



Merginat UV T

PRODUCT INFORMATION

Product Description

Merginat UV T is prepared of a modified vegetable oil for curing by UV-radiation. This low viscous product does not contain acrylates and is free of water and VOCs.

Typical Parameters

Acid Value [mg KOH/g]	Max. 1
Viscosity at 25°C[mPa*s]	150 - 300
Biobased carbon content ¹⁾ [%]	71

UV-Test	Wort
Colour [Gardner]	Max. 3

¹⁾ Measure of the amount of biomass-derived carbon in a product compared to its total carbon content

Application

Merginat UV T is used as binding agent for radiation curing coatings, lacquers, adhesives and printing inks.

Optimum film properties are obtained if the binding agent is warmed up before radiation treatment. Suitable for this is a preheating in a supply vessel, IR-radiator or other sources of heat ahead of the UV-radiator. At the beginning of radiation treatment the binding agent should have a temperature of maximum 50 °C and possibly not less than 30 °C. Under these conditions Merginat UV T can be hardened to tack-free films at belt speed of 15 until 20 m/min and more depending on radiation-capacity and number of radiators.

As well preheating of the material to be UV-cured can be necessary for adjustment of viscosity with respect to processing conditions. Also in this case a temperature of 50 °C should not be exceeded. In contrast to other UV-curing binding agents a post-hardening by heating should be avoided for reasons of yellowing when using Merginat UV T. When keeping the above mentioned instructions already about 80 to 90 % of final film hardness is attained after twelve hours. The final film hardness is reached after about ten days. The wet film thickness should not exceed 100 µm.

For UV-curing preferably Hg-radiators resp. when using UV-lasers mainly XeCl-lasers are used. High performance UV-LED-Lamps are preferred.

Examples for application (directive data)

UV-source	Capacity W/cm	Radiation intensity W/cm ²	Temperature of binding agent °C	Number of radiators	Belt-speed m/min
Hg-medium pressure	120	60 -80	45 - 50	1	5 - 7
Hg-medium pressure	120	60 - 80	45 - 50	2	7 - 10
Hg-medium pressure	120	60 - 80	45 - 50	3	8 - 15
Hg-medium pressure	120	60 - 80	45 - 50	4	16 - 22

The radiation intensity needed depends on the substrate to be coated. The given data refer to beech wood. For attaining for instance same results on glass 45 - 55 W/cm² are sufficient. The Pendulum hardness (König) after three days ranges from 80 until 110 sec at relative air humidity of about 55 to 60 per cent.



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Processing and properties of the hardened products based on Merginat UV T can be adjusted by the operator in the desired manner by using additives like waxes, wetting-, flow- and mattening-agents. For optimization of the resistance to abrasion waxes can be incorporated in quantities of one to four per cent. The compatibility with other UV products, e.g. acrylates, on UV processing machines has to be tested.

Properties

In contrast to many other UV-curing binding agents no inhibiting by oxygen occurs with Merginat UV T during hardening. Therefore a nitrogen or carbon dioxide barrier is not necessary. By radiation Merginat UV T hardens within short time, giving flexible and scratch resistant films. Merginat UV T shows good adhesion on wood, paper, leather, cork and foils (PVC, PE, polyester). Also other materials like glass or aluminium can be coated with Merginat UV T.

Without additional additives high glossy films result. A remarkable feature of these films is their good chemical resistance. The test according to DIN 68861 is fulfilled in the strain grade 1A.

In the formulation the addition of water and components acting basic should be avoided.

Storage advices

Merginat UV T should be stored in the dark and at moderate temperatures (not below 10 °C). Under the influence of sunlight polymerisation slowly will occur at the irradiated surface. A longer lasting storage above 40 °C slowly leads to gelation of the product.

After storage Merginat UV T must be warmed up to 45 until 50 °C and homogenized before processing. Afterwards the binding agent can be worked up during a period of five to seven days (at a storage temperature of about 25 °C) without warming up and homogenizing once more.

Mineral acids destabilize the product and are to be avoided. Alkaline agents are incompatible with the binding agent and deactivate the product. By that the through hardening possibly can be slowed down or totally stopped.

Water and atmospheric humidity of more than 60 until 70 % relative moisture should be avoided. When required the influence of atmospheric humidity can be reduced by IR-heating, which is installed directly ahead of the hardening equipment.

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