



Samsung Cheil Industries' Medical Polymer

November, 2013



CHEIL INDUSTRIES

Introduction

Perfect choice for medical device housing requiring high Impact strength and Transmittance

Application Examples



Samsung provides biocompatible polycarbonates which have great strength and toughness.

Also, Samsung's medical polycarbonates maintain good mechanical properties after sterilization.

Sterilization & Biocompatibility

Acceptable Sterilization Methods

Suitable for EtO gas sterilization

	Grade	Ethylene Oxide Sterilization	Gamma Radiation
INFINO PC	ML-1010R	●	○
	ML-1020R	●	○

- : after sterilization – good maintenance of mechanical properties (95% or better), good color stability
- : after sterilization – good maintenance of mechanical properties (95% or better)

Biocompatibility

Safe for applications requiring biocompatibility

	Grade	Certified Biocompatibility by 
INFINO PC	ML-1010R	USP Class VI ISO 10993-4, 5, 6, 10, 11, 12
	ML-1020R	
Starex ABS	HG-0760GP	USP Class VI ISO 10993-4, 5, 10, 11
	TX-0510T	
	TX-0520T	

Data available upon request

Key Properties

Item	Measuring Method	Condition	Unit	INFINO PC		Starex ABS		
				ML-1010R	ML-1020R	HG-0760GP	TX-0510T	TX-0520T

Physical Properties

MFI	ASTM D1238	300 °C / 1.2kg	g/10min	10	20	3.8 (200 °C / 5kg)	-	-
		220 °C / 10kg		-	-		17	15
Density	ASTM D792	Natural Color	g/cm ²	1.2	1.2	1.04	1.1	1.1
Mold shrinkage	ASTM D955	-	%	0.5 ~ 0.7	0.5 ~ 0.7	-	-	-

Mechanical Properties

Tensile Strength	ASTM D638	50mm/min	kgf/cm ²	640	640	400	460	440
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	23,000	23,000	20,000	21,000	20,000
Izod Impact Strength	ASTM D256	1/8 inch, notched, 23 °C	kgf·cm/cm	88	75	-	13	15

Thermal Properties

Vicat softening Temperature	ASTM D1525	5 kg	°C	145	145	94	88	87
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Optical Properties

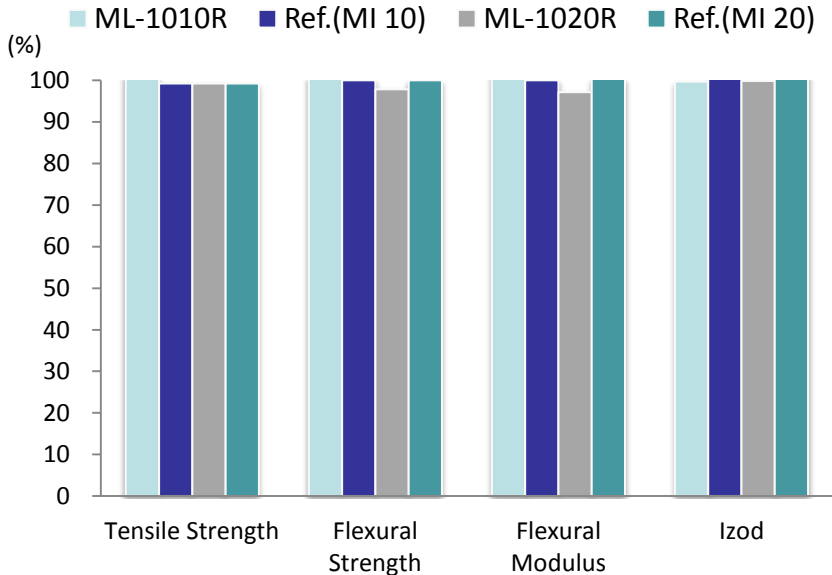
Transmittance	ASTM D1003	3.2 mm	%	91	91	-	88	88
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Sterilization data – EtO gas Sterilization -

Mechanical properties after EtO sterilization

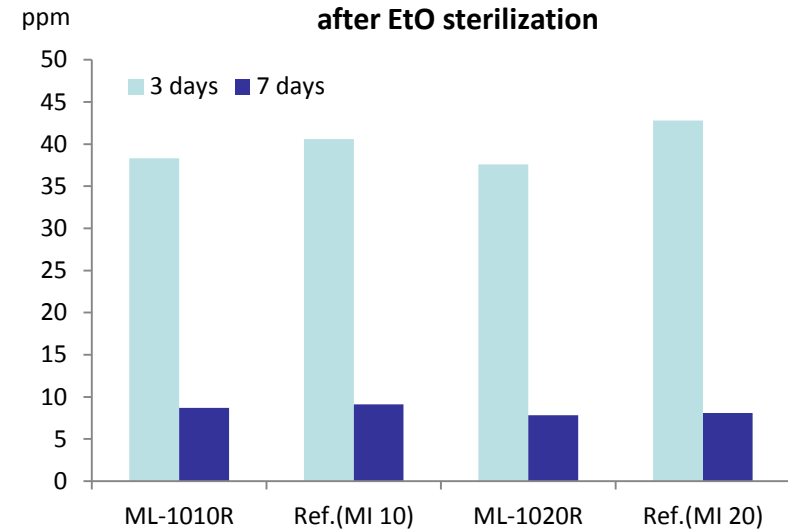
Good maintenance of mechanical properties (95% or better)

Maintenance of Mechanical properties after EtO Sterilization



Residual Ethylene Oxide Contents

Residual Ethylene Oxide Contents after EtO sterilization



Sterilization condition

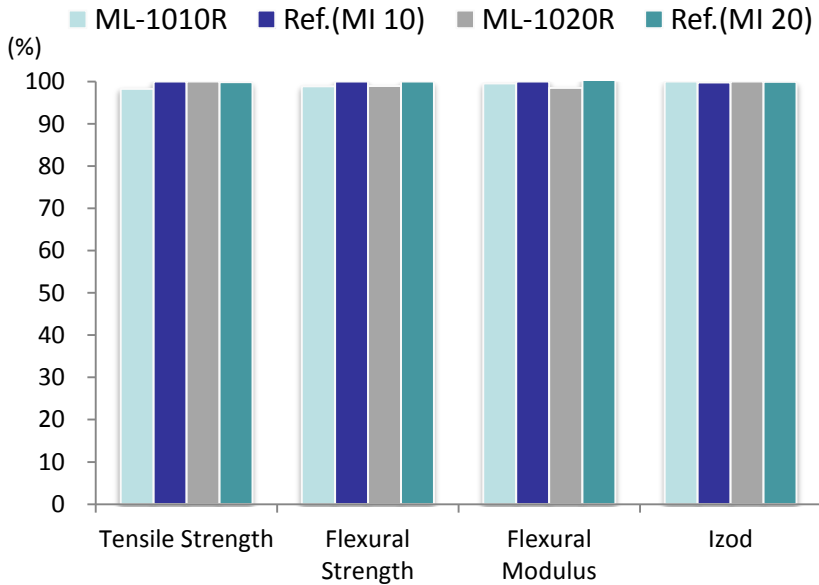
- Pre-condition : at 45 °C, 50% RH(relative humidity)
- Gas component : 70% EtO gas + 30% CO2 gas
- EO injection : Expose to 750 mg/l constant gas for 4hrs at 40 °C, 50% RH
- Flushing : 7 times
- Sample aged up 3days, 7days

Sterilization data – Gamma Sterilization -

Mechanical properties after γ -ray radiation

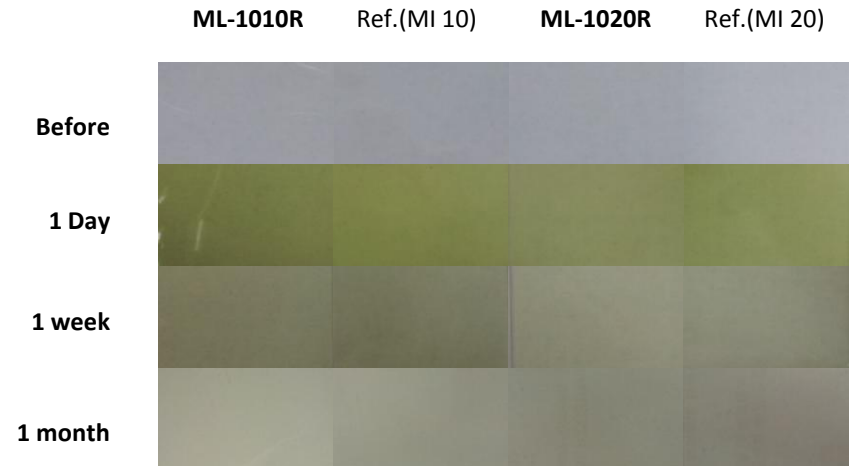
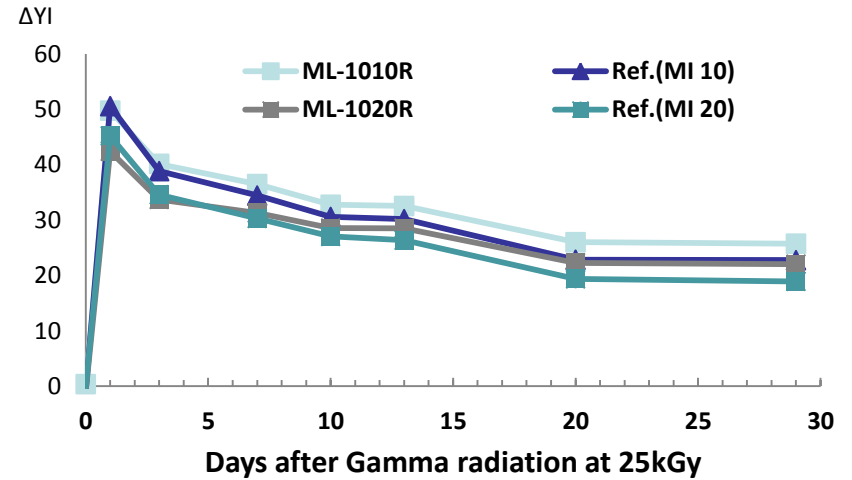
Good maintenance of mechanical properties (95% or better)

Maintenance of Mechanical properties after Gamma radiation



* Measured after 30 days after gamma radiation at 25 kGy

Color stability after γ -ray radiation



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