



Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 117 um 90 gsm
Certification Date Interpolation
Certification Number RI5500-17-5120

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

For star ratings, please refer to the HP Indigo Media Solutions Locator
This substrate has been evaluated under the standard comprehensive
testing procedure, in conjunction with HP Indigo R&D substrate certification criteria.

Please note: By certifying your product this means you support its use on HP Indigo equipment and its uses, and that you will perform any due diligence necessary should complaints arise. Further, by receiving approval, you agree that if there are any manufacturing or product changes that may impact substrate performance you will have the product re-tested/re-certified, to eliminate the risk of issues in the field as a result. Certification is valid for 2 years, at which time if there are no changes to paper properties or production processes, the certification can be extended for another two years. After 4 years from the original certification date, a new certification is required.

Certified for
HP Indigo

In conjunction with Rochester Institute of Technology (RIT) - USA

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Printing Applications Laboratory

Solutions for the Printing and Imaging Industries



Commercial Substrate Evaluation Report

Certified for
HP Indigo

Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	90 gsm	Thickness (microns/caliper)	117 um

Certification Number	RI5500-17-5120	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

The substrate certification procedure incorporates several processes.

An initial screening evaluation is followed by a more comprehensive evaluation

looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

Photo and White Ink Applications:

Use of robust media products is strongly recommended when printing photo-related and/or white ink applications and/or Light Cyan and Light Magenta due to additional ink coverage demands of these applications. This media has been tested and approved to perform well with higher levels of ink coverage, and is therefore recommended for photo-related and/or white ink type applications. However, it is strongly recommended that user acceptance ultimately be evaluated per individual application and finishing requirements, etc. The test results are provided as a guide; assess actual performance to determine suitability for individual use.

Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

This substrate is certified for the next two years from the date of evaluation, provided there is no change to the paper properties or production processes. At the end of two years from the original evaluation date, if there have been no changes in paper properties or production processes, the certification can be extended for another two years. After four years from the original certification date, a new certification is required.



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Solutions for the Printing and Imaging Industries



Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 113 um 100 gsm
Certification Date Interpolation
Certification Number RI5500-17-5121

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

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Commercial Substrate Evaluation Report

Certified for
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Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	100 gsm	Thickness (microns/caliper)	113 um
Certification Number	RI5500-17-5121	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

The substrate certification procedure incorporates several processes.

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looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

Photo and White Ink Applications:

Use of robust media products is strongly recommended when printing photo-related and/or white ink applications and/or Light Cyan and Light Magenta due to additional ink coverage demands of these applications. This media has been tested and approved to perform well with higher levels of ink coverage, and is therefore recommended for photo-related and/or white ink type applications. However, it is strongly recommended that user acceptance ultimately be evaluated per individual application and finishing requirements, etc. The test results are provided as a guide; assess actual performance to determine suitability for individual use.

Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

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Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 136 um 120 gsm
Certification Date Interpolation
Certification Number RI5500-17-5122

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

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Commercial Substrate Evaluation Report

Certified for
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Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	120 gsm	Thickness (microns/caliper)	136 um

Certification Number	RI5500-17-5122	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

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Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

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Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

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Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 170 um 150 gsm
Certification Date Interpolation
Certification Number RI5500-17-5123

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

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Commercial Substrate Evaluation Report

Certified for
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Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	150 gsm	Thickness (microns/caliper)	170 um

Certification Number	RI5500-17-5123	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

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looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

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Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

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Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 192 um 170 gsm
Certification Date Interpolation
Certification Number RI5500-17-5124

This substrate is hereby certified for HP Indigo digital press(es)
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Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	170 gsm	Thickness (microns/caliper)	192 um

Certification Number	RI5500-17-5124	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

The substrate certification procedure incorporates several processes.

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looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

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Star Rating

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- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

This substrate is certified for the next two years from the date of evaluation, provided there is no change to the paper properties or production processes. At the end of two years from the original evaluation date, if there have been no changes in paper properties or production processes, the certification can be extended for another two years. After four years from the original certification date, a new certification is required.



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Solutions for the Printing and Imaging Industries



Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 226 um 200 gsm
Certification Date Interpolation
Certification Number RI5500-17-5125

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

For star ratings, please refer to the HP Indigo Media Solutions Locator
This substrate has been evaluated under the standard comprehensive
testing procedure, in conjunction with HP Indigo R&D substrate certification criteria.

Please note: By certifying your product this means you support its use on HP Indigo equipment and its uses, and that you will perform any due diligence necessary should complaints arise. Further, by receiving approval, you agree that if there are any manufacturing or product changes that may impact substrate performance you will have the product re-tested/re-certified, to eliminate the risk of issues in the field as a result. Certification is valid for 2 years, at which time if there are no changes to paper properties or production processes, the certification can be extended for another two years. After 4 years from the original certification date, a new certification is required.

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HP Indigo

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Solutions for the Printing and Imaging Industries



Commercial Substrate Evaluation Report

Certified for
HP Indigo

Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	200 gsm	Thickness (microns/caliper)	226 um

Certification Number	RI5500-17-5125	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

The substrate certification procedure incorporates several processes.

An initial screening evaluation is followed by a more comprehensive evaluation

looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

Photo and White Ink Applications:

Use of robust media products is strongly recommended when printing photo-related and/or white ink applications and/or Light Cyan and Light Magenta due to additional ink coverage demands of these applications. This media has been tested and approved to perform well with higher levels of ink coverage, and is therefore recommended for photo-related and/or white ink type applications. However, it is strongly recommended that user acceptance ultimately be evaluated per individual application and finishing requirements, etc. The test results are provided as a guide; assess actual performance to determine suitability for individual use.

Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

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Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 271 um/240 in 240 gsm
Certification Date Interpolation
Certification Number RI5500-17-5126

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

For star ratings, please refer to the HP Indigo Media Solutions Locator
This substrate has been evaluated under the standard comprehensive
testing procedure, in conjunction with HP Indigo R&D substrate certification criteria.

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Commercial Substrate Evaluation Report

Certified for
HP Indigo

Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	240 gsm	Thickness (microns/caliper)	271 um/240 in

Certification Number	RI5500-17-5126	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

The substrate certification procedure incorporates several processes.

An initial screening evaluation is followed by a more comprehensive evaluation

looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

Photo and White Ink Applications:

Use of robust media products is strongly recommended when printing photo-related and/or white ink applications and/or Light Cyan and Light Magenta due to additional ink coverage demands of these applications. This media has been tested and approved to perform well with higher levels of ink coverage, and is therefore recommended for photo-related and/or white ink type applications. However, it is strongly recommended that user acceptance ultimately be evaluated per individual application and finishing requirements, etc. The test results are provided as a guide; assess actual performance to determine suitability for individual use.

Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

This substrate is certified for the next two years from the date of evaluation, provided there is no change to the paper properties or production processes. At the end of two years from the original evaluation date, if there have been no changes in paper properties or production processes, the certification can be extended for another two years. After four years from the original certification date, a new certification is required.



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Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 339 um 300 gsm
Certification Date Interpolation
Certification Number RI5500-17-5127

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

For star ratings, please refer to the HP Indigo Media Solutions Locator
This substrate has been evaluated under the standard comprehensive
testing procedure, in conjunction with HP Indigo R&D substrate certification criteria.

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Commercial Substrate Evaluation Report

Certified for
HP Indigo

Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	300 gsm	Thickness (microns/caliper)	339 um

Certification Number	RI5500-17-5127	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

The substrate certification procedure incorporates several processes.

An initial screening evaluation is followed by a more comprehensive evaluation

looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

Fixing:

Ink-substrate interaction as determined by: 1) The degree of ink adhesion to the substrate for standard and photo-related applications as measured in a tape peel test of the image; and 2) The degree of flaking of the ink layer. The fixing properties are measured through a range of blanket temperatures and pressures.

Blanket Compatibility:

Blanket-substrate interaction as determined by: 1) Ink-transferability, which is the quality of ink transfer from the blanket to the substrate as reflected in highlight dots, thin lines, heavy images and image edge integrity; 2) 'Blanket Memory' effects, reflected in gloss or density differences between solids and background areas of the previously printed image; and 3) Number of cleaner pages, in which blankets are routinely maintained by performing a self cleaning procedure ("cleaner pages") used to refresh the blanket's release layer.

Photo and White Ink Applications:

Use of robust media products is strongly recommended when printing photo-related and/or white ink applications and/or Light Cyan and Light Magenta due to additional ink coverage demands of these applications. This media has been tested and approved to perform well with higher levels of ink coverage, and is therefore recommended for photo-related and/or white ink type applications. However, it is strongly recommended that user acceptance ultimately be evaluated per individual application and finishing requirements, etc. The test results are provided as a guide; assess actual performance to determine suitability for individual use.

Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

This substrate is certified for the next two years from the date of evaluation, provided there is no change to the paper properties or production processes. At the end of two years from the original evaluation date, if there have been no changes in paper properties or production processes, the certification can be extended for another two years. After four years from the original certification date, a new certification is required.



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Commercial Substrate Certificate

Supplier Name Arctic Paper Munkedals AB
Substrate Name Munken Kristall ID
Thickness / Weight 452 um/400 in 400 gsm
Certification Date Interpolation
Certification Number RI5500-17-5128

This substrate is hereby certified for HP Indigo digital press(es)
5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000
& 12000

For star ratings, please refer to the HP Indigo Media Solutions Locator
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Commercial Substrate Evaluation Report

Certified for
HP Indigo

Supplier Information	
Supplier Name	Arctic Paper Munkedals AB
Supplier Address	Bruksvägen, Munkedal, SE-45581
Supplier Country	Sweden

Product Information			
Product Name	Munken Kristall ID		
Product Category	Paper		
Grammage (gsm) / Basis weight (#)	400 gsm	Thickness (microns/caliper)	452 um/400 in

Certification Number	RI5500-17-5128	Certification Center	RIT
Date of Evaluation	05/23/2017	Evaluated on	Interpolation
Certified for	5500, 5600 multi-shot, 7000, 7500, 7600, 7800, 7900, 10000 & 12000		
Evaluation Process	Interpolation		

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability			★★★★	
Simplex	Number of Jams			
Duplex	Number of Jams			
Ink Adhesion / Fixing			★★★★	
Peeling	100%K in 4 color mode, % in remaining			
Flaking	<1mm, % Coverage			
Photo Peeling	290K in 4 color mode, % in remaining			
Photo Flaking	<1mm, % Coverage			
Photo Recommended	>80% after 10 or 60 min			
White Ink Recommended	>80% after 10 or 60 min			
Blanket Compatibility			★★★★	
Cleaner Pages	1st clean page after 12K impressions			
Evaluation Result		Pass		

Comment Detail:

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looking at the performance of the particular substrate within the press. This checks for:

Runnability:

The ability of the substrate to run smoothly through the press in various print modes.

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Star Rating

- ★★★★ Best performing substrate: fewer print cleaners needed; no blanket memories at least up to 12K impressions.
- ★★★ Recommended substrate: some print cleaners may be needed; slight memories may be seen up to 12K impression
- ★ Good substrate: print cleaners generally required; some memories may be seen by 12K impressions.

		★★★★	★★★	★	
Evaluation	Measurement	Best-performing	Recommended	Good	Failure
Transport	Runnability	No jams with the tested paper	No more than 1 jam or minor issue with the tested paper	No more than 1 jam and minor issues with the tested paper	2 jams with the tested paper, control performs well
Fixing	Peeling	All 4 results are ≥ 90%	All 4 results are ≥ 80%	At least 1 result is ≥ 80%	All results < 80%
	Flaking Guillotine, 5min • Coated	All results are > 250%	At least 1 result is > 250%	At least 1 result is > 200%	Results < 200%
	Flaking Guillotine, 5min • Uncoated	Result is > 300%	Result is > 250%	Result is > 200%	Results < 200%
Photo	Peeling 290% Black	Result is > 80% after 10 or 60 minutes		N/A	Results < 80%
	Flaking Guillotine, 5min	<1mm at 350% K		N/A	Results > 1mm
Blanket Compatibility	Cleaner Sheets	1 st Red is clean	3 rd Red is clean	5 th Red is clean	5 th Red not clean, or White observed
	Monitors on tested paper and reference glossy paper	Very minor memories at least up to 12K impressions	Slight memories may be seen up to 12K impressions	Some memories may be seen by 12K impressions	Severe lack of dots/cracks/gloss memory

This substrate is certified for the next two years from the date of evaluation, provided there is no change to the paper properties or production processes. At the end of two years from the original evaluation date, if there have been no changes in paper properties or production processes, the certification can be extended for another two years. After four years from the original certification date, a new certification is required.



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