ADVANTAGES

The design and handling of the DirectCure are similar to conventional UV curing. Therefore the curing of conventional coatings is possible without any configuration change. This technology guarantees simultaneously high gloss crosslinking levels and a better durability. Thus, the photoinitiator free curing is a less expensive alternative to electron beam curing. Existing lamps can be easily replaced with DirectCure. The DirectCure technology can be combined with the excimer matting IOT EXCIRAD 172 nm.

ENVIROMENTALLY FRIENDLY AND SAFE

→ No photoinitiators and solvents, therefore minimal migration levels
→ Meets the purity thresholds for food packaging according to EU-Regulation of 10/2011
→ No extensive radiation shield necessary compared to the electron beam curing

APPLICATIONS

DirectCure is ideal for products with high ecological claims:
→ Furniture
→ Flooring
→ Parks
→ Food packaging

EXCIRAD 172
SUPER MATT SURFACES
DirectCure
UV CURING WITHOUT PHOTONITIATORS
Photon Activation
ACTIVATION AND CLEANING
UV Inert
UV CURING UNDER NITROGEN

In order to test our products within your production environment and to become familiar with the system, we offer an assortment of different rental equipment with nitrogen inerting:

→ Full Service – from the first preliminary tests to production
→ Worldwide sales of standard solutions for the activation, matting and hardening of surfaces
→ Optional retrofitting of already existing production equipment with the IOT technology, or construction of a complete new system (on conveyor belt or roller)
→ Very high standard of technology due to many years of experience in conception and construction of equipment
→ Test without obligation prior to the realization in our own laboratory, thereby testing and optimization of the interaction of coating formulation, substrate, Excirad-lamps and UV dryer with your materials
→ Rental of stand-alone equipment for testing IOT components at your company

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**UV Curing Under Nitrogen**

UV curing in atmospheric air always implies presence of oxygen in the process chamber. But the oxygen inhibits the curing (polymerization) of the coating and thus reduces significantly the efficiency of the drying process. By purging the processing chambers with the inert gas nitrogen, oxygen can be almost entirely removed (down to 0.003 % / 30 ppm). UV lamps can be operated with a reduced power, while simultaneously improving the surface quality.

**Technical Specifications**

- **Wavelength**: 172 nm or 222 nm
- **Lamp power**: 5 – 25 W/cm
- **Dose rate**: Easy connection
- **Surface energy**: Protection of the products by purification and activation process with the PAC

**Advantages**

- **High speed roll-to-roll processes, straight pass**
- **Floor laminate, PVC and non-PVC floorings**
- **Furniture coverings**

**Photon Activation**

**Activation and Cleaning**

Many materials have a too low surface energy to print them or stick them together. The Photon Activation Chamber (PAC) represents the new alternative to the conventional corona or plasma treatment. With a UV+zone treatment the organic impurities, which would otherwise act as a separation layer, were removed. The specific UV radiation generates additional polar groups that lead to a sustained increase in the polar surface energy. The results are a uniform coating and an optimum adhesion.

**Advantages**

- Since this is a cold process, in which there is virtually no heat input, it is also suitable for heat sensitive materials such as plastics, and the like.
- The low penetration depth of the UV radiation prevents any damage to the deeper layers of the material.
- The effect is maintained for months because no volatile molecular fragments are formed.

**Background**

With the "Photon-Activation Chamber" bonds in polymers are broken up. They react with ozone and oxygen radicals, which are formed from the ambient air by the irradiation. In order to achieve high production speeds, as required for example in the printing industry, the oxygen content in the treatment chamber will be adjusted accordingly.

**Applications**

- Printing and coating industry, for example for films, offset and digital printing
- Furniture coverings
- Labels
- Filter laminates, PVC and non-PVC linings
- Resin elements
- High-speed roll-to-roll processes, straight pass and hot curing roller
- Siliconization

**At a Glance**

- **Objective**: Improves adhesion
- **Process**: A superior curing is achieved with problematic colours like opaque coatings.
- **Result**: Higher scratch and chemical resistance
- **Process**: Optimal adhesion
- **Result**: Safe production process because of continuous residual oxygen level.
- **Process**: Nitrogen inerting systems and integrated or retrofitted into existing systems on request.

**Energy Efficiency**

- Very low energy consumption of only 25 W/cm, as only the required wavelength is generated.
- Fast switching between matt and glossy products possible.
- No standby-power consumption, since there is no warm up input.
- No return loss of power, since there is no resonance necessary.
- Fast switching between matt and gloss products possible.