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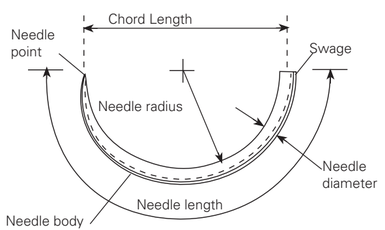
NEEDLE SHAPE AND TYPICAL APPLICATIONS

SHAPE	APPLICATIONS
STRAIGHT	Nasal cavity (septum) Nerve Skin Tendon
J NEEDLE	Closure of laparoscopic port sites
1/4 CIRCLE	Eye (primary application) Microsurgery Ophthalmic surgery
3/8 CIRCLE	Dura Eye Fascia Nerve Skin Tendon Ophthalmic surgery
1/2 CIRCLE	Bilary tract Eye Muscle Nasal cavity Oral cavity Pelvis Gastrointestinal tract Subcutaneous fat Peritoneum Pharynx Pleura Respiratory tract Skin Urogential tract Fascia
5/8 CIRCLE	Anal (hemorrhoidectomy) Cardiovascular system Oral cavity Deep pelvic tissue Closure of laparoscopic port sites Urogenital tract (primary application)
COMPOUND CURVED	Eye (anterior segment) Ophthalmic surgery Plastic surgery

NEEDLE POINTS AND BODY SHAPES WITH TYPICAL APPLICATIONS

POINT/BODY SHAPE	APPLICATIONS	POINT/BODY SHAPE	APPLICATION
Conventional Cutting	Ligament Oral cavity Nasal cavity Pharynx Skin Tendon	**Taper**	Dura Fascia Gastrointestinal tract Muscle Myocardium Peritoneum Subcutaneous fat Urogenital tract vessels
Reverse Cutting	Fascia Ligament Nasal cavity Oral mucosa Pharnyx Skin Tendon sheath	**Blunt**	Cervix (ligating incompetent cervix) Blunt dissection (friable tissue) Fascia Kidney Liver Spleen
MICRO-POINT Reverse Cutting Needle	Eye	**CS ULTIMA Ophthalmic Needle**	Eye (Primary application)
Precision Point Cutting	Skin (plastic or cosmetic)	**PC PRIME**	Skin (plastic or cosmetic)
Side-Cutting Spatula	Microsurgery Ophthalmic		
TAPERCUT Surgical Needle	Calcified tissue Fascia Ligament Oral cavity Tendon Trachea Uterus Vessels (sclerotic)		

ANATOMY OF A NEEDLE



SUTURES Plus Antibacterial Suture

Another layer of protection, another level of assurance.

Plus Antibacterial Sutures kill bacteria and inhibit bacterial colonisation of the suture.[1,2,6]

The antibacterial component of Plus SUTURES, IRGACARE® MP (triclosan), is effective against the pathogens most commonly associated with SSIs[1-6]:

- Staphylococcus aureus
- Staphylococcus epidermidis
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Methicillin-resistant *Staphylococcus epidermidis* (MRSE)
- *Escherichia coli**
- *Klebsiella pneumoniae**

*Applicable to MONOCRYL® Plus Antibacterial Suture and PDS™ Plus Antibacterial Suture

References: 1. Storch ML, Rothenburger SJ, Jacinto G. Experimental efficacy study of coated VICRYL® Plus antibacterial suture in guinea pigs challenged with Staphylococcus aureus. Surgical Infections. 2004;5:281-288. 2. Rothenburger S, Spangler D, Bhende S, Burkley D. In vitro antimicrobial evaluation of Coated VICRYL® Plus Antibacterial Suture (coated polyglactin 910 with triclosan) using zone of inhibition assays. Surgical Infections. 2002;3:S79-S87. 3. Data on File, ETHICON Inc. 4. Ming X, Nichols M, and Rothenburger S. In Vitro Antibacterial Efficacy of MONOCRYL® Plus Antibacterial Suture (Poliglecaprone 25 with Triclosan). Surgical Infections. 2007;8(2):201-207. 5. Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR, The Hospital Infection Control Practices Advisory Committee. Guideline for prevention of surgical site infection, 1999. Infect Control Hosp Epidemiol. 1999;20:247-280. 6. Edmiston E, Goheen M, Johnson CP, Brown KR. Bacterial Adherence to Surgical Sutures: Can Antibacterial-Coated Sutures Reduce the Risk of Microbial Contamination? Journal of American College of Surgeons. \o2034| 2006;481-489. MONOCRYL and VICRYL are registered trademarks and PDS is a trademark of ETHICON Inc. IRGACARE is a registered trademark of CIBA Speciality Chemicals Corporation.

For more information on our products and services, contact your ETHICON Product Specialist.

Please call customer service in Australia on **02 9878 9260** or **1800 252 194** and in New Zealand on **0800 803 988.**

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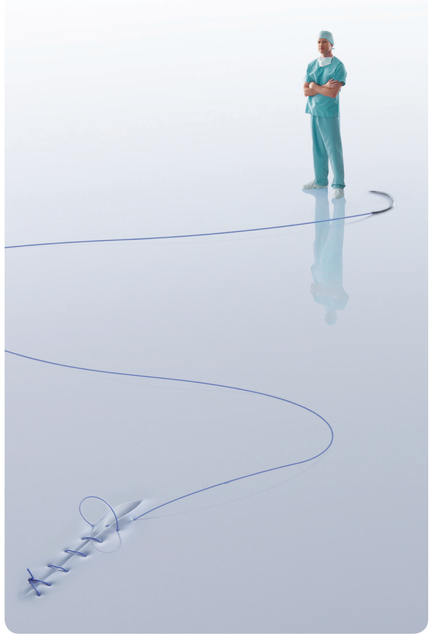
ETHICON
SUTURES

PRODUCT GUIDE

SURGICAL SUTURES SINCE 1887



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ETHICON SUTURES SELECTION GUIDE

ABSORBABLE SUTURES

NON-ABSORBABLE SUTURES

SUTURE	SURGICAL GUT – PLAIN AND CHROMIC	COATED VICRYL® RAPIDE	MONOCRYL®	MONOCRYL® PLUS ANTIBACTERIAL SUTURE	COATED VICRYL®	COATED VICRYL® PLUS ANTIBACTERIAL SUTURE	PDS™ II	PDS™ PLUS ANTIBACTERIAL SUTURE	SURGICAL SILK	SURGICAL STEEL	ETHILON®	NUROLON®	MERSILENE	ETHIBOND EXCEL®	PROLENE®	PRONOVA®
TYPE	**Virtual Monofilament**	**Braided**	**Monofilament**	**Monofilament**	**Braided/ Monofilament**	**Braided**	**Monofilament**	**Monofilament**	**Braided**	**Monofilament/ Braided**	**Monofilament**	**Braided**	**Braided**	**Braided**	**Monofilament**	**Monofilament**
RAW MATERIAL	Collagen derived from serosa of beef intestine or submucosa of sheep intestine. **Chromic:** Treated to resist digestion by body tissues.	Polyglactin 910, a copolymer of lactide and glycolide coated with Polyglactin 370 and calcium stearate.	Poliglecaprone 25, a copolymer of glycolide and epsilon-caprolactone.	Poliglecaprone 25, a copolymer of glycolide and epsilon-caprolactone with IRGACARE® MP (Triclosan)	Polyglactin 910, a copolymer of lactide and glycolide coated with Polyglactin 370 and calcium stearate.	Polyglactin 910 coated with Polyglactin 370, calcium stearate and IRGACARE® MP (Triclosan).	Polydioxanone	Polydioxanone with IRGACARE® MP (Triclosan)	Organic protein called fibroin.	316L Stainless Steel.	Nylon 6 or Nylon 6,6	Nylon 6 or Nylon 6,6	Polyester.	Polyester coated with Polybutilate.	Polypropylene.	Poly (vinylidene fluoride) and poly (vinylidene fluoride-cohexafluoropropylene).
TENSILE STRENGTH RETENTION IN VIVO	**Plain:** Lost within 7-10 days. **Chromic:** Lost within 21-28 days. Individual patient characertistics can affect the rate of tensile strength loss.	Approximately 50% remains at 5 days. Lost within 10-14 days.	**Dyed:** Approximately 60-70% remains at 1 week. Approximately 30-40% remains at 2 weeks. Lost within 4 weeks. **Undyed:** Approximately 50-60% remains at 1 week. Approximately 20-30% remains at 2 weeks. Lost within 3 weeks.		Approximately 75% remains at 2 weeks. Approximately 50% remains at 3 weeks. Approximately 25% remains at 4 weeks.		**3/0 and larger:** Approximately 80% remains at 2 weeks. Approximately 70% remains at 4 weeks. Approximately 60% remains at 6 weeks. **4/0 and smaller:** Approximately 60% remains at 2 weeks. Approximately 40% remains at 4 weeks. Approximately 35% remains at 6 weeks.		Progressive degradation of fibre may result in gradual loss of tensile strength over time. Loses most strength within one year.	Indefinite.	Progressive hydrolysis may result in gradual loss of tensile strength over time.	Progressive hydrolysis may result in gradual loss of tensile strength over time.	No significant change known to occur in vivo.	No significant change known to occur in vivo.	Not subject to degradation or weakening by action of tissue enzymes.	Not subject to degradation or weakening by action of tissue enzymes.
ABSORPTION RATE	**Plain:** Digested by body enzymes within 70 days. **Chromic:** Digested by body enzymes within 90 days.	Minimal until about 14th day. Essentially complete by 42 days. Absorbed by slow hydrolysis.	Complete at 91-119 days. Absorbed by slow hydrolysis.		Minimal until about the 40th day. Essentially complete between 56-70 days. Absorbed by slow hydrolysis.		Minimal until about the 90th day. Essentially complete within 6 months. Absorbed by slow hydrolysis.		Gradual encapsulation by fibrous connective tissue. Usually cannot be found after 2 years.	Non-absorbable.	Gradual encapsulation by fibrous connective tissue. Loses strength at a rate of 15-20% per year.	Gradual encapsulation by fibrous connective tissue. Loses strength at a rate of 15-20% per year.	Gradual encapsulation by fibrous connective tissue.	Gradual encapsulation by fibrous connective tissue.	Gradual encapsulation by fibrous connective tissue.	Gradual encapsulation by fibrous connective tissue.
TISSUE REACTION	Both moderate, Chromic less than Plain Surgical Gut.	Minimal.	Slight.	Slight.	Minimal.	Minimal.	Slight.	Slight.	Moderate.	Low.	Extremely low.	Extremely low.	Minimal.	Minimal.	Minimal.	Minimal.
CONTRA-INDICATIONS AND WARNINGS	Being absorbable, should not be used where extended approximation of tissues under stress is required. Should not be used in patients with known sensitivities or allergies to collagen or chromium (Chromic). Protein-based absorbable sutures have tendency to fray when tied. **Plain:** Absorbs relatively quickly.	Due to rapid loss of tensile strength, should not be used where extended approximation of tissues under stress is required or where wound support beyond 7 days is required.	Being absorbable, should not be used where extended approximation of tissues under stress is required. Undyed is not indicated for use in fascia.	Being absorbable, should not be used where extended approximation of tissues under stress is required. Undyed is not indicated for use in fascia. Plus Antibacterial Sutures should not be used in patients with known allergic reactions to IRGACARE® MP (Triclosan)	Being absorbable should not be used where extended approximation of tissue is required.	Being absorbable should not be used where extended approximation of tissue is required. Plus Antibacterial Sutures should not be used in patients with known allergic reactions to IRGACARE® MP (Triclosan)	Being absorbable, should not be used where extended approximation of tissue under stress is required. Should not be used with prosthetic devices, such as heart valves or synthetic grafts. Safety and effectiveness in neural and cardiovascular tissue has not been established.	Being absorbable, should not be used where extended approximation of tissue under stress is required. Should not be used with prosthetic devices, such as heart valves or synthetic grafts. Safety and effectiveness in neural and cardiovascular tissue has not been established. Plus Antibacterial Sutures should not be used in patients with known allergic reactions to IRGACARE® MP (Triclosan)	Should not be used for placement of vascular prostheses and artificial heart valves. Should not be used in patients with known sensitivites or allergies to silk.	Should not be used when a prosthesis of another alloy is implanted. Should not be used in patients with known sensitivities or allergies to stainless steel, or constituent metals such as chromium and nickel.	Should not be used where permanent retention of tensile strength is required.	Should not be used where permanent retention of tensile strength is required.	None known.	None known.	None known.	None known.
FREQUENT USES	General soft tissue approximation and/ or ligation, including use in ophthalmic procedures. Not for use in cardiovascular and neurological tissues.	Superficial soft tissue approximation of skin and mucosa only. Not for use in ligation, ophthalmic, cardiovascular or neurological procedures.	General soft tissue approximation and/or ligation. Not for use in cardiovascular or neurological tissues, microsurgery, or ophthalmic procedures.		General soft tissue approximation and/or ligation, including use in ophthalmic procedures. Not for use in cardiovascular and neurological tissues.		All types of soft tissue approximation, including paediatric cardiovascular and ophthalmic procedures. Not for use in adult cardiovascular tissue, microsurgery or neural tissue.		General soft tissue approximation and/ or ligation, including cardiovascular, ophthalmic and neurological procedures.	Sternal closure and orthopaedic procedures including tendon repair.	General soft tissue approximation and/ or ligation, including use in cardiovascular, ophthalmic and neurological procedures.	General soft tissue approximation and/ or ligation, including use in cardiovascular, ophthalmic and neurological procedures.	General soft tissue approximation and/ or ligation, including use in cardiovascular, ophthalmic and neurological procedures.	General soft tissue approximation and/ or ligation, including use in cardiovascular, ophthalmic and neurological procedures.	General soft tissue approximation and/ or ligation, including use in cardiovascular, ophthalmic and neurological procedures.	General soft tissue approximation and/ or ligation, including use in cardiovascular, ophthalmic and neurological procedures.