

**Certificates on  
Tau Low Migration  
UV Inkjet Ink**

**Version 09-2013**

**Durst Phototechnik  
AG  
Labels & Package Printing  
Herr Helmuth Munter  
Julius-Durst-Straße 4  
39042 Brixen / Bressanone  
Italy**

## **Report 2013L34425**

Date of report 16/09/2013  
Your reference Order of 15.07.13  
Type of order General tests  
Client Durst Phototechnik  
AG, Herr Helmuth Munter

### **Sample**

Designation 1  
Tau LM Ink on MDO Global White - Speed 48 - Lamp% 75 - Test no. A11  
Amount 1  
Identification none  
Sender Durst Phototechnik  
AG  
Received on 18/07/2013  
Packing alu foil

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Report correction: This report replaces all former versions.

### **Assessment**

#### **Translation of Report 2013L29663**

#### **Chemical Analysis**

The overall migration was set-up according to Commission Regulation (EU) No 10/2011 and customer instructions. For this, the label was applied to a PP foil and then exposed to 3 % acetic acid, 50 % ethanol and 95 % ethanol for 10 d at 40 °C. The overall migration was performed according to EN 1186. For the overall migration, samples white 100 % and CMYK 75 % were used. For the specific migration, only CMYK 75 % was used.

Additionally, the 95 % ethanol migration solution was analysed for photoinitiators and acrylates out of our investigation program.

### **Results**

Under the prescribed testing conditions, the overall migration values of all simulants are below the limit of  $10 \pm 3$  mg/dm<sup>2</sup> according to the Commission Regulation (EU) No 10/2011 and the Swiss Regulation on Food Contact Materials.

No photoinitiators were detectable.

### **References**

- EN 1186 Materials and articles in contact with foodstuffs - Plastics, May 2002
- Swiss Regulation on Food Contact Materials SR 817.023.21 (Bedarfsgegenstände Verordnung) of 23.11.05, updated 01.04.2013
- Commission Regulation (EU) No 10/2011 of 14.01.2011, updated with No 1183/2012 of 30.11.2012

<b>Test results</b> Sample 1      Tau LM Ink on MDO Global White - Speed 48 - Lamp% 75 - Test no. A11				
Parameter Method	Result	Units	Indic. Value	limit of quant.
<b>Migration (test conditions)</b> <i>LMPMET0705</i>	<b>10d/40°C</b>			
<b>Migr. 3% acetic acid</b> <i>LMPMET0705</i>	<b>3</b>	mg/dm <sup>2</sup>	10	LOQ: 1
<b>Migr. 50% ethanol</b> <i>LMPMET0705</i>	<b>&lt;1</b>	mg/dm <sup>2</sup>	10	LOQ: 1
<b>Migr. 95% ethanol</b> <i>LMPMET0705</i>	<b>&lt;1</b>	mg/dm <sup>2</sup>	10	LOQ: 1
<b>Referring to</b> -	<b>95 % ethanol</b>			
<b>Photoinitiators</b> <i>LCCMETITQM(na) LCMS</i>	<b>not detectable</b>	µg/dm <sup>2</sup>		LOD: 0.50 LOQ: 1.0
Parameter Method	Result	Units	Indic. Value	limit of quant.
<b>Referring to</b> <i>FCMMET01dSCR(na)</i>	<b>95 % Ethanol</b>			
<b>Acrylates</b> <i>FCMMET01dSCR(na)</i>	<b>detectable</b>			LOD: 0.50 LOQ: 1.0
<b>Dipropylene glycol diacrylate (DPGDA)</b> <i>FCMMET01dSCR(na)</i> <i>CAS 57472-68-1</i>	<b>61</b>	µg/dm <sup>2</sup>	1.7	LOD: 0.50 LOQ: 1.0

Report released by: Dr. Thomas Gude, Technical Manager

For further inquiries you can also contact your customer consultant:  
Mr Thomas Gude, phone number (direct) +41 58 577 10 80

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## **Report 2013L34427**

Date of report	16/09/2013
Your reference	Order of 15.07.13
Type of order	General tests
Client	Durst Phototechnik AG, Herr Helmuth Munter
<b><u>Sample</u></b>	<b>1</b>
Designation	Tau LM Ink on MDO Global Clear - Speed 48 - Lamp% 75 - Test no. B11
Amount	1
Identification	none
Sender	Durst Phototechnik AG
Received on	18/07/2013
Packing	alu foil

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Report correction: This report replaces all former versions.

### **Assessment**

#### **Translation of Report 2013L29665**

#### **Chemical Analysis**

The overall migration was set-up according to Commission Regulation (EU) No 10/2011 and customer instructions. For this, the label was applied to a PP foil and then exposed to 3 % acetic acid, 50 % ethanol and 95 % ethanol for 10 d at 40 °C. The overall migration was performed according to EN 1186. For the overall migration, samples white 100 % and CMYK 75 % were used. For the specific migration, only CMYK 75 % was used.

Additionally, the 95 % ethanol migration solution was analysed for photoinitiators and acrylates out of our investigation program.

### **Results**

Under the prescribed testing conditions, the overall migration values of all simulants are below the limit of  $10 \pm 3$  mg/dm<sup>2</sup> according to the Commission Regulation (EU) No 10/2011 and the Swiss Regulation on Food Contact Materials.

### **References**

- EN 1186 Materials and articles in contact with foodstuffs - Plastics, May 2002
- Swiss Regulation on Food Contact Materials SR 817.023.21 (Bedarfsgegenstände Verordnung) of 23.11.05, updated 01.04.2013
- Commission Regulation (EU) No 10/2011 of 14.01.2011, updated with No 1183/2012 of 30.11.2012

<b>Test results</b>				
Sample 1		Tau LM Ink on MDO Global Clear - Speed 48 - Lamp% 75 - Test no. B11		
Parameter	Result	Units	Indic. Value	limit of quant.
<i>Method</i>				
<b>Migration (test conditions)</b>		<b>10d/40 °C</b>		
<i>LMPMET0705</i>				
<b>Migr. 3% acetic acid</b>	<1	mg/dm <sup>2</sup>	10	LOQ: 1
<i>LMPMET0705</i>				
<b>Migr. 50% ethanol</b>	<1	mg/dm <sup>2</sup>	10	LOQ: 1
<i>LMPMET0705</i>				
<b>Migr. 95% ethanol</b>	<1	mg/dm <sup>2</sup>	10	LOQ: 1
<i>LMPMET0705</i>				
<b>Referring to</b>	<b>95 % ethanol</b>			
-				
<b>Photoinitiators</b>	<b>detectable</b>			LOD: 0.50
<i>LCCMETITQM(na) LCMS</i>				
<b>Irgacure 184</b>	1.3	µg/dm <sup>2</sup>	1.7	LOD: 0.50
<i>LCCMETITQM(na) LCMS CAS 947-19-3</i>				
<hr/>				
Parameter	Result	Units	Indic. Value	limit of quant.
<i>Method</i>				
<b>Referring to</b>	<b>95 % Ethanol</b>			
<i>FCMMET01dSCR(na)</i>				
<b>Acrylates</b>	<b>detectable</b>			LOD: 0.50
<i>FCMMET01dSCR(na)</i>				
<b>Dipropylene glycol diacrylate (DPGDA)</b>	39	µg/dm <sup>2</sup>	1.7	LOD: 0.50
<i>FCMMET01dSCR(na) CAS 57472-68-1</i>				

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## **Report 2013L34429**

Date of report	16/09/2013
Your reference	Order of 15.07.13
Type of order	General tests
Client	Durst Phototechnik AG, Herr Helmuth Munter
<b><u>Sample</u></b>	<b>1</b>
Designation	Tau LM Ink on UPM Optima extra - Speed 48 - Lamp% 75 - Test no. C11
Amount	1
Identification	none
Sender	Durst Phototechnik AG
Received on	18/07/2013
Packing	alu foil

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Report correction: This report replaces all former versions.

### **Assessment**

#### **Translation of Report 2013L29667**

#### **Chemical Analysis**

The overall migration was set-up according to Commission Regulation (EU) No 10/2011 and customer instructions. For this, the label was applied to a PP foil and then exposed to 3 % acetic acid, 50 % ethanol and 95 % ethanol for 10 d at 40 °C. The overall migration was performed according to EN 1186. For the overall migration, samples white 100 % and CMYK 75 % were used. For the specific migration, only CMYK 75 % was used.

Additionally, the 95 % ethanol migration solution was analysed for photoinitiators and acrylates out of our investigation program.

### **Results**

Under the prescribed testing conditions, the overall migration values of all simulants are below the limit of  $10 \pm 3$  mg/dm<sup>2</sup> according to the Commission Regulation (EU) No 10/2011 and the Swiss Regulation on Food Contact Materials.

No photoinitiators were detectable.

### **References**

- EN 1186 Materials and articles in contact with foodstuffs - Plastics, May 2002
- Swiss Regulation on Food Contact Materials SR 817.023.21 (Bedarfsgegenstände Verordnung) of 23.11.05, updated 01.04.2013
- Commission Regulation (EU) No 10/2011 of 14.01.2011, updated with No 1183/2012 of 30.11.2012

<b>Test results</b>	Sample 1	Tau LM Ink on UPM Optima extra - Speed 48 - Lamp% 75 - Test no. C11		
<b>Parameter</b> <i>Method</i>	<b>Result</b>	<b>Units</b>	<b>Indic. Value</b>	<b>limit of quant.</b>
<b>Migration (test conditions)</b> <i>LMPMET0705</i>	<b>10d/40 °C</b>			
<b>Migr. 3% acetic acid</b> <i>LMPMET0705</i>	<1	mg/dm <sup>2</sup>	10	LOQ: 1
<b>Migr. 50% ethanol</b> <i>LMPMET0705</i>	<1	mg/dm <sup>2</sup>	10	LOQ: 1
<b>Migr. 95% ethanol</b> <i>LMPMET0705</i>	<1	mg/dm <sup>2</sup>	10	LOQ: 1
<b>Referring to</b> -	<b>95 % ethanol</b>			
<b>Photoinitiators</b> <i>LCCMETITQM(na) LCMS</i>	<b>not detectable</b>			µg/dm <sup>2</sup> LOD: 0.50 LOQ: 1.0
<b>Parameter</b> <i>Method</i>	<b>Result</b>	<b>Units</b>	<b>Indic. Value</b>	<b>limit of quant.</b>
<b>Referring to</b> <i>FCMMET01dSCR(na)</i>	<b>95 % Ethanol</b>			
<b>Acrylates</b> <i>FCMMET01dSCR(na)</i>	<b>detectable</b>			LOD: 0.50 LOQ: 1.0
<b>Dipropylene glycol diacrylate (DPGDA)</b> <i>FCMMET01dSCR(na)</i>	95	µg/dm <sup>2</sup>	1.7	LOD: 0.50 LOQ: 1.0
	<i>CAS 57472-68-1</i>			

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## **Report 2013L34430**

Date of report	20/09/2013
Your reference	Order of 15.07.13
Type of order	General tests
Client	Durst Phototechnik AG, Herr Helmuth Munter
<b>Sample</b>	<b>1</b>
Designation	Tau LM Ink on Alu-Foil - Speed 40 - Lamp% 75 - Test no. D8
Amount	1
Identification	none
Sender	Durst Phototechnik AG
Received on	18/07/2013
Packing	alu foil

Report correction: This report replaces all former versions.

### **Assessment**

#### **Translation of Report 2013L29668**

#### **Chemical Analysis**

The overall migration was set-up according to Commission Regulation (EU) No 10/2011 and customer instructions. For this, the sample was exposed to 95 % ethanol for 10 d at 40 °C. Additionally, the sample was stored for 10 d at 40 °C (simulation of the set-off) and then it was exposed to 50 % ethanol and 95 % ethanol for 10 d at 40 °C. The overall migration was performed according to EN 1186. For the overall migration, samples white 100 % and CMYK 75 % were used. For the specific migration, only CMYK 75 % was used.

Additionally, the 95 % ethanol migration solution (before and after set-off) was analysed for photoinitiators and acrylates out of our investigation program.

### **Results**

Under the prescribed testing conditions, the overall migration values of the tested simulants are below the limit of  $10 \pm 3$  mg/dm<sup>2</sup> according to the Commission Regulation (EU) No 10/2011 and the Swiss Regulation on Food Contact Materials.

None of the specifically analysed substances were detectable above their specific migration limits.

### **References**

- EN 1186 Materials and articles in contact with foodstuffs - Plastics, May 2002
- Swiss Regulation on Food Contact Materials SR 817.023.21 (Bedarfsgegenstände Verordnung) of 23.11.05, updated 01.04.2013
- Commission Regulation (EU) No 10/2011 of 14.01.2011, updated with No 1183/2012 of 30.11.2012



<b>Test results</b> Sample 1      Tau LM Ink on Alu-Foil - Speed 40 - Lamp% 75 - Test no. D8				
<b>Parameter</b>	<b>Result</b>	<b>Units</b>	<b>Indic. Value</b>	<b>limit of quant.</b>
<i>Method</i>				
<b>Migration (test conditions)</b>	<b>10d/40 °C</b>			
<i>LMPMET0705</i>				
<b>Migr. 95% ethanol</b>	<b>2</b>	<b>mg/dm<sup>2</sup></b>	<b>10</b>	<b>LOQ: 1</b>
<i>LMPMET0705</i>				
<b>Referring to</b>	<b>95 % ethanol</b>			
-				
<b>Photoinitiators</b>	<b>not detectable</b>			
<i>LCCMETITQM(na) LCMS</i>				
<b>---&gt; info</b>	<b>additional sample</b>			
-				
<b>Migration (test conditions)</b>	<b>set-off: 10d/40 °C</b>			
<i>LMPMET0705</i>				
<b>Migration (test conditions)</b>	<b>10d/40 °C</b>			
<i>LMPMET0705</i>				
<b>Migr. 50% ethanol</b>	<b>1</b>	<b>mg/dm<sup>2</sup></b>	<b>10</b>	<b>LOQ: 1</b>
<i>LMPMET0705</i>				
<b>Migr. 95% ethanol</b>	<b>2</b>	<b>mg/dm<sup>2</sup></b>	<b>10</b>	<b>LOQ: 1</b>
<i>LMPMET0705</i>				
<b>Referring to</b>	<b>95% ethanol</b>			
-				
<b>Photoinitiators</b>	<b>not detectable</b>			
<i>LCCMETITQM(na) LCMS</i>				
				<b>LOD: 0.50</b> <b>LOQ: 1.0</b>
<b>Parameter</b>	<b>Result</b>	<b>Units</b>	<b>Indic. Value</b>	<b>limit of quant.</b>
<i>Method</i>				
<b>Referring to</b>	<b>95 % ethanol, no set-off</b>			
<i>FCMMET01dSCR(na)</i>				
<b>Acrylates</b>	<b>detectable</b>			
<i>FCMMET01dSCR(na)</i>				
<b>Di(trimethylolpropane) tetraacrylate, DTMP TetraA</b>	<b>&lt; 1.0</b>	<b>µg/dm<sup>2</sup></b>	<b>1.7</b>	<b>LOD: 0.50</b> <b>LOQ: 1.0</b>
<i>FCMMET01dSCR(na) CAS 94108-97-1</i>				
<b>Referring to</b>	<b>95 % ethanol, set-off</b>			
-				
<b>Acrylates</b>	<b>not detectable</b>			
<i>FCMMET02dACR(na)</i>				
				<b>LOD: 0.50</b> <b>LOQ: 1.0</b>

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