

CO/NY Series – Adhesion to PA

TYPICAL APPLICATIONS:

- Handles (handles for hand tools and power tools etc.)
- Electric and electronic components
- seals
- Over moulded housings
- Design and functional elements
- In the automotive industry (air inlet piping, cowl, stop button, door sill etc.)

Good flow characteristics
Excellent adhesion even with soft compounds
Good weather resistance²

CO/NY Series – Adhesion to PA, natural

	Colour	Hardness DIN 53505 / ISO 868 Sh A	Density DIN EN ISO 1183-1:2004 g/cm ³	Tensile strength ³ DIN 53504 / ISO 37 N/mm ²	Elongation at break ³ DIN 53504 / ISO 37 %	Tear resistance ISO 34-1 method B (b) (Graves) N/mm	Adhesion to PA 6 ^{1,2} acc. to VDI 2019 N/mm	Adhesion to PA 6,6 ^{1,2} acc. to VDI 2019 N/mm	Compression Set ISO 815 %		
									72h/ 23°C	22h/ 70°C	22h/ 100°C
TC4NYN	natural	40	1.15	2.0	480.0	10.0	2.50 (A)	3.00 (A)	17.0	65.0	81.0
TC5NYN	natural	50	1.15	2.4	450.0	12.0	3.40 (B)	3.10 (D)	20.0	65.0	80.0
TC6NYN	natural	60	1.15	2.7	400.0	15.0	3.50 (C)	3.60 (D)	22.0	65.0	83.0
TC7NYN	natural	70	1.15	3.2	350.0	17.0	3.60 (D)	4.00 (D)	24.0	68.0	85.0
TC8NYN	natural	80	1.15	4.2	350.0	21.0	4.50 (C)	5.00 (D)	24.0	68.0	85.0
TC9NYN	natural	90	1.15	5.2	300.0	25.0	4.20 (B)	5.20 (C)	36.0	75.0	90.0

¹ The adhesion quality is very much depending on the mold design, product geometry and the processing parameters. KRAIBURG TPE would be pleased to assist.

² PA 6 – Ultramid B3WG6 30%GF, PA 6,6 - Ultramid A3EG7 35%GF

³ Deviating from ISO 37 standard, test piece S2 is tested with a traverse speed of 200 mm/min.

This datasheet is an extract of the KRAIBURG TPE program. Please contact KRAIBURG TPE to select the compound suitable for your requirements.

Remark:

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CO/NY Series – Adhesion to PA

CO/NY Series – Adhesion to PA, black

	Colour	Hardness DIN 53505 / ISO 868 Sh A	Density DIN EN ISO 1183-1:2004 g/cm ³	Tensile strength ³ DIN 53504 / ISO 37 N/mm ²	Elongation at break ³ DIN 53504 / ISO 37 %	Tear resistance ISO 34-1 method B (b) (Graves) N/mm	Adhesion to PA 6 ^{1,2} acc. to VDI 2019 N/mm	Adhesion to PA 6,6 ^{1,2} acc. to VDI 2019 N/mm	Compression Set ISO 815 %		
									72h/ 23°C	22h/ 70°C	22h/ 100°C
TC4NYZ	black	40	1.15	2.0	480.0	10.0	2.50 (B)	3.00 (A)	17.0	65.0	81.0
TC5NYZ	black	50	1.15	2.4	450.0	12.0	3.40 (B)	3.10 (D)	20.0	65.0	80.0
TC6NYZ	black	60	1.15	2.7	400.0	15.0	3.50 (C)	3.60 (D)	22.0	65.0	83.0
TC7NYZ	black	70	1.15	3.2	350.0	17.0	3.60 (D)	4.00 (D)	24.0	68.0	85.0
TC8NYZ	black	80	1.15	4.2	350.0	21.0	4.50 (C)	5.00 (D)	24.0	68.0	85.0
TC9NYZ	black	90	1.15	5.2	300.0	25.0	4.20 (B)	5.20 (C)	36.0	75.0	90.0

¹ The adhesion quality is very much depending on the mold design, product geometry and the processing parameters. KRAIBURG TPE would be pleased to assist.

² PA 6 – Ultramid B3WG6 30%GF, PA 6,6 - Ultramid A3EG7 35%GF

³ Deviating from ISO 37 standard, test piece S2 is tested with a traverse speed of 200 mm/min.

⁴ Tested under artificial weathering according to DIN EN ISO 4892-2. The black compounds are excellent weather resistant under radiant energy up to 4000 MJ/m² (equal to 2 years outdoor expose in central Europe).

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CO/NY Series – Adhesion to PA

MATERIAL ADVANTAGES:

- excellent adhesion in coinjection moulding (depending on geometry and processing)
- insert moulding is possible
- natural compounds easy to colour
- tactile surface (soft touch)
- good flow characteristics
- wide hardness range 40 – 90 Sh A
- UL 94 HB listed (Pending)

PROCESSING:

- processing on 2K injection moulding machines
- mould temperature: 40°C – 60°C
- low back pressure
- high shear force (small injection point, high injection rate etc) is beneficial for the flow behaviour
- pre drying for 2 – 4 h with 60°C - 80°C is recommended

Processing temperature:

- adhesion to PA 6
240°C – 270°C (max 280°C)
- adhesion to PA 66 and polyarylamide
255°C – 280°C (max 290°C)
- high injection speed and pressure

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Description peel test (according to "VDI 2019" standard)

A new overmoulding test specimen has been developed that matches the wide range of TPEs and hard products best possible. With this test specimen the peel resistance is tested mounted in a sledge with deflection roller. Using that sledge a standard tensile testing machine can be used and the specimen can be easily clamped. The peel resistance W_s [N/mm] is calculated by dividing the peel force by the width of the TPE:

Scheme of test installation $W_s = F / b$

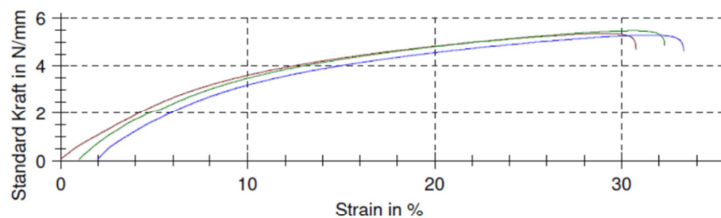
F = peel force according to DIN ISO 6133 standard
 b = width of the TPE (20 mm)

The described report for TPE/thermoplastic combination contains beside the value for peel resistance and some boundary conditions a staggered classification for the fracture appearance.

Test piece dimensions: Thermoplastic part: 150 x 50 x 2 mm, TPE part: 210 x 20 x 2 mm.

H/C : PA6-GF Ultramid B3WG6 Age of H/C : Fresh Molding Temp : 200~250°C

Series Graphs:



Results:

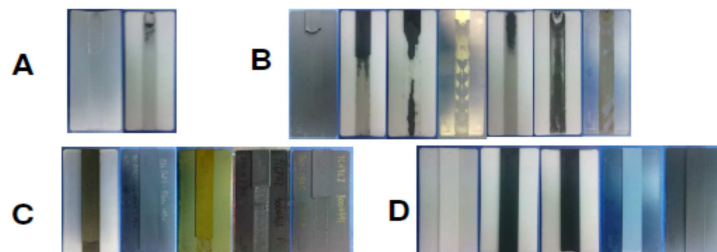
Statistics:

Nr	Material	Lot.-No.	b0 mm	Average N/mm
1	TC6NYZ_PA6-GF_D	3005698	20.00	3.90
2	TC6NYZ_PA6-GF_D	3005698	20.00	4.01
3	TC6NYZ_PA6-GF_D	3005698	20.00	3.89

Sub-series #1 n = 3	Sub-series	Lot.-No.	Average N/mm
med	1	3005698	3.90
x	1	3005698	3.93

Peeling Pattern Indicator:

- A : 0% residue of TPE left on thermoplastic hard component
- B : 1...50% residue of TPE left on the thermoplastic hard component
- C : 51...99% residue of TPE left on the thermoplastic hard component
- D : TPE tear off from the beginning
- E : Thermoplastic hard component on TPE



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