

## Eco credentials - Lamination

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### Lamination film

The process of waste paper recycling often involves mixing used/old paper with water and chemicals to break it down. It's then chopped up and heated, which breaks it down further into strands of cellulose – a type of organic plant material. This resulting mixture is called pulp, or slurry. It's strained through screens, which removes any adhesive or laminate that may still be in the mixture, and is then cleaned, de-inked, bleached and mixed with water. It can be made into new recycled paper.

### Adhesives

Our laminating adhesives are water based and totally VOC free. Half (50%) of the adhesive is water, which is evaporated prior to lamination. As water is recyclable, the polymers present in the remaining 50% will not persist in the environment and will biodegrade in time.

There is also a fully compostable and biodegradable version available, which is accredited with EN13432.

Celloglas advocates the use of non-solvent-based laminating adhesive technology whenever possible and promotes the elimination of VOC emissions by the use of either VOC-free adhesives or emission-control technology.

### Cellogreen

Made predominantly from cellulose, this laminated product can be recycled as papers and boards. The film is biodegradable and compostable and has been accredited with DIN EN13432, the recognised standard for compost ability and biodegradation.

### Bio-based films (PLA films)

This is a new generation of laminating films made from renewable sources such as corn starch or sugar cane. These films grow by photosynthesis and absorb CO<sub>2</sub> from the atmosphere. The plants are then converted into polylactic acid (PLA). This PLA is extruded and becomes flexible packaging suitable for lamination. At the end of its life, the PLA is composted into CO<sub>2</sub> water and biomass and then the cycle is repeated. PLAs are also available in metallised versions.

### Oxo – Biodegradable lamination films

This is a polypropylene-based plastic produced with a salt additive that catalyses the initiation of the composting process once it has been discarded. The film undergoes a two-stage degradation process. After approximately 18 months to two years, the additive initiates the process of oxidation. This results in micro fragmentation and finally biodegradation by naturally occurring micro-organisms.

### Metallised polyester (Metpol)

As with all laminated products, the process of de-inking removes the film and metallised material from a paper or board substrate. Then the fiber in the board is recaptured and sold for secondary market pulp.

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CELLOGLAS FINISHES	RECYCLABLE	COMPOSTABLE	NO. VOCS	WATER BASED	ENERGY EFFICIENT	WASTE REDUCTION
Cellogreen lamination films	✓	✓	✓		✓	✓
BOPP lamination films	✓		✓			✓
OXO Bio lamination films	✓	✓	✓			✓
Biodegradable lamination films	✓	✓	✓			✓
Metallised Polyester (Metpol)	✓		✓		✓	✓
Lamination adhesives	✓	✓	✓			✓
UV varnishes	✓	✓	✓		✓	✓
Water-based coatings	✓	✓	✓	✓	✓	✓
Foil blocking foils	✓		✓			✓