



Drylac® Wood Product data sheet

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SERIES 530

HIGHLY REACTIVE POWDER COATING FOR THE DECORATIVE AND FUNCTIONAL COATING OF MDF AND OTHER WOOD MATERIALS

Typical applications

Industrial piece coating of MDF (medium density fibre board) and other heat sensitive wood and composite materials

Technical Data

Specific Gravity 1.2-1.7 g/cm³
(ISO 8230-2) depending on pigmentation

Theoretical Coverage at 60 µm coating thickness
9.8-13.8 m²/kg depending on density, see guideline no. 1072

Storage Stability 6 months from date of delivery under dry conditions at no more than 25 °C, avoid direct and extended heat exposure.

Storage stability of blanket orders manufactured customer specific and stored over a longer period of time according to storage agreements is calculated starting from the production date.

Solid content 100%

Packaging in 20 kg cartons

Features

- highly reactive
- good chemical resistance
- very good mechanical properties
- good storage stability
- interior applications

Finish | Colors

- micro texture, matte and semi-glossy
- smooth design, matte and semi-glossy
- metallic-effects

On special demand fine textures, rough textures and orange peel surfaces are available.

Surface textures depend on powder coating formulation and may be influenced slightly by oven temperature settings.

Micro textures in limited colours are available from stock from 20 kg. Custom colours after inquiry.



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Pre-treatment

All surfaces to be coated should be free of dust and grease. The substrates should be pre-treated in an appropriate way to achieve optimum surface texture and adhesion. MDF and other wood materials should be carefully routed and sanded and possibly thermo smoothed. Generally the pre-treatment has to be individually checked in suitability tests.

MDF substrates should be electrical conductive to a certain degree allowing electrostatic powder application. Usually an electrical surface resistance of $10^{10} - 10^{11} \Omega/\square$ will be sufficient. In case the substrate material is not sufficient conductive in many cases the coatability can be adjusted by a pre-heat process. Another alternative is an electrical conductive liquid primer coat such as TIGER Aqualac 510/70001 or 510/70002.

TIGER Drylac® Wood Dual System

For achieving optimum and crack-free MDF coating qualities the TIGER Drylac® Wood Dual System is recommended. The TIGER Drylac® Wood Dual System is defined by a primer powder coating of Series 512 and a top powder coating of Series 530. Both powder coatings are chemically matched to each other achieving a very good inter coat adhesion.

The following coating system is advised:

- 1st Coat – Primer Series 512: 90-130 µm
- 2nd Coat – Top Coat Series 530: 50-90 µm

Depending on production line design it has to be defined case by case how the curing of Series 512 and overcoating by Series 530 has to be done exactly achieving blister- and crack-free coating qualities. Generally it is advantageous not fully curing Series 512 before overcoating with Series 530. In some cases a yellowing of Series 512 will be observed but will not compromise the overall resulting coating quality.

Above testing surface qualities according to furniture standards it is advised performing additional moisture and aging tests on coated substrates containing drill holes for construction.

Jigging

The MDF is electrically grounded by the hook. It is important that the electrical contact between hook and MDF is well controlled.

Powder application

Corona guns with electronic control are used most commonly. The powder application should be performed using automatic guns and substrate scanning systems. The applied coating thickness should be controlled within small tolerances.

Safety

Safety instruction can be found in the material safety data sheet.

Curing conditions

Depending on process and oven design different curing times may be reached. The here mentioned values are indicators only and have to be verified on the actual coating line. Due to the poor thermal conductivity of MDF curing by IR ovens will lead to best results. The temperature values given here indicate the temperatures on the surface of the MDF or the actual temperature of the powder coating layer itself (object temperature).

minimum 5 min dwell time at 135 °C
or
minimum 3 min dwell time at 150 °C

The curing conditions have to be carefully controlled on all sides of the MDF including the edges as resulting surface quality depends strongly on the degree of cure. Insufficiently cured powder coatings are brittle and tend to crack. Exceptional risk of cracks exists on the edges and routings especially during moisture treatment and swelling of the wood materials. Such type of cracks may sometimes occur after several months of use. For measurement of the degree of cure chemical resistance tests are not fully suitable and only of limited use. Above testing surface qualities according to furniture standards it is advised performing additional moisture and aging tests on coated substrates containing drill holes for construction. Because of the manifold of wood materials and various oven technologies the detailed curing conditions have to be exactly defined case by case.



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MDF Quality

MDF qualities have to be tested for suitability for the powder coating process. Properties such as thermal stability, density, density profile, internal bond strength, moisture content, type of binder and type of wood fibre play a crucial role. These properties have to be adjusted to the curing technology. Excessive thermal stress of the

MDF during the production the coating process may cause edge cracking. Thermally damaged MDF may show edges cracking even several months after production. Gas-catalytic IR ovens have been successfully used for curing 3-D powder coatings on face and edges of the MDF. Pure convection heat ovens did not prove suitable for MDF powder coating.

Test results

MDF substrates coated with the TIGER Drylac® Wood system and cured in IR-ovens were tested

Test	Standard	TIGER Drylac® Wood Dual	TIGER Drylac® Wood Single Coat
Coating Thickness Series 512 Primer	DIN 50986 / ISO 2808	90-130 µm	-
Coating Thickness Series 530 Top-coat	DIN 50986 / ISO 2808	50-90 µm	90-130 µm
Gloss - 60°	ISO 2813	20-80	20-80
Adhesion ⁽¹⁾ 2 mm cutting distance	ISO 2409	Class 0	Class 0
Chemical Resistance	DIN 68861-1	1B	1B
Abrasion Resistance ⁽¹⁾	DIN 68861-2	2 A-B	2 A-B
Scratch Resistance ⁽¹⁾	DIN 68861-4	4 B-C	4 B-C
Dry Heat ⁽¹⁾	EN 12722/DIN 68861-7	7 A-B	7 A-B
Wet Heat ⁽¹⁾	EN 12721/DIN 68861-8	8 A-B	8 A-B
Temperature-Moisture Climate Cycle Test	ANS/KCMA A161.1, Section 9-2 ⁽³⁾	No changes	Edge cracking and Blistering possible
	AMK-Richtlinie ⁽⁴⁾		
Light Fastness	prEN 15187	> 6	> 6
Water Swelling test ⁽²⁾ 19 mm MDF	TIGER	6-24 h	0-24 h

⁽¹⁾ Depending on color and surface texture

⁽²⁾ Developed on in-house tests performed by Ledro Powder Coatings, Belgium

⁽³⁾ American National Standard/Kitchen Cabinet Manufacturer Association, USA

⁽⁴⁾ Arbeitskreis Moderne Küche, Germany



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The Technical Information Sheets and the Terms of Delivery and Payment each in their latest version, available as a download at www.tiger-coatings.com, form an integral part of this Product Data Sheet.

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