



MEDICAL &
HEALTHCARE
**POLYMER
SOLUTIONS**

Our Polymers division offers a wide range of polymers and additives to the medical device and healthcare sectors.

ncc.ie



NCC your technical partner in **medical device** and **healthcare development**

NCC provides a comprehensive range of technical polymer, and additive materials for supply to the medical device and healthcare sectors. Our materials are manufactured to FDA and USP Class VI standard and approvals. Assisting customers to design, develop, validate as well as manufacture. NCC's experience includes extrusion, injection moulding, film and wound dressing technologies. Working in long term partnership with world class manufacturers such as Arkema, Velox, Franplast, Resilia, GTP and 5N. NCC offers technical polymers, compounds, pigments, radio opaque, anti-microbial and specialist process aid solutions.

If your requirements are in cardiovascular, neurovascular, IUD, orthopaedics, surgical tools, gastric, aortic, wound care, as well as healthcare and consumer applications then please talk to us.

Our offering for the medical device and healthcare sectors include:

- Unparalleled customer service and technical support to the highest industry standards
- Support and facilitation of product development and speedy validation using our global sourcing expertise
- R&D Support including material selection and process recommendations
- Management of supply risk, guarantee of supply, change control and logistic support. Including batch selection and strategic stockholding
- Large local material stock holding and short delivery times
- Partnering with NCC you can avail of a wide range of polymers and materials from the world's leading suppliers

Medical **Polymer** Compounds

Through our sister company **Innovative Polymer Compounds (IPC)**, formed in 2007 we can offer manufacturing and testing of a large range of polymers and additives compounded to customer exact specifications. IPC materials are exclusive to the medical device sector.

The company is accredited to **ISO 13485: 2012** and **ISO 9001: 2015**.

For further information visit: ipcpolymers.ie

NCC offers the full range of Arkema Pebax, Rilsan and Rilsamid medical and non-medical polymers, please contact **David** or **Lorna** for further details.



MEDICAL GRADE POLYMERS

Medical grades Pebax® polyether block amide are plasticiser-free thermoplastic elastomers with a wide range of physical and mechanical properties achieved by varying the monomeric block types and ratios. Grades within the product range extend from soft and flexible products similar to elastomers, to those with mechanical properties approaching polyamides.

The remarkable processing ease of medical grade Pebax® elastomers makes it an excellent choice for extrusion of medical grade tubing or film applications and injection moulding. **Other unique properties include:**

- Pebax® MED grades have undergone testing in accordance with certain portions of the USP Class VI and/or ISO 10993 standards.
- Bondable by adhesives or RF welding
- Easily blended with other polymers and compounded with additives
- High torque transference and kink resistance
- Excellent impact resistance and low rigidification at low temperature
- Consistent durometer and flexibility at room and body temperatures
- Good resistance to most chemicals
- Pebax® MV 1074 SA 01 MED: hydrophilic grade with antistatic properties (surface resistivity 3.109 Ω / sq.)

				MEDICAL GRADE RANGE									
				PEBAX®									
PROPERTIES	DESCRIPTION	TEST METHOD	UNITS	MV1074 SA 01 MED	2533 SA 01 MED	3533 SA 01 MED	4033 SA 01 MED	4533 SA 01 MED (MX 1205)	5533 SA 01 MED	6333 SA 01 MED	7033 SA 01 MED	7233 SA 01 MED	7433 SA 01 MED
DENSITY		ISO 1183	g/cm ³	1.07	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01
WATER ABSORPTION	@20° C, 50 % RH	ISO 62	%	1.4	0.4	0.4	0.5	0.4	0.6	0.7	0.7	0.7	-
	@23° C, 24 hrs in water	ISO 62	%	48	1.2	1.2	1.2	1.2	1.2	1.1	1.1	0.9	-
MELTING POINT		ISO 11357	° C	158	134	144	160	147	159	169	172	174	174
VICAT POINT	Under 1 daN	ISO 306	° C	-	58	77	131	111	142	157	164	164	-
SHRINKAGE	Flow direction, after 24 hr, 4 mm, mould at 20° C	Internal Method	%	-	0.5	0.5	0.4	0.4	1.2	1.2	1.2	1.2	0.2 ⁺⁺⁺
	Transverse direction, after 24 hrs, 4 mm, mould at 20° C	Internal Method	%	-	0.8	0.8	1.1	1.1	1.4	1.4	1.5	1.5	0.7 ⁺⁺⁺
HARDNESS SHORE *	Instantaneous	ISO 868	Shore D	40	27	33	42	46	54	64	69	69	73
	After 15 sec	ISO 868	Shore D	-	22	25	35	41	50	58	61	61	66
TENSILE TEST *	Stress at Break	ISO 527	MPa	30	32	39	40	42	52	53	54	56	46
	Strain at Break	ISO 527	%	>700	>750	>600	>450	>550	>450	>350	>350	>300	>250
FLEXURAL MODULUS *		ISO 178	MPa	80	12	21	77	86	170	285	390	510	610
CHARPY IMPACT	Unnotched 23° C	ISO 179	kJ / m ²	-	NB	NB	NB	NB	NB	NB	NB	NB	NB
	Unnotched -30° C	ISO 179	kJ / m ²	-	NB	NB	NB	NB	NB	NB	NB	NB	NB
	V-notched 23° C	ISO 179	kJ / m ²	-	NB	NB	NB	NB	NB	NB	120 (p)	15 (c)	19 (c)
	V-notched -30° C	ISO 179	kJ / m ²	-	NB	NB	NB	NB	NB	20 (c)	20 (c)	10 (c)	6 (c)
PROCESSING				MV 1074 SA 01 MED	2533 SA 01 MED	3533 SA 01 MED	4033 SA 01 MED	4533 SA 01 MED (MX 1205)	5533 SA 01 MED	6333 SA 01 MED	7033 SA 01 MED	7233 SA 01 MED	7433 SA 01 MED
DRYING**	Time	hrs		4-6	4-8	4-8	4-8	4-8	4-6	4-6	5-7	5-7	5-7
	Temperature	° C		65-75	55-65	55-65	60-70	60-70	65-75	65-75	70-80	70-80	70-80
EXTRUSION TEMPERATURE	Minimum	° C		210	190	190	210	210	210	210	220	220	220
	Recommended	° C		220	205	205	220	220	220	225	235	235	235
	Maximum	° C		230	220	220	230	230	230	240	250	250	250
INJECTION TEMPERATURE	Minimum	° C		200	180	180	200	200	200	230	230	230	230
	Recommended	° C		240	210	210	240	240	240	260	260	260	260
	Maximum	° C		270	240	240	270	270	270	290	290	290	290
MOULD TEMPERATURE	Typical	° C		25-60	10-30	10-30	10-30	10-30	25-60	25-60	25-60	25-60	25-60

+ Samples conditioned 15 days at 23° C, 50 % RH

++ Pebax® is delivered dried in sealed packaging ready to be processed. Drying is only necessary for bags opened for more than 2 hours

+++ mould at 40° C (c) Complete break (p) Partial break

MEDICAL GRADE POLYMERS

Medical grades Rilsan[®] polyamide 11 and Rilsamid[®] polyamide 12 are thermoplastic polymers used in applications that require the strength and performance characteristics of a true thermoplastic, yet still offer sufficient flexibility and elongation approaching that of some elastomers. Rilsan[®] and Rilsamid[®] polymers are easy to process by most methods, including extrusion, extrusion blow moulding, injection moulding and rotomoulding.

Exceptional properties of these polyamide products include:

- High strength and mechanical resistance
- Excellent resistance to chemicals (particularly hydrocarbons)
- Ease of processing
- Wide range of working temperatures [-40° C – 130° C (40° F – 266° F)]
- High dimensional stability and low density
- Very low gas permeation

RILSAN[®] CLEAR MED

Medical grades Rilsan[®] Clear offer the best combination of transparency, light weight and flexibility of transparent polymers commonly used in medical applications.

MEDICAL GRADE RANGE										
PROPERTIES	DESCRIPTION	TEST METHOD	UNITS	RILSAN [®]			RILSAN [®] CLEAR		RILSAMID [®]	
				BMNO MED	BESNO MED	BESVOA MED	G 170 MED	G 850 Rnew [®] MED	AMNO MED	AESNO MED
NATURE & DESIGNATION		ISO 1874	-	PA11, M, 12-010	PA11, E, 22-010	PA11, E, 22-010			PA12, M, 12-010	PA12, E, 22-010
BIO BASED CARBON	calculation	ASTM 6866	%	100	100	100	-	49 – 51	-	-
DENSITY		ISO 1183	g/cm ³	1.03	1.02	1.02	1.05	1.01	1.01	1.01
WATER ABSORPTION	@20° C, 50 % RH	ISO 62	%	0.75	0.75	0.75	1.3	1.7	0.7	0.7
	@23° C, 24 hrs in water	ISO 62	%	0.95	0.95	0.95	3.2	4	0.9	0.9
MELTING POINT		ISO 11357	° C	189	186	186	-	-	180	180
GLASS TRANSITION TEMPERATURE	Tg	ISO 11357	-	-	-	-	168	150	-	-
HEAT DEFLECTION TEMPERATURE (HDT)	under 0.45 Mpa	ISO 75	° C	145	145	145	150	135	130	130
	under 1.80 Mpa	ISO 75	° C	50	50	50	136	120	50	50
TRANSPARENCY	560 nm, 2 mm	ASTMD 1003-97	-	-	-	-	90,8	91,7	-	-
SHRINKAGE	flow direction, after 24 hrs, 2 mm, mould @ 30° C	Internal Method	%	0,9	n/a**	n/a**	0,69	0,6	0,8	n/a**
	transverse direction, after 24 hrs, 2 mm, mould @ 30° C	Internal Method	%	0,9			0,72	0,75	0,8	
HARDNESS SHORE ⁺	Instantaneous	ISO 868	Shore D	75	76	76	84	80	74	74
	After 15 sec	ISO 868	Shore D	68	71	71	79	78	69	70
TENSILE TEST ⁺	Stress at Yield	ISO 527	MPa	41	40	36	74	51	37	38
	Strain at Yield	ISO 527	%	5	6	5	9	7,6	8	5
	Stress at Break	ISO 527	MPa	58	50	52	58	58	62	47
	Strain at Break	ISO 527	%	>200	>200	>200	>100	>140	>200	>200
TENSILE MODULUS ⁺		ISO 527	MPa	1280	1200	1180	2020	1622	1100	1260
FLEXURAL MODULUS ⁺		ISO 178	MPa	1140	1130	1100	1980	1600	920	1060
CHARPY IMPACT	Unnotched 23° C	ISO 179	kJ / m ²	NB	NB	NB	NB	NB	NB	NB
	Unnotched -30° C	ISO 179	kJ / m ²	NB	NB	NB	NB	NB	NB	NB
	V-notched 23° C	ISO 179	kJ / m ²	20	15	15	13	11	5	11
	V-notched -30° C	ISO 179	kJ / m ²	10	13	13	13	9	6	8
PROCESSING CONDITIONS				BMNO MED	BESNO MED	BESVOA MED	G 170 MED	G 850 Rnew [®] MED	AMNO MED	AESNO MED
DRYING**	Time		hrs	4 – 6	4 – 6	4 – 6	4 – 6	4 – 6	4 – 6	4 – 6
	Temperature		° C	80-90	65-80	65-80	90	90	80-90	65-80
EXTRUSION TEMPERATURE	Minimum		° C	n/a ⁺	230	230	270	-	n/a ⁺	230
	Recommended		° C		250	250	280	-		240
	Maximum		° C		280	280	290	-		270
INJECTION TEMPERATURE	Minimum		° C	240	n/a**	n/a**	270	250	230	n/a**
	Recommended		° C	270			290	280	250	
	Maximum		° C	290			310	300	280	
MOULD TEMPERATURE	Typical		° C	25 – 60	n/a ⁺	n/a ⁺	40 – 80	20- 80	20-40	n/a ⁺

⁺ Samples conditioned 15 days at 23° C, 50% RH

⁺⁺ Rilsan[®] Clear, Rilsan[®] and Rilsamid[®] are delivered dried in sealed packaging ready to be processed. Drying is only necessary for bags opened for more than 2 hours

^{*} Injection grade ^{**} Extrusion grade

About **NCC**

Founded in 1969, **NCC** is an established leading **raw material and sourcing specialist**. Supplying a comprehensive range of materials and ingredients to the life science, polymers, food and industrial sectors.

With **50 years of experience**, NCC's excellent track record and in-house experts ensure that clients receive consistently compliant products, solutions and services that have full supply chain traceability and meet the highest global standards.

Certified to **ISO 9001:2015**, Repak and the Responsible Care Programs including Good Trade and Distribution Practice (GTDP). NCC is an SQAS assessed company and a regular recipient of industry awards including being a **Deloitte Best Managed Company** since 2014.

“

We find NCC to be a very reliable and flexible supply partner that consistently goes the extra mile for our business

”

“

NCC are co-operative, engaging and eager to work on new business

”

“

The outstanding service provided encourages us to develop our partnership with NCC

”



**We would love to start a
conversation with you to show
how our approach can benefit your
business**



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