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Oriented Strand Board (OSB)

OSB Manufacturer Reduces pMDI Adhesive Costs with Soy-based Co-adhesive System

Soyad™ SD4420 Co-adhesive Technology

Customer Overview:

- Segment: Structural Panels
- Product(s): OSB Type 3
- Location: Western Europe

Application Overview:

- Type: Wood adhesive
- Equipment: World-class, continuous OSB production line with spinning atomization disk resin dosing system
- Capacity: 450,000 m3 per year

Existing Treatment:

- 3.5% pMDI adhesive
- Release agent

Problem Summary:

This OSB producer wanted to reduce its pMDI adhesive costs. The producer also was concerned about the market availability of pMDI and wanted to have the flexibility of using an alternative resin system to help augment pMDI volumes.

Customer Objectives:

- Reduce adhesive costs
- Maintain strength properties of board
- Maintain moisture swell properties
- Maintain production rates

Solenis Solution:

The Solenis team surveyed the customer's process and recommended the use of Soyad SD4420 co-adhesive technology. Soyad co-adhesives are water-based dispersions formulated with natural soy flour and proprietary ingredients and are lower cost than pMDI adhesives.

The Soyad co-adhesive was added into a spinning atomizing disk adjacent to the disk where the pMDI adhesive is dosed. 30% of the pMDI adhesive was replaced with Soyad SD4420 co-adhesive.

Bulk tanks and permanent pump systems were installed for continuous use of the Soyad co-adhesive in the process.

Customer Benefits:

- Adhesive costs were reduced by 7%.
- MOR, IB and other physical properties were maintained.
- Moisture swell only changed slightly.
- Production rates were maintained.

Conclusion:

Soyad SD4420 co-adhesive provided the customer with a lower cost adhesive system, enabling them to be more competitive in the building products market.

	OSB-3, 12 mm Thickness		
	100% pMDI	**70% pMDI 30% Soyad**	**Units**
Internal Bond	0.35	0.33	N/mm^2
MOR (MD)	24.2	25.8	N/mm^2
MOR (CD)	15.3	16.7	N/mm^2
MOE (MD)	4250	4150	N/mm^2
MOE (CD)	2150	2270	N/mm^2
Swell (24 Hour)	14.2	14.8	%