

# CYTEC



## UCECOAT® 7705

A new aliphatic Polyurethane dispersion for topcoat applications in Furniture and Plastics

February 2009

# UCECOAT® 7705



- **UCECOAT® 7705 has been developed as topcoat for furniture applications**
- **UCECOAT® 7705 can also be used for applications on plastic substrates**

## UV/EB cured formulations with UCECOAT® 7705 have following properties

- Excellent mirror and gloss properties
- Very good body and film formation
- High hardness and scratch resistance (nail & steelwool)
- Good stain resistance

# MIRROR EFFECT (without sanding or polishing)

UCECOAT® 7705



UCECOAT® 7849



# MIRROR EFFECT (without sanding or polishing)

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UCECOAT® 7849



**UCECOAT® 7705** is characterised by

- **A clear transparent till white milky dispersion**
- **Low Viscosity**
- **Tacky after drying (before UV – curing)**
- **Good Stability : 10d at 60°C**
- **Target storage conditions between 10-25°C**

# UCECOAT® 7705

## TYPICAL VALUES

- **Viscosity (Brkfld) at 25°C in mPa.s:** max. 200
- **Density in g/cm<sup>3</sup> :** approx. 1.0
- **pH – value :** 6-7.5
- **Particle size in nm:** < 150
- **Solids in % :** ca. 45
- **Hardness in Persoz after UV – curing :** 320 s

**UCECOAT® 7705**

**Benchmarking with:**

- **UCECOAT® 7849**
- **UV-PUD from Comp 1**

# UCECOAT® 7705 STARTFORMULATION

Start formulation for a High Gloss Topcoat:

<b>UCECOAT® 7705</b>	<b>90</b>
<b>Byk-425</b>	<b>0.9</b>
<b>Byk-028</b>	<b>0.1</b>
<b>Byk-349</b>	<b>0.3</b>
<b>Byk-380</b>	<b>0.5</b>
<b>Aquatix 8421</b>	<b>1.5</b>
<b>ADDITOL® BCPK</b>	<b>2</b>
<b>Water</b>	<b>7</b>
<b>Total</b>	<b>100</b>

### Substrate 1

- PVC
- Barcoater
- Thickness ca. 120 till 130 g/m<sup>2</sup>
- 15 minutes drying at 40°C
- Curing at 5 m/min with 1 Hg lamp at 80 W/cm

### Substrate 2

- Woodplate from Unilin – coated with a melamine paper of 70 g/m<sup>2</sup>, and with a black WB UV basecoat
- Spray
- Thickness ca. 120 till 130 g/m<sup>2</sup>
- 15 minutes drying at 40°C
- Curing at 5 m/min with 1 Hg lamp at 80 W/cm



## Application and Results

# UCECOAT® 7705

## TYPICAL VALUES

	<b>UCECOAT® 7849</b>	<b>UCECOAT® 7705</b>	<b>Comp 1</b>
<b>Solids (%)</b>	<b>35</b>	<b>45</b>	<b>NA</b>
<b>Viscosity (mPas)</b>	<b>&lt;200</b>	<b>&lt;200</b>	<b>750</b>
<b>Reactivity (m/min)</b>	<b>10</b>	<b>20</b>	<b>/</b>
<b>Hardness (s)</b>	<b>265</b>	<b>320</b>	<b>89</b>

### Reactivity

Application of 35 µm wet on white paper.  
Drying: 2 min. at 80°C.  
UV-curing with Hg lamp of 80 W/cm.  
Reactivity at 50 dubbelrubs with acetone

### Persoz - hardness: after UV-curing.

150 µm wet on glass  
Drying : 15 min at 40°C  
UV-curing : 5m/min with 1 Hg-lamp at 80 W/cm.

# UCECOAT® 7705

## RESULTS

	<b>UCECOAT® 7849</b>	<b>UCECOAT® 7705</b>	<b>Comp 1</b>
<b>Tack-free</b> (before UV- curing)	<b>Yes</b>	<b>No</b>	<b>No</b>
<b>Gloss (60°)</b>	<b>89</b>	<b>91</b>	<b>89</b>
<b>Mirror effect</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
<b>Adhesion</b>			
<b>Wood Basecoat</b>	<b>5B</b>	<b>5B</b>	<b>5B</b>
<b>PVC</b>	<b>5B</b>	<b>5B</b>	<b>0B</b>
<b>Scratch resistance with Steelwool</b>	<b>NOK</b>	<b>OK</b>	<b>NOK</b>

# UCECOAT® 7705

## STAIN RESISTANCE

16h	UCECOAT® 7849	UCECOAT® 7705	Comp 1
mustard	5	5	2
Coffee	5	3.5	3.5
Wine	5	5	5
Cola	5	5	5
Oil	5	5	5
Detergent	5	5	5

# UCECOAT® 7705 COMPARED TO UCECOAT® 7849

## UCECOAT® 7705 shows

- Excellent gloss and mirror properties
- Higher solids
- Higher hardness and scratch resistance
- Better adhesion on PVC and PET

Advantages of UCECOAT® 7705 are :

- Low viscosity
- Higher hardness and scratch resistance
- Better stain resistance
- Better adhesion on PVC

# UCECOAT® 7705 CONCLUSIONS



- Patent application is filed
- Is our UV-PUD with highest gloss and mirror effect
- UCECOAT® 7705 shows good scratch & stain resistance
- Adhesion on PVC and PET is excellent