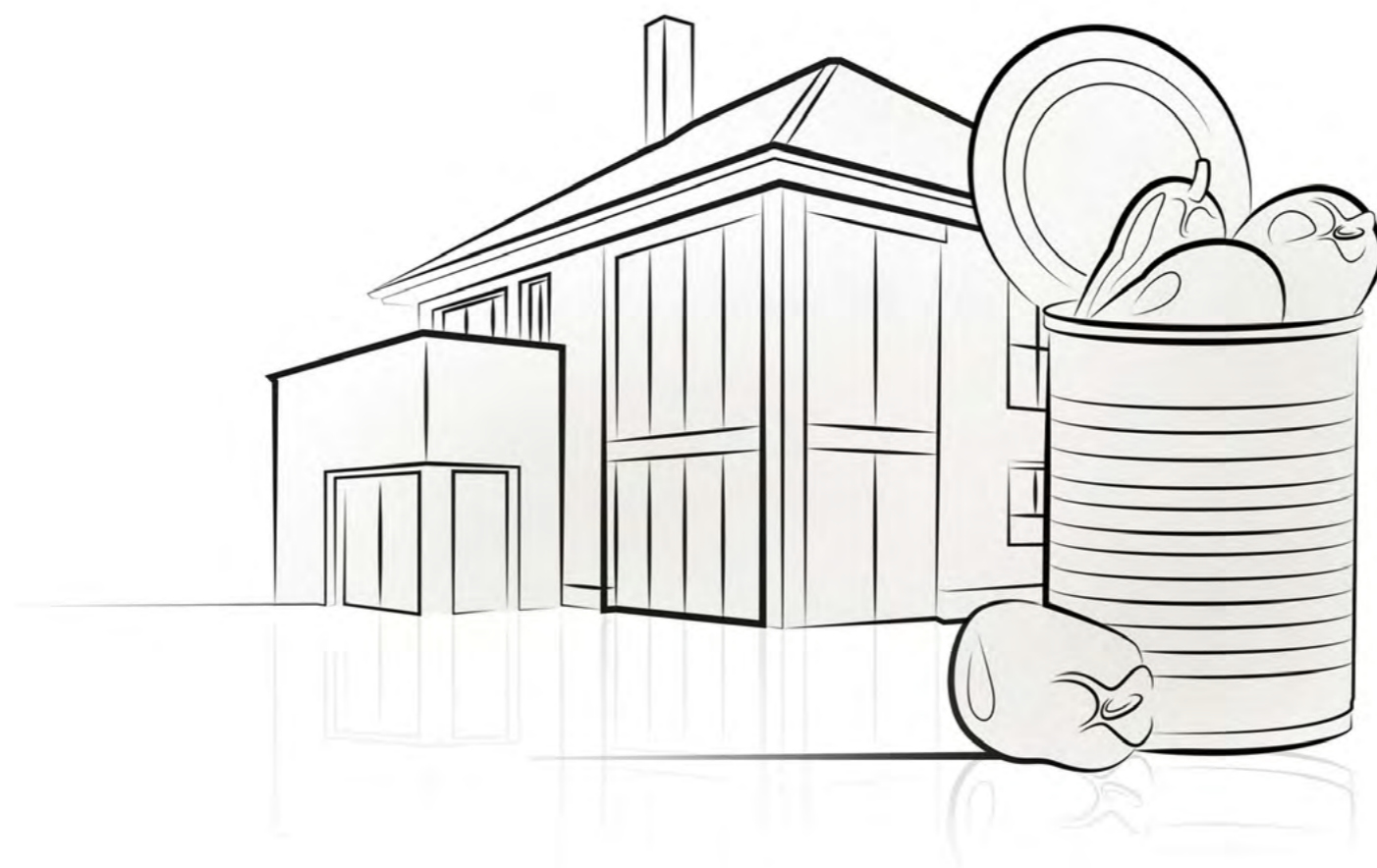
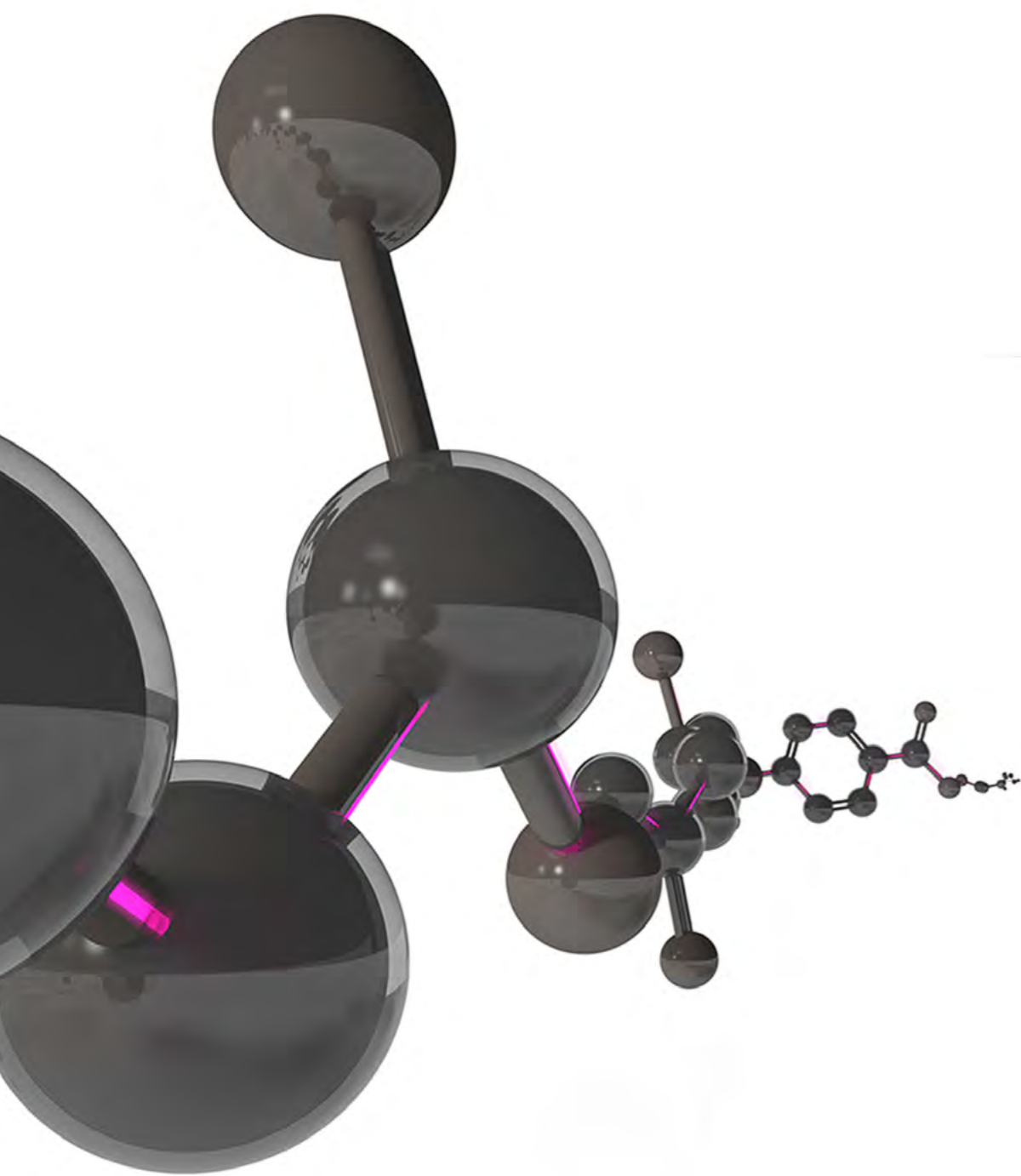


Discover our world of
**polyesters for the
coatings industry.**



DYNAPO[®]



With more than 40 years of experience in polyester technology, we are working on smart solutions for a sustainable future.

DYNAPOL® stands for high quality polyesters for the coatings industry.

Our product portfolio contains high and medium molecular weight co-polyesters ideally suited for the packaging and coil coating industries.

DYNAPOL® L: Saturated, high molecular hydroxylated co-polyesters

DYNAPOL® LH: Saturated, medium molecular hydroxylated co-polyesters in solution

DYNAPOL® UB: Systems made from saturated, hydroxylated polyester resins and blocked cycloaliphatic polyisocyanate crosslinkers

DYNAPOL® LS: Highly flexible saturated co-polyesters

DYNAPOL® Catalysts: Specifically designed for pre-coated metal applications

We welcome you to discover our world of polyesters!

**DYNAPOL®
CO-POLYESTERS**

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| 6 - 7 | DYNAPOL® FOR FLEXIBLE PACKAGING COATINGS Co-polyesters used as binders or co-binders for food and non-food flexible packaging applications. |
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DYNAPOL® FOR CAN COATINGS

DYNAPOL® saturated co-polyesters by Evonik have been used for many years as binders in food packaging applications. Our specially designed paint binders are the premier choice for every paint layer on pre-coated metal containers for food and non-food applications. They combine superior protection properties with high flexibility, adhesion, film hardness and scratch resistance for the manufacturing, processing and storage of cans for a broad variety of filling goods.

DYNAPOL® polyesters offer excellent bisphenol A non intent (BPA-NI) solutions for packaging coatings, with many grades also being in compliance with common food contact legislation.

APPLICATION AREAS

- Food contact coatings for can interior
- Exterior base coats, printing inks and overprint varnishes for cans, caps and closures
- Decorative enamels for tubes and aerosol cans
- Adhesion promoter for caps and closures

PROPERTIES

- BPA-NI and no use of PVC
- Superior chemical resistance
- Paint films without off-taste nor smell
- Resistance to yellowing even after overbaking
- Good reactivity with a variety of crosslinkers



DYNAPOL® FOR FLEXIBLE PACKAGING COATINGS

DYNAPOL® co-polyesters are used in a variety of flexible packaging formulations to improve printability, adhesion (interlayer), flexibility and hardness. Especially the high molecular weight DYNAPOL® L grades are suitable for flexible packaging coatings.

Properties like molecular weight, softening point, glass transition temperature and balance between flexibility and hardness can be tailored in a wide range to meet special customer requirements.

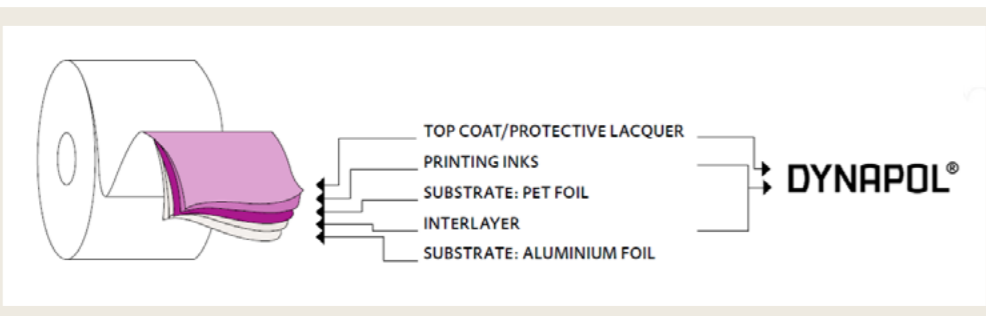
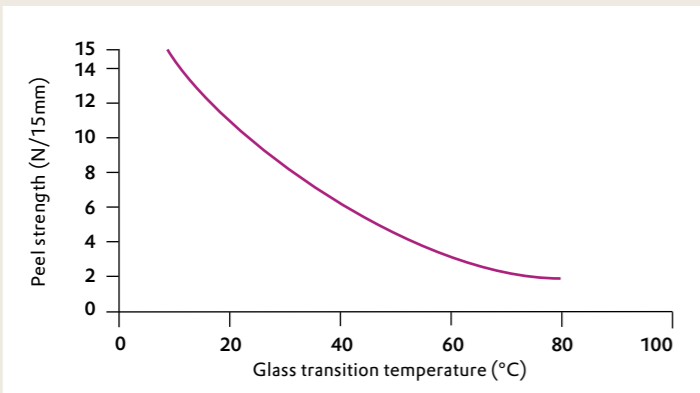
APPLICATION AREAS

- Foil primer
- Pre-print primer
- Printing ink
- Overprint varnish
- Foil coatings
- Heat-seal lacquers
- Interlayer

PROPERTIES

- BPA-NI and no use of PVC
- Excellent adhesion to aluminum foil
- Excellent adhesion to PET-, PC- and PA-film
- Outstanding flexibility

ILLUSTRATION OF PEEL STRENGTH



DYNAPOL® FOR COIL COATINGS

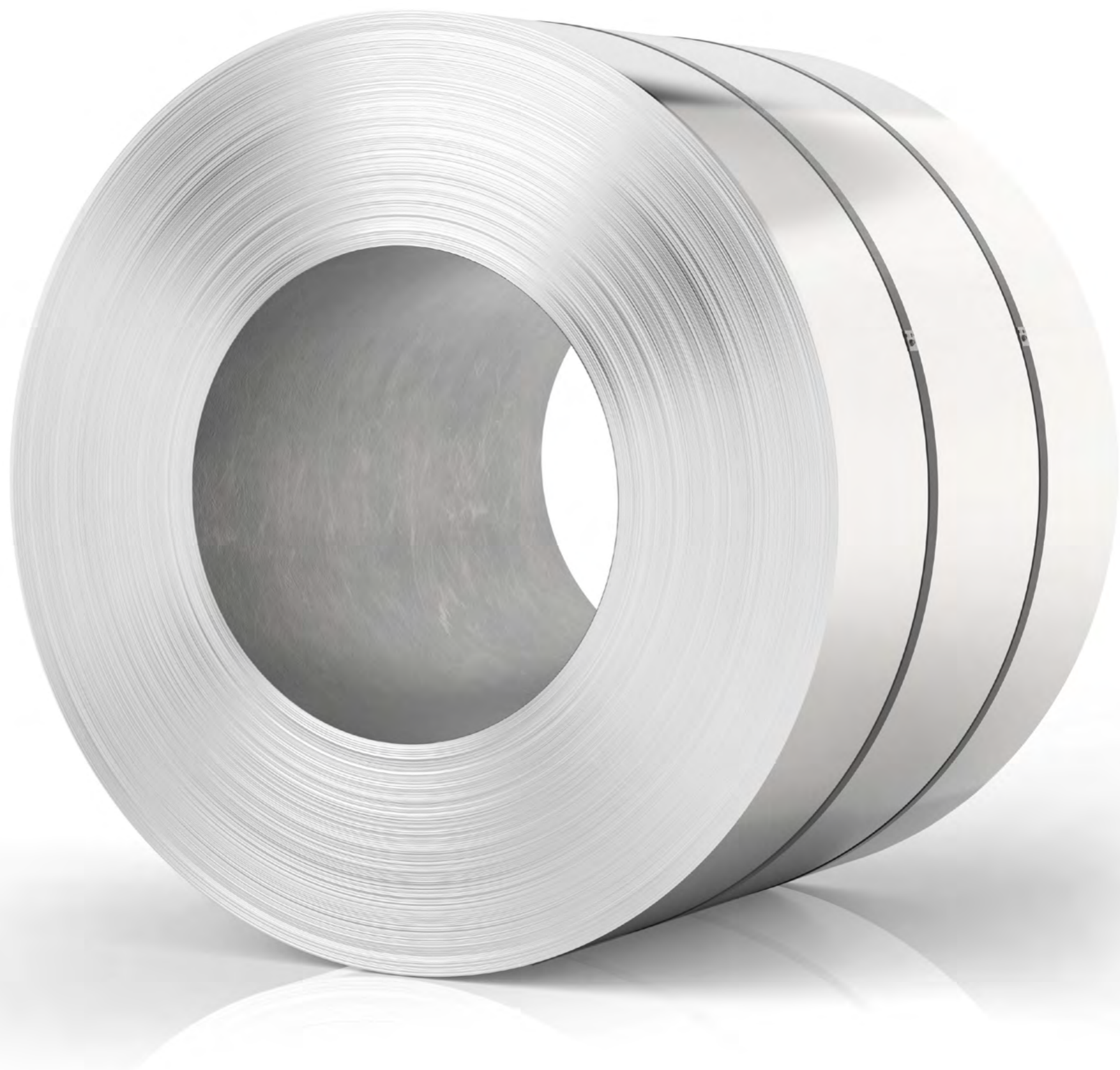
Our paint binders are designed to meet different requirements of the industry. The outstanding performance of our portfolio is the foundation for safety and reliability when used for wall claddings, roofing, garage doors, blinds, window frames, domestic appliance housings, ceiling panels, air conditioners, pre-coated automotive parts and other interior and exterior pre-coated metal applications.

APPLICATION AREAS

- Exterior and interior architecture
- Appliance finishing
- Traffic and transportation uses
- Top coats and clear coats
- Back coats
- Primer for galvanized steel or aluminum
- Hot laminating adhesives for foils and films

PROPERTIES

- Very good adhesion to aluminum, steel and galvanized steel
- Excellent flexibility and formability
- Good to excellent weathering resistance
- Good processability (reactivity, solids content, overbake resistance)
- Wide range of grades with special properties for different applications



CONTINUAL INNOVATION AND DEVELOPMENT

Methods of determining characteristic values

Glass transition temperature

Determination by DSC method (differential scanning calorimetry)

Molecular mass

Values calculated based on contents of hydroxyl- and carboxyl endgroups

Viscosity number

DIN 53 728. The procedure is to dissolve 0.5 g of the substance in 100 ml of solvent, consisting of 50 parts by weight of phenol and 50 p.b.w. of 1,2-dichlorobenzene, and to measure the efflux time of this solution in an Ubbelohde capillary viscometer at a temperature of 25 °C.

The viscosity number is calculated with the following formula:

$$VZ = 100 \frac{t_1 - t_2}{t_2} \text{ (cm}^3\text{/g)}$$

t1 = efflux time of the solution

t2 = efflux time of the solvent

OH value (hydroxyl value)

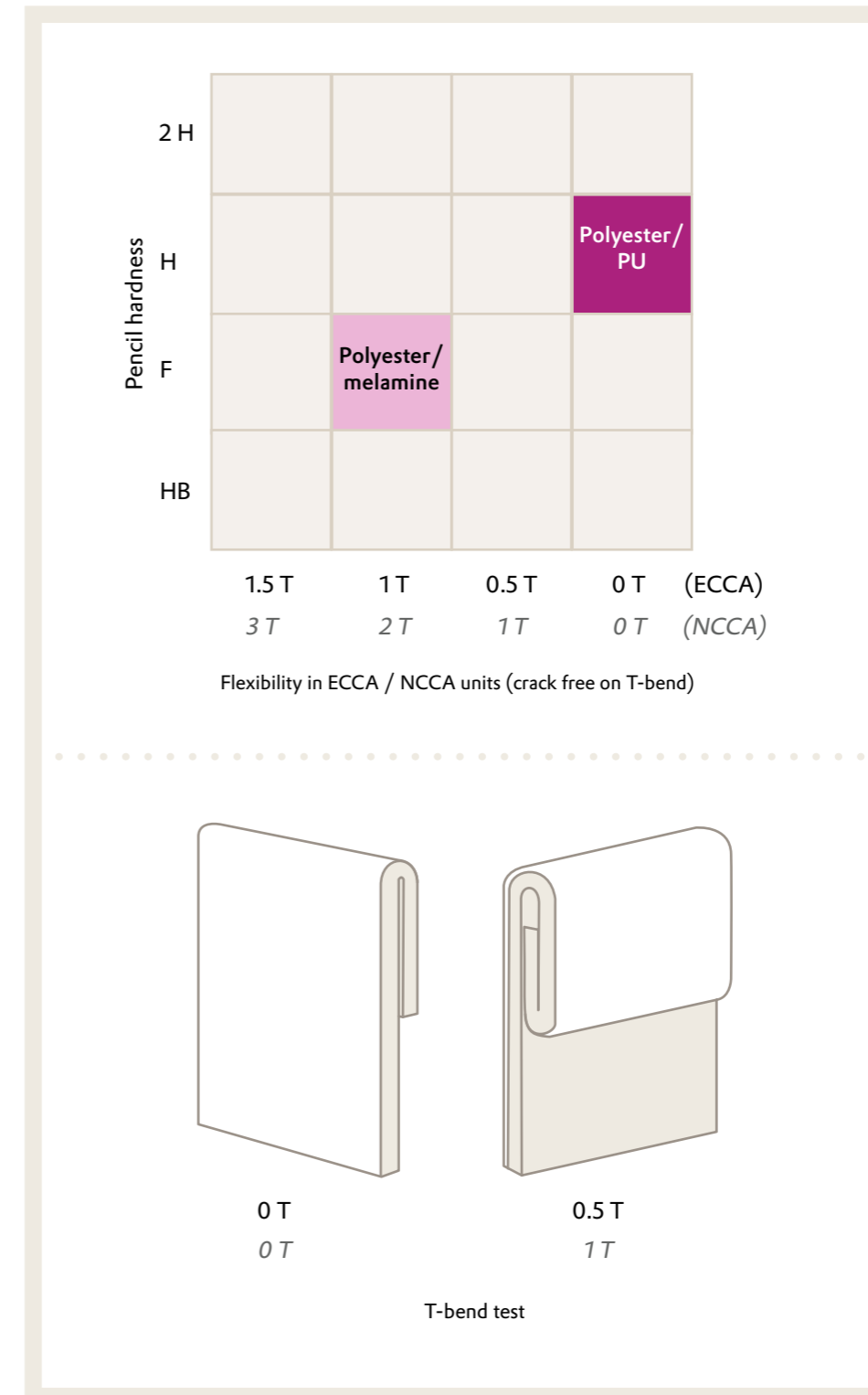
DIN EN ISO 4629-2. Approx. 3 g of polyester are dissolved in dichloromethane.

The OH groups contained in the solution are esterified at room temperature with acetic anhydride, 4,4-dimethyl amino-pyridine being used as a catalyst. Following the hydrolysis of the anhydride, the titration is made using 0.5 N methanolic KOH solution.

Acid value

DIN EN ISO 2114. Approx. 4 g of polyester are dissolved in 50 ml of dichloromethane or tetrahydrofurane. A titration is made with 0.1 N methanolic or ethanolic KOH with phenolphthalein as indicator.

Balance of hardness and flexibility polyester PU vs. polyester/melamine





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GLOBAL NETWORK**

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We design polymers.