

UV HSE

Always read the SDS for products before use.

The Swedish regulations about chemical products classified and labeled with H317 or H334 include:

- Education and information about the hazards
- Health Control
- Personal protection equipment shall be provided
- Personal hygien
- Design of the working place
- Documentation of risk assessment

Please, notice:

Use working clothes and gloves

Use glasses with UV protection

Do not use watch and rings

Use hand cream

Wash at once if you get UV on your skin. Wash eyes if needed

Change clothes directly if you get UV on them

Avoid UV light - Turn off the UV light when cleaning the rollers

Clean up directly - Keep clean!

TAKE CARE!

UV Curing

Safeguarding the Quality and Environment

With this information we want to focus on (100 %) UV coatings and have gathered some simple rules and procedures to secure a uniform and high quality of the application – whether done by Roller Coater or by Spray.

Correct handling is of utmost importance - not only with regard to the quality and possible claims resulting from carelessness but also with regard to the internal as well as external environment.

Curing in general:

- is influenced by:

- | | |
|--------------------------|---|
| Lamp quality | Peak and energy of the lamp will change over time
-check with UV Power map
=> cleaning of lamp?
=> change lamp? |
| Reflector quality | Reflector quality will be reduced over time
-check with UV Power map
=> cleaning of reflector?
=> change reflector? |
| Lamp Focus | Lamp focus can change
-check with UV Power map
=> adjust focus |
| Line speed | Increased speed
- check with the UV Power map
=> need for more energy?
=> need for more lamps?
=> test sample to Analytical Department? |

UV Line Start Up

- Fix parameters for the system with amounts, line speed and substrate
 - Measure the UV lamps with UV Power map
 - Both peak end energy values are important
 - Test adhesion
 - Test the degree of UV curing (Analytical Department)
 - Test of residual monomers (Analytical Department)

UV Line Control

- Regular control of UV lamp with UV Power map concerning:
 - Energy
 - Peak
 - Focus
 - => cleaning of reflectors/lamps
 - => change of reflectors/lamps
 - => adjusting focus
- Control of adhesion
- Control of residual monomers and curing

Control of residual monomers

Residual stenomeric acrylic monomers in the cured coating film and the substrate shall be less than 800 mg/m² extractable.

This requirement refers to the final product after curing.

In order to fulfil this requirement, key UV-process parameters such as UV-radiation level, UV-lamp distance, applied amount of coating, flow speed etc. shall be fully controlled and documented. Photo-initiators are also included in the test although there is no specific content requirement for them.

Report from Analytical Department

Shall include:

Name of customer
System with amounts
Sample date
Result of analysis:
Residual stenomeric acrylic monomers according to IOS-MAT-0066
Amount of photoinitiator

Policy for Spraying 100% UV & SB UV

- Spray application may only take place in closed spraying chambers designed for use with UV.
 - **NO SPRAYING BY HAND.**
 - Closed profile Spray equipment intended for UV is a must.
 - Other types of equipment have to be approved by an AkzoNobel technician.
- Profile Spray equipment need to be fitted with an efficient filtering system designed for application of UV curing products.
- A routine for cleaning the filters need to be implemented.
- No UV material is allowed in the ventilated air leaving the factory.
- The supplier of the equipment must fulfill prevailing Government demands.
- From every trail by spraying UV, an extractional test must be performed. Samples have to be sent to our Analytical Department in Malmö for analysis.
- These tests may be carried through **BEFORE PRODUCTION START** and may be repeated at least twice times a year. The value found in the UV cured surface must be below 800 mg/m² free monomer.

Control:

- The lamps may be checked on a regular basis and shall be changed if the energy level fixed and stated for the system is not reached.
- An energy control program shall be agreed and approved together with AkzoNobel. The level of energy and peak will be fixed for each individual line.
- Pigmented systems need to be cured with Ga as well as Hg lamps.
- When the substrate is MDF/HDF a special primer/product is a must in order to limit the amount of extractable in the total system including the substrate.
- All personal working with UV curing products have to be educated in handling the coating as well as in using the application equipment.