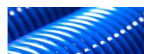
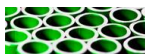


## TECHNICAL DATASHEET

### PA 11 FDA

<b>Material</b>	Non-plasticized Polyamide 11 (PA11)
<b>Product code</b>	PA04
<b>Product type</b>	<ul style="list-style-type: none"> <li>- Hoses</li> <li>- Tubes</li> <li>- Spirals</li> </ul>
<b>Application</b>	Pneumatic hoses and tubes in food contact environments
<b>Characteristics</b>	<p>Special grade for food contact pneumatic hoses and tubes with high stiffness, good mechanical and chemical properties. PA11 is produced from a 100% renewable feedstock (castor oil).</p> <p>Chemical: Generally good resistance to oil products, petrol, fatty substances, lubricants and solvents such as alcohol, ketones, esters and ether. Limited/poor resistance to many acids, strong bases, oxidizing agents and chlorine-based products <i>Please see separate chemical resistance chart for details</i></p> <p>Pressure: Excellent resistance</p> <p>UV- &amp; weather: Excellent resistance</p> <p>Working temperature: -40°C to +100°C</p> <p>Flame resistance: V2 (UL 94)</p> <p>Surface hardness: Shore D 72</p> <p>Flexural modulus: 1.000 MPa</p> <p>Moisture absorption: &lt; 1,9 %</p> <p>Remarks: -</p>
<b>Standard/Norms</b>	Approved for food contact according to FDA 21 CFR 177.1500 (USA)
<b>Compliance</b>	<ul style="list-style-type: none"> <li>- EC Regulation 1907/2006 (REACH)</li> <li>- Directive 2011/65/EU (ROHS)</li> <li>- Do not contain dual use additives</li> </ul>
<b>Approval</b>	<p>Fulfills and is in accordance with the relevant requirements in:</p> <ul style="list-style-type: none"> <li>- EU Commission Regulation no. 2023/2006 (<i>GMP</i>)</li> <li>- EU Commission Regulation no. 1935/2004 (<i>Items for food contact</i>)</li> <li>- EU Commission Regulation no. 10/2011 (<i>Plastic materials and items for food contact</i>)</li> <li>- FDA (USA) Regulation 21 CFR 177.1500 "NYLON RESINS"</li> </ul> <p><i>Please request declaration of conformity for further information and specifications on dimensions</i></p>

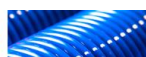
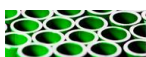


## TECHNICAL DATASHEET

<b>Color</b>	Standard: Natural Specialties: Colours approved for food contact can be used, but independent analysis necessary by external institute and at an additional charge
<b>Print</b>	Black printing at an additional charge
<b>Packaging</b>	Free coils, coils in carton boxes or plastic bags and on spools <i>Please see separate data sheet for packaging options</i>
<b>Data overview</b>	Specification of tolerances, bending radius and working pressure for standard dimensions  Tolerance: Produced in accordance with DIN 16982 Bending radius: 90° bending with min. deformation at 20°C Working pressure: Theoretical value based on hoop stress data and a safety factor of 2,5 of burst pressure. Working pressure is stated for air only.

Dimension mm	Tolerance mm		Weight g/m	Bending mm	Working pressure bar				
	OD	ID			20°C	30°C	40°C	60°C	80°C
4,0/2,0	+/-0,1	+/-0,1	9,90	30	109	91	66	59	48
4,0/2,5	+/-0,1	+/-0,1	8,04	35	76	63	46	41	33
4,0/2,7	+/-0,1	+/-0,1	7,19	40	64	53	38	34	28
5,0/2,0	+/-0,1	+/-0,1	17,33	40	140	116	84	75	61
5,0/3,0	+/-0,1	+/-0,1	13,20	45	82	68	49	44	36
5,0/3,15	+/-0,1	+/-0,1	12,44	45	74	62	45	40	33
6,0/3,0	+/-0,1	+/-0,1	22,28	35	109	90	65	58	48
6,0/4,0	+/-0,1	+/-0,1	16,50	35	66	54	40	35	29
6,0/4,5	+/-0,1	+/-0,1	12,99	40	47	39	28	25	21
7,0/5,0	+/-0,1	+/-0,1	19,80	50	55	45	33	29	24
8,0/5,0	+/-0,1	+/-0,1	32,18	50	76	63	46	41	33
8,0/5,5	+/-0,1	+/-0,1	27,84	60	61	50	37	33	27
8,0/6,0	+/-0,1	+/-0,1	23,10	60	47	39	28	25	21
9,0/7,0	+/-0,1	+/-0,1	26,40	-	41	34	25	22	18
10,0/6,0	+/-0,1	+/-0,1	52,80	80	82	68	49	44	36
10,0/7,0	+/-0,1	+/-0,1	42,08	85	58	48	35	31	24
10,0/7,5	+/-0,1	+/-0,1	36,09	85	47	39	28	25	21
10,0/8,0	+/-0,1	+/-0,1	29,70	90	36	30	22	20	16
12,0/8,0	+/-0,1	+/-0,1	66,00	120	66	54	40	35	29
12,0/9,0	+/-0,1	+/-0,1	51,98	125	47	39	28	25	21
12,0/9,5	+/-0,1	+/-0,1	44,34	-	38	32	23	20	17
12,0/10,0	+/-0,1	+/-0,1	36,30	135	30	25	18	16	13
14,0/12,0	+/-0,1	+/-0,1	42,90	140	25	21	15	14	11
16,0/12,0	+/-0,15	+/-0,15	92,40	130	47	39	28	25	21
16,0/13,0	+/-0,15	+/-0,15	71,78	140	34	28	20	18	15
18,0/16,0	+/-0,15	+/-0,15	56,10	-	19	16	12	10	8
20,0/16,0	+/-0,15	+/-0,15	118,80	-	36	30	22	20	16
20,0/18,0	+/-0,15	+/-0,15	62,70	-	17	14	10	9	8
22,0/18,0	+/-0,15	+/-0,15	132,00	-	33	27	20	18	14
24,0/20,0	+/-0,15	+/-0,15	145,20	-	30	25	18	16	13
26,0/22,0	+/-0,15	+/-0,15	158,40	-	27	23	16	15	12

**Origin** Products are “Made in Denmark” and raw material for the products originates from EU or EFTA countries



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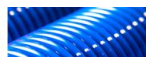
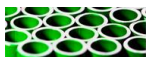
## TECHNICAL DATASHEET

### Documentation

Specific documentation is available for:

- chemical resistance
- permeability
- antistatic classification
- standard tolerances
- packaging
- regulatory status

*The information contained in this document is based on information obtain from raw material suppliers, data selected from the literature and specific testing, but shall in no event be held to constitute or imply any warranty, undertaking, express or implied commitment from our part. Our formal specifications define the limit of our commitment. No liability whatsoever can be accepted by Knudsen Extrusion ApS regarding the handling or use of the product or products concerned which must in all cases be employed in accordance with all relevant laws and/or regulations in force in the country or countries concerned.*



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