

Title (en)  
Curtain coating device

Title (de)  
Vorhang-Auftragsvorrichtung

Title (fr)  
Dispositif de revêtement par rideau

Publication  
**EP 1208917 B1 20080227 (DE)**

Application  
**EP 01124923 A 20011019**

Priority  
DE 10057729 A 20001122

Abstract (en)

[origin: DE10057729A1] The coating station to apply at least two coating layers to a moving paper or cardboard web substrate (U), using a liquid or paste coating medium, has two applicators (16,22) with jets (16a,22a) to give coating curtains (28,30) which fall on to the surface (14a) of the moving web (14). The gap (D) between the application points, where the coating curtains strike the web, is 100-500 mm. The web coating applicator, using two coating curtains, applies the first layer (20) with a coating medium (18) with a lower water retention than the coating medium (24) for the second layer (26). The coating for the first layer has a density at least 10% higher than the coating for the second layer, and the first coating has a higher viscosity than the second coating. The coatings are of a watery solution or dispersion with solid particles of mineral pigments or microscopic plastics particles e.g. plastics pigments or ink-filled micro-capsules, or starch. The coatings have a solid content of 5-70 wt.%. The viscosity of the coatings, by Brookfield at 100 rpm, is 10-2000 mPas. The first coating is a barrier layer, e.g. of a starch solution with a solid content of 2-30 wt.% with a viscosity by Brookfield at 100 rpm of 10-150 mPas, and a density of 0.8-1.1 g/cm<sup>3</sup>. The medium is applied to give the first layer a thickness of 2-20 ml/m<sup>2</sup> on the substrate. The second coating layer is a dispersion of micro-capsules, filled with ink, with a capsule diameter of 5-12 µm. The second coating medium has a solid content of 20-50 wt.% and a viscosity, by Brookfield at 100 rpm, of 100-400 mPas. The second coating medium is applied with a layer thickness of 5-30 ml/m<sup>2</sup> on the substrate. At least one of the coating media is applied in ready dosages on to the moving substrate. A unit (42) to generate an underpressure is in the zone (44) between the applicators. At least one guide (32,34,36) is in the falling paths of the coating curtains, to direct the curtains over their whole width for at least a part of their falling path. The coatings fall in a curtain over a height of 40-400 mm. The coatings are applied to the substrate at a rate of 4-100 l/min. for each meter of web width. The web movement speed is up to 3000 m/min. for graphic papers, and at least 200 m/min. for cardboard. Graphic papers for coating have a paper weight of 30-150 g/m<sup>2</sup>, and cardboard for coating has a weight of 150-1000 g/m<sup>2</sup>.

IPC 8 full level  
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