The innovative coating technology for the graphic arts industry

TerraCross successfully brings together two technologies. With this crossing it has become possible to combine the strength of waterbased coatings and UV coatings with each other.

While improvements in existing coating technologies have chemically come to their limits of realization so far, these limits can now be exceeded. The characteristics of the one or other technology can be used in order to overcome limitations in the area of waterbased or UV based coatings.

At first glance, water and UV do not fit and seem to be different coating technologies. For TerraCross it does not matter. With regard to their basis, these coatings are comparable to traditional waterbased coatings. They undergo physical drying by use of hot air and are dry to the touch. The full profile of characteristics comes into effect during their radiation with UV.

Waterbased and UV coatings have been applied successfully within the graphic arts industry for many decades. By the combination of UV curing and a water basis, a real breakthrough has been realized in the industry. While in other industries UV curable waterbased coatings have proven to be a leading technology, they now can be applied out of the coating unit in printing.

TerraCross represents a coating technology platform for the graphic arts industry. UV curable waterbased coatings offer a great chance to improve production processes and printing products. Cross over.

<table>
<thead>
<tr>
<th></th>
<th>TerraGloss UV coatings</th>
<th>TerraWet Waterbased coatings</th>
<th>TerraCross UV curable waterbased coatings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drying</strong></td>
<td>Chemical reaction: chain polymerisation during UV radiation</td>
<td>Physical drying: evaporation by means of hot air</td>
<td>Firstly, the coating loses water by the use of hot air. The coating is dry to the touch. It develops its complete profile of characteristics by polymerisation during UV radiation. The application of the UV radiation is temporarily flexible. It can be carried out inline or offline in a secondary process at a later date.</td>
</tr>
<tr>
<td><strong>Printing inks</strong></td>
<td>Wetting on UV/hybrid inks</td>
<td>Wetting on conventional inks</td>
<td>Wetting on conventional inks and on UV/hybrid inks</td>
</tr>
<tr>
<td><strong>Ingredients</strong></td>
<td>Acrylat oligomers, monomers, photoinitiators, additives</td>
<td>Styreneacrylate polymers, waxes, additives, water</td>
<td>Polymer-dispersions, monomers, photoinitiators, waxes, additives, water</td>
</tr>
<tr>
<td><strong>Solids</strong></td>
<td>100%</td>
<td>35%-40%</td>
<td>40%-50%</td>
</tr>
</tbody>
</table>
Waterbased coating + UV – Various areas of use

TerraCross can be applied in various ways. In order to realise all advantages of this technology, hot air dryers and UV lamps are necessary. Both drying or curing procedures are common in the market. This results, among others, in the following possibilities of use in sheet-fed offset:

- Double coater printing presses: Application of TerraCross out of the first coating unit and then hot air drying and UV radiation.
- Printing presses with one coating unit and hot air: TerraCross is applied out of the coating unit and dried by hot air. If a UV offline coating is done afterwards (e.g. for matt/gloss effects), the TerraCross coating is UV cured.

Moreover, TerraCross also enables the configuration of printing presses with totally new coating and drying unit combinations in order to make use of advantages in an even better way.

Further application areas with high potential are flexo printing, gravure printing and web offset if presses are equipped with UV lamps. The coatings are adjusted to the corresponding viscosities.

The best out of two worlds - the advantages

UV curable waterbased coatings can be used where traditional waterbased or UV coatings come to their limits.

For example with regard to the application of a UV coating on a waterbased primer. By its drying mechanism, the UV curable waterbased coating represents a superior adhesive agent for the UV high gloss coating. Used as a primer, TerraCross provides excellent adhesion characteristics, both in combination with a traditional UV coating and as a surface for foil stamping or gluing.

Another example for the successful combination of characteristics: Classical UV coatings offer high mechanical resistance. However, these cured UV coatings are brittle and less flexible than waterbased coatings. UV curable water-based coatings combine the high mechanical resistance of a UV coating with the flexibility of a waterbased coating.

Other advantages result from the corresponding application; for example excellent scratch and scuff resistance, very high water scuff resistance, low tendency to polish up, very high heat resistances as well as very high transparency.
Coated with TerraCross Matt Coating G 2/66

In co-operation with

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