

**UCECOAT<sup>®</sup> 7733**

**Xi-free (non irritant) UV curable PUD**

**for white pigmented topcoat**

**October 2010**

**UCECOAT® 7733****UV curable Aliphatic PU dispersion****• Typical values and physical properties**

– <b>Solid content</b>	:	approximately 38 %
– <b>Appearance</b>	:	translucent to white liquid
– <b>Viscosity</b> Brookfield	:	max 200 mPa.s at 25°C
– <b>pH</b>	:	7.0 – 8.5
– <b>Tg (°C)</b>	:	113
– <b>% Elongation</b> 100µm free film	:	2.0
– <b>Hardness Persoz</b> 50µm coat	:	240-250

**UCECOAT® 7733 is a new Xi-free (non irritant) UV PUD**

**Compared to UCECOAT® 7773, the new UCECOAT® 7733 gives :**

- **better stain and chemical resistance**
- **improved wetting properties; Anfeuerung**
- **similar scratch resistance**
- **improved flexibility**

**Suggested applications:**

- Spray or curtain coater
- Good compatibility and easy to formulate
- Recommended for white pigmented coatings and also transparent topcoat applications
- Good wood wetting properties; anfeuerung
- Very high flexibility
- Excellent chemical resistance
- Very good compromise flexibility/adhesion/stain and scratch resistance
  
- Can also be used for primers or basecoat in field applied coatings

**Starting point formulations clear Wood coatings:**

<b>UCECOAT® 7733 // 7773</b>	<b>Cytec</b>	<b>Polymer</b>	<b>100</b>
<b>ACEMATT® TS 100</b>	<b>Evonik</b>	<b>Matting agent</b>	<b>1.5</b>
<b>AQUAMAT® 208</b>	<b>Byk Chemie</b>	<b>Wax</b>	<b>3.0</b>
<b>ADDITOL® BCPK</b>	<b>Cytec</b>	<b>Photo initiator</b>	<b>1.5</b>
<b>UCECOAT® 8460 (1:3 mix with water)</b>	<b>Cytec</b>	<b>Rheology mod.</b>	<b>1.4</b>

**Application and drying conditions****Spray Application:****Sapelli: 2x 70 g/m<sup>2</sup> wet****Beech: 3x 60 g/m<sup>2</sup> wet**

- |                                  |  |
|----------------------------------|--|
| - Thermal curing for each layer: | 3x Flash-off 40°C + 1 Jet-dryer 50°C at 1.5 m/min. |
| - UV curing primer coat:         | 1x 10 m/min 80W/cm Hg: 797mJ/cm <sup>2</sup>       |
| - Sanding between each layer:    | P 240  |
| - UV curing top layer:           | 2x 10m/min 80W/cm Hg: 1594mJ/cm <sup>2</sup>       |

## ➤ Stain, chemical resistance:

		UCECOAT® 7773	UCECOAT® 7733
<i>Ethanol 50%</i>	1 hour	0	0
<i>Water</i>	24 hour	0	0
<i>Tar</i>	1 hour	1-2	0
<i>Sudan red 380</i>	20 hour	0	0
<i>Blue marker</i>	5 minutes	2-3	1
Double Rubs	Water	> 200	> 200
	Acetone	> 200	> 200
	IPA	> 200	> 200

(0 = no visible stain left, 5 = very strong stain)

## ➤ Mechanical :

	UCECOAT® 7773	UCECOAT® 7733
Tack – free:	<i>Slightly tacky</i>	<i>No tack</i>
Gloss 60°:	<i>31 - 27</i>	<i>19 - 17</i>
Anfeuerung:	<i>2nd</i>	<i>Best</i>
Coin test:	<i>Good</i>	<i>Good</i>
Erichsen (N):	<i>&lt; 6</i>	<i>&lt; 6</i>
Hamberger (N):	<i>32</i>	<i>34</i>

**Starting point formulations white pigmented Wood coatings:**

<b>UCECOAT® 7733 // 7773</b>	<b>Cytec</b>	<b>Polymer</b>	<b>100</b>
<b>LUCONYL® WHITE 0022</b>	<b>BASF</b>	<b>Pigment</b>	<b>23</b>
<b>IRGACURE® 819 DW</b>	<b>BASF</b>	<b>Photo initiator</b>	<b>1</b>
<b>ADDITOL® BCPK</b>	<b>Cytec</b>	<b>Photo initiator</b>	<b>1</b>
<b>UCECOAT® 8460 (1/1)</b>	<b>Cytec</b>	<b>Rheology mod.</b>	<b>1.4</b>

**Application and drying conditions****Spray Application:****Beech: 2x 80 g/m<sup>2</sup> wet**

- |                                  |  |
|----------------------------------|--|
| - Thermal curing for each layer: | 3x Flash-off 40°C + 1 Jet-dryer 50°C at 1.5 m/min. |
| - UV curing primer coat:         | 1x 10 m/min 80W/cm: Ga + Hg lamp                   |
| - Sanding primer coat:           | P 240  |
| - UV curing top layer:           | 2x 10m/min 80W/cm: Ga + Hg lamp                    |

### ➤ Stain, chemical resistance

		UCECOAT® 7773	UCECOAT® 7733
<i>Ethanol 50%</i>	1 hour	0	0
<i>Water</i>	24 hours	0	0
<i>Tar</i>	1 hour	1-2	1
<i>Sudan red 380</i>	20 hours	0	0
<i>Blue marker</i>	5 minutes	1-2	0

(0 = no visible stain left, 5 = very strong stain)

**Starting point formulation for PVC Resilient Flooring:**

<b>UCECOAT® 7733/7773</b>	<b>Cytec</b>	<b>Polymer</b>	<b>100</b>
<b>ACEMATT® TS 100</b>	<b>Evonik</b>	<b>Matting agent</b>	<b>2.5</b>
<b>ADDITOL® VXW 6396</b>	<b>Cytec</b>	<b>Leveling agent</b>	<b>0.4</b>
<b>AQUAMAT® 208</b>	<b>Byk Chemie</b>	<b>Wax</b>	<b>3.0</b>
<b>ADDITOL® BCPK</b>	<b>Cytec</b>	<b>Photoinitiator</b>	<b>1.5</b>
<b>UCECOAT® 8460</b>	<b>Cytec</b>	<b>Rheology mod.</b>	<b>1.4</b>
<b>(1:3 mix with water)</b>			

**Coating weight: 30 – 40 g/m<sup>2</sup> wet, 10 to 13 g/m<sup>2</sup> dry**

## **Application and drying conditions on standard RF PVC**

- Target viscosity: around 500-2000mPa.s @ 25°C
- Typical lab application conditions:
  - clean PVC sheets with alcohol (IPA)
  - Apply with bar-coater: 10-15g/m<sup>2</sup> dry film
- Physical drying: 2 min. 80°C
- UV curing: 2 x 10m/min. at 80W/cm
- conditioning 24h at RT before testing

Stain resistance	UCECOAT® 7773	UCECOAT® 7733
10% NaOH	5	0-1
9% Javel	0	0
7% acetic acid	0	0
2% Eosin	1-2	1
10% NH3	0	0
Red wine	0	0
Mustard	0	0
Coffee	0	0
ketchup	0	0
iso-betadine	1-3	1
N-70 marker	0	0

(0 = no visible stain left, 5 = very strong stain) after 24 hours

**Conclusion:**

- UCECOAT® 7733 is a Xi-free ( non irritant) UV-curable PUD developed for white pigmented topcoat
- The new UCECOAT® 7733 can also be used in wood sealers and resilient flooring
- It exhibits outstanding stain and scratch resistance while maintaining a good flexibility.