Natural

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
MLLDPE	Chevron Phillips Chemical	Marlex® D143	0.916 metallocene for all blown film applications requiring high dart and excellent clarity		DMF, FDA, USP	Clarified
LDPE	Chevron Phillips Chemical	Marlex® 1122B*	0.920 density for blow molding, extrusion and injection molding; 2 melt		FDA, USP 39, USP 27	
LDPE	Chevron Phillips Chemical	Marlex® KN226*	0.924 density for injection molding, tailored for caps, housewares and personal care products; 25 melt		DMF, FDA, USP 22	
LDPE	Chevron Phillips Chemical	Marlex® 1412*	0.924 density for injection molding, tailored for thin wall molding; 35 melt		FDA, USP 22	
LDPE	Chevron Phillips Chemical	Marlex® 1007*	0.917 density		DMF, FDA, USP 22	
LDPE	LyondellBasell	Purell 1840H*	0.919 density, state of the art, very flexible, ampules, BFS	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
LDPE	LyondellBasell	Purell 3020D*	0.927 density, leading BFS grade, IV bottles, ampules, injection, blow and film	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
LDPE	LyondellBasell	Purell 3220D*	0.930 density, state of the art BFS, increased sterilization temps, Injection, blow, film	EtO, Gamma, Autoclave	Ph. Eur., USP VI, ISO, DMF	Natural
MABS	ChiMei	Polylac® PA-758	3 MFI, high flowability and good transparency	EtO	FDA, USP Class VI	Transparent
MABS	INEOS Styrolution	Terlux® HD 2802/2822*	2 MFI, excellent transparency, good chemical resistance, good stiffness and surface finish, high impact strength	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
MABS	INEOS Styrolution	Terlux® HD 2812	8 MFI, easy flow, high impact, excellent transparency, good chemical resistance	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
MABS	INEOS Styrolution	Clearblend® 145*	3.5 MFI, high transparency, moderate impact strength, high scratch resistance	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
MBS	INEOS Styrolution	Clearblend® 165*	5 MFI, high transparency, high impact strength	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
MBS	INEOS Styrolution	Zylar® 631	5 MFI, excellent clarity, medium impact, stiffness and toughness	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
MBS	INEOS Styrolution	Zylar® 650	4 MFI, high transparency, good scratch resistance, good chemical resistance	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
MBS	INEOS Styrolution	Zylar® 960*	6.5 MFI, good transparency, excellent impact strength	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
PBT	BASF	Ultradur® B4521 PRO	25 MVR, rigidity, strength, low moisture, injection molding; chemical resistance data available	EtO, Gamma/E-Beam	DMF, USP VI, ISO, FDA	Natural/ Opaque
PC	ChiMei	Wonderlite® PC-115P	15 MFI, good balance of properties	EtO, Gamma	FDA, ISO 10993	Clear
PC	ChiMei	Wonderlite® PC-115P F01	15 MFI, light blue tint for gamma, good balance of properties	EtO, Gamma	FDA, ISO 10993	Transparent, Light Blue
PC	ChiMei	Wonderlite® PC-115P F17111	15 MFI, deep tint for gamma resistance, good balance of properties	EtO, Gamma resistance	FDA, ISO 10993	Transparent, Deep Blue
PC	Covestro	Apec® 1745	High-heat copolycarbonate suitable for repeated steam sterilization up to 143C	EtO, Gamma/E-Beam, multiple stream cycles	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® 3638	2.0 MVR, ultra durable in cryogenic to high heat applications – specifically designed to be blow molded into impact resistant bottles, injection molded into medical devices and amenable to closed and open loop recycling. Resistant to every day chemicals.	EtO, Radiation, Steam	FDA, DMF, ISO 5 & 10	Transparent clear
PC	Covestro	Makrolon® 3258	5 MVR, high performance with good hydrolysis resistance, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors
PC	Covestro	Makrolon® 3108*	6 MVR, high performance with good hydrolysis resistance, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors
PC	Covestro	Makrolon® 2858	9 MVR, medium viscosity with easy-release, good hydrolysis resistance, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PC	Covestro	Makrolon® 2658	12 MVR, medium viscosity with easy-release, good hydrolysis resistance, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors
PC	Covestro	Makrolon® 2558*	14 MVR, easy flow with easy-release, good hydrolysis resistance, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors
PC	Covestro	Makrolon® 2458*	19 MVR, easy flow with easy-release, good hydrolysis resistance and biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors
PC	Covestro	Makrolon® 2258	34 MVR, high flow with easy release, good hydrolysis resistance, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO, FDA-FC	Clear/Colors
PC	Covestro	Makrolon® Rx3440	4.5 MVR, oncology drug resistant, lipid resistant, suitable for radiation sterilization, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx1805	6 MVR, lipid resistant, suitable for radiation sterilization, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx2530*	15 MVR, medium viscosity, suitable for sterilization by radiation, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx1452	16 MVR, enhanced release and surface lubricity, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® M404 LF	18 MVR, high flow with highest surface lubricity, biocompatible	EtO, Gamma/E-Beam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® M402 LF	18 MVR, high flow with enhanced surface lubricity, biocompatible	EtO, Gamma/E-Beam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx2440	19 MVR, high flow, stabilized for radiation sterilization of devices in oxygen-free packaging, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx1851	23 MVR, high flow with enhanced release and surface lubricity, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx2435	23 MVR, high flow with easy-release, suitable for sterilization by radiation, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PC	Covestro	Makrolon® M204 LF	34 MVR, high flow with highest surface lubricity, biocompatible	EtO, Gamma/E-Beam	MAF, DMF, USP VI, ISO	Clear/Colors
PC	Covestro	Makrolon® Rx2235	37 MVR, high flow with easy-release, suitable for sterilization by radiation, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Clear/Colors
PC FR	Covestro	Makrolon® M6011 FR	25 MVR, UV stabilized, non hall FR grade with improved chemical resistance		ISO 10993	Opaque
PC/GF	Covestro	Makrolon® M410 GF	High flow for longer flow lengths, 10% glass-filled, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/GF	Covestro	Makrolon® M810 GF	High performance for impact and chemical resistance, 10% glass-filled, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/GF	Covestro	Makrolon® M420 GF	High flow for longer flow lengths, 20% glass-filled, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/GF	Covestro	Makrolon® M820 GF	High performance for impact and chemical resistance, 20% glass-filled, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/GF	Covestro	Makrolon® M430 GF	High flow for longer flow lengths, 30% glass-filled, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/GF	Covestro	Makrolon® M830 GF	High performance for impact and chemical resistance, 30% glass-filled, biocompatible	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/ABS	Covestro	Bayblend® M750*	14 MVR, superior toughness, non-reinforced blend	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/ABS	Covestro	Bayblend® M850 XF*	25 MVR, high flowing, good property balance, excellent part precision, non-reinforced blend	EtO, Gamma/E-Beam, Steam	MAF, DMF, USP VI, ISO	Opaque
PC/ABS FR	Covestro	Bayblend® M303 FR	Skin contact biocompatible, flame-retardant (non-halogenated), extrusion		ISO 10993-5 and ISO 10993-10	Opaque

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PC/ABS FR	Covestro	Bayblend® FR 3010*	Flame-retardant (non-halogenated), high heat, improved impact resistance			Opaque
PC/ABS FR	Covestro	Bayblend® M301 FR*	Skin contact biocompatible, flame-retardant (non-halogenated), injection molding		ISO 10993-5 and ISO 10993-10	Opaque
PC/PBT	Covestro	Makroblend® M 525*	Skin contact biocompatible, chemically resistant to lotions and disinfectants, ideal for wearable applications		ISO 10993-5 and ISO 10993-10	Opaque
PC/PBT FR	Covestro	Makroblend® M 4000 FR*	Skin contact biocompatible, flame-retardant, superior chemical resistance		ISO 10993-5 and ISO 10993-10	Opaque
PC/PET	Covestro	Makroblend® UT 1018*	FR, improved chemical resistance	EtO, Gamma/E-Beam, limited steam		Opaque
PC/PET FR	Covestro	Makroblend® EL 700	Flame-retardant, chemically resistant			Opaque
PC/PET FR	Covestro	Makroblend® EL 703	Flame-retardant, UV stabilized, chemically resistant			Opaque
PC/PBT FR	Covestro	Makroblend® M5005 FR	35 MVR, UV stablized, non hal FR grade with excellent chemical resistance		ISO 10993	
POM	BASF	Ultraform® H4320 PRO	2.5 MVR, lubricious, chemical resistance, good stiffness, extrusion grade	EtO	DMF, USP VI, ISO, FDA	Opaque/White
POM	BASF	Ultraform® N2320 033 PRO	7.5 MVR, lubricious, chemical resistance, good stiffness, injection molding	EtO	DMF, USP VI, ISO, FDA	Opaque/White
POM	BASF	Ultraform® S2320 003 PRO	11 MVR, flow, lubricious, chemical resistance, good stiffness, injection molding	EtO	DMF, USP VI, ISO, FDA	Opaque/White
POM	BASF	Ultraform® W2320 003 PRO	25 MVR, lubricious, chemical resistance, good stiffness, injection molding	EtO	DMF, USP VI, ISO, FDA	Opaque/White
POM	BASF	Ultraform® W2320 003 PRO TR	25 MVR, additional lubricant, chemical resistance, good stiffness, injection molding	EtO	DMF, USP VI, ISO, FDA	Opaque/White

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PP	INVISTA	P5L2Z-038	2 MFR, random copolymer for injection and blow molding, hot fill, food, health, medical	EtO, Autoclave Sterilizable	DMF, FDA, USP Class VI and ISO 10993	Natural
PP	INVISTA	23S1Acs256	2 MFR, random copolymer for blow molding, food, health, medical, medical labware	EtO	FDA, USP Class VI and DMF	Natural
PP	INVISTA	23S2A	2 MFR, random copolymer for blow molding, hot fill, health, medical	EtO, Autoclave Sterilizable	FDA, USP Class VI and DMF	Natural
PP	INVISTA	23M2A	2 MFR, random copolymer, pharma packaging, blow-fill seal, bottles	EtO, Autoclave	DMF, USP Class VI, ISO, USP 85	Natural
PP	INVISTA	23R2A	2 MFR, random copolymer, bottles, beakers, flask, carboys	EtO, Gamma/E-Beam, Autoclave	DMF, USP Class VI, ISO, USP 85	Good clarity
PP	INVISTA	H0500HN	5 MFR, homopolymer, nucleated, closures, medical devices	EtO, Autoclave	DMF, USP Class VI, ISO, USP 85	Natural
PP	INVISTA	13R9A	9 MFR, random copolymer-vials, micro-tubes, centrifuge tubes, caps, bottles	EtO, Gamma/E-Beam, Autoclave	DMF, USP Class VI, ISO 10993, USP 88	Good clarity
PP	INVISTA	23N10A	9 MFR, random copolymer, nucleated, pharma packaging, SBM, bottles, autoclavable	EtO, Autoclave	DMF, USP Class VI, ISO, USP 85	Natural
PP	INVISTA	11R12A	12 MFR, specialty polymer, caps & closures	EtO, Gamma/E-Beam, Autoclave	DMF, USP Class VI, ISO 10993, USP 85	Natural
PP	INVISTA	P4C5N-046	20 MFR, homopolymer, nucleated, medical device, closures, ophthalmic	EtO, Autoclave	DMF, USP Class VI, ISO, USP 85	Natural
PP	INVISTA	11M35V*	35 MFR, homopolymer injection grade for labware, pipettes and medical components, no animal derived components or phthalates	EtO, Autoclave	ISO 10993, USP Class VI, USP 85	Natural
PP	INVISTA	13T25A	25 MFR, random copolymer, pharma packaging, medical devices, syringes	EtO, Autoclave	DMF, USP Class VI, ISO, USP 85	Clarified
PP	INVISTA	13G27M*	27 MFR, random copolymer, medical devices, labware	EtO, Gamma/E-Beam, Autoclave	DMF, USP Class VI, ISO 10993, USP 85	Clarified

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PP	INVISTA	P5M5R-083	27 MFR, random copolymer, medical device, labware, radiation stabilized	EtO, Gamma, Autoclave	DMF, USP Class VI, ISO, USP 85	Natural
PP	INVISTA	P5M6K-080*	27 MFR, random copolymer, medical device, labware, radiation stabilized	EtO, Gamma, Autoclave	DMF, USP Class VI, ISO, USP 85	Clarified
PP	INVISTA	P9M7R-056	55 MFR, specialty polymer, labware, pipette tips, vials, micro tubes, PCR plates, lids, racks, low warpage	EtO, Gamma/E-Beam, Autoclave	DMF, USP Class VI, ISO, USP 85	Excellent clarity
PP	TotalEnergies	3281	1.3 MFI homopolymer, sheet, blow molding, fiber	EtO	FDA, USP VI	Natural
PP	TotalEnergies	3230	1.6 MFI homopolymer, blow molding	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	6232	2 MFI copolymer, blow molding	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	7238	2 MFI copolymer, blow molding	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	7425	4 MFI copolymer, injection molding	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	Z9450	5 MFI copolymer, heat sealable film, improved clarity	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	8573	7 MFI copolymer, film - heat seal layer	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	3620WZ*	12 MFI homopolymer, film, sheet blow molding	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	Lumicene® M3661	14 MFI metallocene PP, injection molding, film, fiber	EtO	FDA	Natural
PP	TotalEnergies	3721WZ	20 MFI, homopolymer, higher loading of antistat, nucleated, injection molding grade	EtO	FDA, DMF	Opaque
PP	TotalEnergies	3720WZ*	20 MFI, homopolymer, nucleated, standard loading antistat, injection molding grade	EtO	FDA, DMF	Opaque

*Focus grades



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Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PP	TotalEnergies	3727WZ	20 MFI homopolymer, nucleated, antistat, injection molding	EtO	FDA, USP VI, DMF	Natural
PP	TotalEnergies	3740WR	20 MFI homopolymer, nucleated, radiation stabilized, injection molding	EtO, Gamma/E-Beam	FDA	Natural
PP	TotalEnergies	Lumicene® M3766MZ	24 MFI, metallocene PP, injection molding, melt spun and spunbond fiber	EtO	FDA	Natural
PP	TotalEnergies	3825	30 MFI, injection molding grade	EtO	FDA, DMF	Opaque
PP	TotalEnergies	3825WZ	30 MFR, nucleated, antistat, injection molding grade	EtO	FDA, DMF	Opaque
PP	TotalEnergies	M8825KZ	30 MFR random copolymer, clarified with NX 8000, antistat, injection molding grade	EtO, Gamma/E-Beam	FDA, DMF	Clarified
PP	TotalEnergies	Lumicene® M6823MZ	30 MFI metallocene PP, clarified, anti-static, injection molding, ISBM	EtO	FDA, USP VI, DMF	Clarified
PP	TotalEnergies	3847MR*	45 MFI copolymer, hydrophobic, radiation stabilized, clarified	EtO, Gamma/E-Beam	FDA, USP VI, DMF	Clarified
PP	TotalEnergies	3944MR	60 MFI copolymer, hydrophobic, radiation stabilized, clarified	EtO, Gamma/E-Beam	FDA, USP VI, DMF	Opaque/ White
PP	TotalEnergies	5948WZ	80 MFI impact copolymer, nucleated, antistat, injection molding grade for thin wall, high cavitation applications		FDA	Natural
PPSU	BASF	Ultrason® E 3010	High viscosity, tough, injection molding, extrusion. Chemical resistance data available.	EtO, Gamma/E-Beam, Autoclave	FDA	Natural/Clear
PPSU	BASF	Ultrason® E 2010	Medium viscosity, injection molding, blown film and extrusion, high heat. Chemical resistance data available.	EtO, Gamma/E-Beam, limited steam	FDA	Natural/Clear
PSU	BASF	Ultrason® S 2010	High heat, good flow. Chemical resistance data available.	EtO, Gamma/E-Beam, limited steam	FDA	Natural/Clear

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
PVC	Teknor Apex	APEX® 33033RV-NT1	Non-DEHP, TOTM plasticizer, highest overall performance, shore A 50-90, extrusion grade, PC/ABS craze resistance	EtO, Gamma/E-Beam, Autoclave	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 32033RV-NT1	Non-DEHP, TOTM plasticizer, highest overall performance, shore A 50-90, injection grade, PC/ABS craze resistance	EtO, Gamma/E-Beam, Autoclave	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 33043RV-NT1	Non-DEHP, TOTM/DOTP plasticizer, cost effective, shore A 50-90, extrusion grade	EtO, Gamma/E-Beam, Autoclave	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 32043RV-NT1	Non-DEHP, TOTM/DOTP plasticizer, cost effective, shore A 50-90, injection grade	EtO, Gamma/E-Beam, Autoclave	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 33022RV-NT1	Non-DEHP, ATBC plasticizer, shore A 50-90, extrusion grade	EtO, Gamma/E-Beam	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 32022RV-NT1	Non-DEHP, ATBC plasticizer, shore A 50-90, injection grade	EtO, Gamma/E-Beam	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 33042RV-NT1	Non-DEHP, ATBC/DOTP plasticizer, shore A 50-90, extrusion grade	EtO, Gamma/E-Beam	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® 32042RV-NT1	Non-DEHP, ATBC/DOTP plasticizer, shore A 50-90, injection grade	EtO, Gamma/E-Beam	USP VI, ISO	Clear
PVC	Teknor Apex	FLEXA® 35033RV-NT1	Non-DEHP, TOTM plasticizer, PC/ABS craze resistance, shore A 40-80, extrusion and injection grade	EtO, Gamma/E-Beam	USP VI, ISO	Clear
PVC	Teknor Apex	FLEXA® 35022RV-NT1	Non-DEHP, ATBC plasticizer, shore A 40-80, extrusion and injection grade	EtO, Gamma/E-Beam	USP VI, ISO	Clear
PVC	Teknor Apex	APEX® SR1	Injection molding, shore D 83, excellent stress crack resistance and low impact with excellent clarity	EtO, Gamma/E-Beam	USP & ISO pending	Clear
PVC	Teknor Apex	APEX® SR2	Injection molding, Shore D 80, superior stress crack resistance and high impact clear	EtO, Gamma/E-Beam	USP & ISO pending	Clear

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
S-TPE	INEOS Styrolution	Styroflex® 2G66*	14 MFI, excellent thermostability, very high elongation at break, high flow	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
S-TPE	INEOS Styrolution	Styroflex® 4G80	18 MFR, good kink resistance, good solvent bonding, good transparency, soft feel surface	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SAN	INEOS Styrolution	Lustran® SAN 29	Good chemical resistance, good heat resistance	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA	Transparent
SAN	INEOS Styrolution	Lustran® SAN 31*	24 MFI, good chemical resistance, easy flow	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SAN	INEOS Styrolution	Lustran® SAN Sparkle	Enhanced clarity, easy flow, good chemical resistance	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA	Transparent
SBC	INEOS Styrolution	K-Resin® KR03/ KR03E*	7.5 MFI, molding and extrusion grade, very good clarity, high surface gloss	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SBC	INEOS Styrolution	K-Resin® KR01*	8 MFI, molding grade, very good clarity, good melt flow	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SBC	INEOS Styrolution	Styrolux® 684D*	11 MFI, excellent balance between stiffness and toughness, extrusion and molding grade, printable	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SBC	INEOS Styrolution	Styrolux® 3G46	Excellent balance between stiffness and toughness, extrusion and molding grade, excellent transparency	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SBC	INEOS Styrolution	Styrolux® 656C	Excellent stiffness and clarity, molding grade, excellent stiffness	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SEBS	Elastron	Elastron® G Series	Available in Shore A 30-90 versions. PP bondable, seals, closures and medical hoses.	EtO, Gamma/E-Beam, limited steam	USP VI, some ISO, USP 88	Natural Translucent, Black
SMMA	INEOS Styrolution	NAS® 90	16 MFI, sparkling clarity, easy processing, increased toughness	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
SMMA	INEOS Styrolution	NAS® 21*	24 MFI, sparkling clarity, easy processing	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent

*Focus grades

Resins	Resin Manufacturer	Grades	Description	Sterilization	Regulatory, Drug Master File, USP Class VI, ISO 10993 - FDA	Color
SMMA	INEOS Styrolution	NAS® 30	30 MFI, enhanced flow and clarity	EtO, Gamma/E-Beam, NO ₂	DMF, USP VI, ISO, FDA, EU FC	Transparent
TPU	Covestro	Texin® RxT50D (Ether)	Polyether TPU, injection and extrusion standard grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxT65D (Ether)	Ether TPU, injection and extrusion standard grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxT76D	Injection and extrusion standard grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxT85A (Ether)	Injection and extrusion standard grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxS285 (Ester)	Blow film, injection and extrusion grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxS292	Shore A 92, blow film, injection and extrusion grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxT70A (Ether)	Polyether TPU, injection and extrusion standard grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPU	Covestro	Texin® RxT90A (Ether)	Polyether TPU, injection and extrusion standard grade	EtO, Gamma/E-Beam, NO ₂	USP VI, ISO	Transparent
TPV	Elastron	Elastron® V Series	Shore A 30-90	EtO, Gamma/E-Beam, limited steam	USP VI, some ISO, USP 87	Natural, Black & Transparent



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