

A4 AND CUT-SIZE LABELING GUIDE

Labeling a smarter future



Find the right solution for your brand at
upmraflatac.com



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BOOST YOUR VISUAL PERFORMANCE, EFFICIENCY AND SUSTAINABILITY

with UPM Raflatac's A4 and cut-size labeling solutions



A4 label products for laser and inkjet printing cover a wide range of different end-uses. They include office & retail, transport & logistics, industrial chemical, test tube & laboratory and many more. Moreover, sustainability has become mainstream and there is an increasing need to provide innovative solutions that help to respond to the wishes of a responsible consumer base. To take full advantage of this variety of applications and new consumer trends you need a trusted partner with know-how and experience to support your business.

UPM Raflatac has innovated numerous self-adhesive A4 labeling solutions. We collaborate with leading paper and film producers along with major manufacturers of laser and inkjet devices. Through this collaboration we are able to ensure our products meet the challenges of the intended end-use and printing technology. As a result, our products provide excellent visual and technical performance to increase converting and end-user printing efficiency.



On top of this, our A4 product range includes innovative solutions that will help you reach beyond your sustainability targets. We have developed UPM Raflatac RAFNXT+, the world's first label material verified by the Carbon Trust to reduce carbon footprint and help mitigate climate change, compared to our standard label range as verified by the Carbon Trust to PAS 2050.



The RAFNXT+ product design results in superior carbon performance by leveraging a smarter choice and use of materials. This results in lower energy and water consumption, as well as decreased waste throughout the value chain. The RAFNXT+ labels are FSC® certified (FSC C012530) and the source forests provide a verified sustainable basis for positive climate action when choosing RAFNXT+ instead of our standard label.

To show this impact, we have developed a science-based model to demonstrate the carbon footprint reduction and the forests' increased capacity to remove carbon dioxide from the atmosphere. Choosing RAFNXT+ options from UPM Raflatac's A4 range is a positive climate action you can take to reach beyond your and your customers' sustainability goals and ambitions.

To find out more about RAFNXT+ visit our website.



We are committed to sustainable forestry and monitor the origin of wood fibers to ensure legal and sustainable sources. Sustainable forest management supports our forests to maintain their ability to provide ecosystem services also in the future.

The majority of our paper label materials are FSC certified. By choosing UPM Raflatac's FSC certified products, you are supporting responsible management of the world's forests.

Are you interested in office applications where multifunctional product design and excellent performance in many different conditions count the most? Or maybe you specialize in industrial, logistics or laboratory end-uses where specific solutions provide competitive advantage? In both cases you can count on UPM Raflatac's expertise to grow your A4 business and gain competitive edge through sustainability.



Office & retail



Documentation and address labeling are everyday tasks in office environments. UPM Raflatac supplies materials for a wide range of these office labeling needs. We offer paper labels for high-volume applications as well as special grades including colored papers and coated and uncoated finishes.

Our opaque label faces are ideal for blank-out labels to cover unwanted information, and our Multitac constructions are the perfect choice for 'send and reply' mailing applications. Our filmic label grades are weatherproof or resistant to other environmental stress. Additionally, we have a wide range of adhesives – multifunctional permanent, extra permanent for demanding surfaces and removable.

Our A4 product range covers the following main office and retail end-uses:

For applications requiring special combinations, your nearest UPM Raflatac sales representative will be pleased to recommend suitable options.



MULTIFUNCTIONAL INFORMATION LABELING

We have a wide range of labels for different information labeling needs in your office. Whether you want to label envelopes or products, shipping or storage information, or simply organize anything in your office, you have plenty of options to choose from our portfolio.



HIGH OPACITY BLOCK-OUT LABELS

Have you ever had the need to cover the old label or unwanted information on your parcel? The solution is simple. Choose our high opacity block-out labels. This solution will help you reuse your office materials easily and efficiently.



EYE-CATCHING LABELS

If you want to make your items stand out, use our eye-catching and colored display labels. They are great for price marking, promotion and warning labels.



HIGH QUALITY PHOTO PRINT

Printing photos in the office has never been easier. Just select the right combination from our portfolio and you will get high resolution print-outs. We supply best-in-class film and paper label materials for inkjet and laser printing for unmatched photo quality.



OUTDOOR & MOISTURE RESISTANCE LABELS

If you need labels that tolerate fluctuations in temperature and humidity, there are labels for you in our range. Our filmic product solutions are not only waterproof and UV-stable, but also have strong adhesion to different surfaces and high tear resistance.



TRANSPARENT LABELS

Your beautifully branded stationery including colorful envelopes will become even more elegant with our transparent filmic labels. The transparent look of the label material makes the text printed on it appear as if it has been printed on the envelope itself. Effect like never before.



LABELS FOR HIGH ADHESION

In case you want your labels to stick securely on challenging surfaces, we have many options. They include rough surfaces, corrugated cardboards and recycled paper.



LABELS FOR EXCELLENT REMOVABILITY

Do you need to easily remove the label without leaving behind paper tears or adhesive residue? The solution is within your reach. Choose our combinations with removable adhesive. Print your labels with temporary messages and be sure you can remove them conveniently.

A4 office products

FACE PROPERTIES (check TIS for further technical specs)

PRINTABILITY



Product	Sales code	EAN code	FACE PROPERTIES				Face description	PRINTABILITY												
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	CIE whiteness (ISO 11475) %	Opacity (ISO 2471) %		LASER/LED	INKJET	Multifunctional information labeling	High opacity block-out labels	Eye-catching labels	High quality photo print	Waterproof labels	Transparent labels	High adhesion required	Removability required			
Jetlaser-FSC RPA4 KS55-FSC	AYKRPA4EJW	8207314	70	90	164	92	Uncoated paper	●	●	●										
Jetlaser-FSC RPA4 KS70-FSC	AYKRPA4GJI	8298602						●	●	●										
Jetlaser-FSC RRAR KS55-FSC	AYKRRAREJW	8298619						●	●										●	
Jetlaser-FSC RRAR KS70-FSC	AYKRRARGJI	8314517						●	●										●	
Laser NXT+FSC RPA2 KS55-FSC	GJCRPA2EJW	8285817	65	82	163	90	Uncoated paper	●	●	●										
Laser NXT+FSC RPA2 KS70-FSC	GJCRPA2GJI	8285824						●	●	●										
Laser NXT+ CO2N-FSC RPA2 KS55-FSC	IKJRPA2EJW	8397053						●	●	●										
Naturlaser 70-FSC RPA4 KS55	AYLRPA466	8085851	70	87	150	90	Uncoated paper produced of 100% recycled fibers	●	●	●										

A4 office products

FACE PROPERTIES (check TIS for further technical specs)

PRINTABILITY



Product	Sales code	EAN code	FACE PROPERTIES				PRINTABILITY		Multifunctional information labeling	High opacity block-out labels	Eye-catching labels	High quality photo print	Waterproof labels	Transparent labels	High adhesion required	Removability required
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	CIE whiteness (ISO 11475) %	Opacity (ISO 2471) %	Face description	LASER/LED								
Jet Opaque Grey-FSC RPA4 KS55-FSC	EQBRPA4EJW	8334263	72	92	-	98	Uncoated paper with grey reverse side for increased opacity	●	●	●						
Jetlaser Opaque Black-FSC RPA4 KS55	FUTRPA4EJW	8256596	82	98	-	100	Uncoated paper with black reverse side for increased opacity	●	●	●						
Jetlaser Opaque Black-FSC RPAL KS70	FUTRPAL90	8271308					Uncoated paper with black reverse side for increased opacity	●	●	●						

A4 office products

			FACE PROPERTIES (check TIS for further technical specs)				PRINTABILITY													
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	Opacity (ISO 2471) %	Face description	LASER/LED	INKJET	Multifunctional information labeling	High opacity block-out labels	Eye-catching labels	High quality photo print	Waterproof labels	Transparent labels	High adhesion required	Removability required				
Jetcolor-FSC RPA4 KS55-FSC	BPKRPA4EJW	8391761	88	113	89	Coated matt paper		●				●								
Jetgloss-FSC RPA4 KS70-FSC	CJNRPA4GJI	8391822	87	104	88	Coated gloss paper		●				●								
Lasergloss-FSC RPA3 KS70-FSC	IHNRPA3GJI	8389690	80	85	92	Cast coated gloss paper	●					●								
Lasergloss-FSC RPA3 KS85-FSC	IHNRPA3GWW	8389881					●				●									
Laserbrite-FSC RPA3 KS70-FSC	IISRPA3GJI	8392652	85	71	89	Coated gloss paper	●					●								
Jetlemon-FSC RPA4 KS55-FSC	BDCRPA4EJW	8391846	80	100	90	Uncoated, pulp dyed paper	●	●				●								
Jetred-FSC RPA4 KS55-FSC	BCXRPA4EJW	8392539					●	●				●								
Jetgreen-FSC RPA4 KS55-FSC	BDBRPA4EJW	8391860					●	●				●								
Jetblue-FSC RPA4 KS55-FSC	BDARPA4EJW	8392560					●	●				●								
Fluor Lemon-FSC RPA4 KS55-FSC	BXRRPA4EJW	8391884	78	73	89	Fluorescent coated paper	●					●								
Fluor Orange-FSC RPA4 KS55-FSC	BXSRPA4EJW	8392591					●					●								
Fluor Red-FSC RPA4 KS55-FSC	BXTRPA4EJW	8391907					●					●								
Fluor Green-FSC RPA4 KS55-FSC	BXURPA4EJW	8392614					●					●								

A4 office products

FACE PROPERTIES (check TIS for further technical specs)

PRINTABILITY



Product	Sales code	EAN code	FACE PROPERTIES			Face description	PRINTABILITY									
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	Opacity (ISO 2471) %		LASER/LED	INKJET	Multifunctional information labeling	High opacity block-out labels	Eye-catching labels	High quality photo print	Waterproof labels	Transparent labels	High adhesion required	Removability required
Polymer Matt White RPAF KSS120	33RPAFFGX	8238080	75	58	88	White, matt coated polyester film	●						●			
Polymer Matt White RPFH KSS120	33RPFHFGX	8238097					●									●
Polymer Matt White TC 60 RRAF KSS120	GBVRRAFFGX	8270660	82	60	84		●							●		
Polymer Matt Transp RPAF KSS120	NCRPAFFGX	8238110	56	43		Translucent, matt coated polyester film	●						●	●		
Polymer Gloss Clear RPAF KSS120	M7RPAFFGX	8238134	71	50		Transparent, gloss coated polyester film	●						●	●		
Polyjet Gloss Clear RPAF KS85	GRRPAF91	8159569	113	80	-			●						●	●	
Polyjet Matt White RPAF KS85	GURPAF91	8159460	95	85	-	White, matt coated polyester film		●					●			

Transport & logistics



Transport and logistics is a fast-growing sector where labels are used for identifying, tracking, routing and tracing inventory. These labels are applied to many different surfaces such as envelopes, cardboard boxes, paper and plastic packaging as well as wrapping films. Labels used on these surfaces need to have excellent initial adhesion to guarantee accurate tracking throughout the logistics chain.

For high speed laser printing, a thicker liner, KS70, is recommended. For logistics applications requiring outdoor and durable properties, please refer to the industrial chemical A4 product range.

Our A4 product range covers the following main requirements for different **transport and logistics end-uses**:

For applications requiring special combinations, your nearest UPM Raflatac sales representative will be pleased to recommend suitable options.



GENERAL PURPOSE LABELS

If you need good adhesion to a wide range of surfaces, Laser NXT+FSC with RPA2 and RHA4 adhesives is the best choice.



LABELS FOR DIFFICULT SURFACES

Applications where high tack and very strong adhesion is required (including plastic films, papers, corrugated cardboards and envelopes).



OPAQUE LABELS

Where total opacity is needed (blockout labels), ensure high tack and very strong adhesion to a wide range of surfaces – including plastic films, paper wrapping, cardboards and envelopes.



LABELS FOR CHILL AND FREEZE WAREHOUSE CONDITIONS

Good labeling adhesion at low temperatures is required for both chill (0°C to 8°C) and freeze (0°C to -20°C) conditions.



LABELS FOR EASY REMOVABILITY

Applications where a removable adhesive is required.



MULTITAC LABELS

(one-time repositionable labels)

In case you want to apply a multitac label on a product and then peel off the top label to attach elsewhere. It is often used for different type of information and address label applications.



EYE-CATCHING LABELS FOR WAREHOUSE

If you want to make your warehouse items stand out, use our eye-catching and colored marking labels. They are great for stock segmentation, identification and warning signs.

A4 transport & logistics products

FACE PROPERTIES (check TIS for further technical specs)

PRINTABILITY



Product	Sales code	EAN code	FACE PROPERTIES				Face description	PRINTABILITY		General purposes	High adhesion required	Removability required	High opacity block-out labels	Chill conditions	1-time repositionability	Water and chemical resistance	Warehouse eye-caching labels
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	CIE whiteness (ISO 11475) %	Opacity (ISO 2471) %		LASER/LED	INKJET								
Laser Logistics-FSC RPAL KS55-FSC	HHSRPALJEW	8329344	70	91	148	90	Uncoated paper	●	●		●						
Laser Logistics-FSC RPAL KS70-FSC	HHSRPALGJI	8329375						●	●		●						
Laser NXT+FSC RPA2 KS55-FSC	GJCRPA2EJW	8285817	65	82	163	90		●	●	●							
Laser NXT+FSC RPA2 KS70-FSC	GJCRPA2GJI	8285824						●	●	●							
Laser NXT+ CO2N-FSC RPA2 KS55-FSC	IKJRPA2EJW	8397053						●	●	●							
Jetlaser-FSC RRAR KS55-FSC	AYKRRAREJW	8298619	70	90	164	92		●	●			●					
Jetlaser-FSC RRAR KS70-FSC	AYKRRARGJI	8314517						●	●			●					
Jetlaser-FSC R49F KS70-FSC	AYKR49FGJI	8298565						●	●					●			
Jetlaser Opaque Black-FSC RPAL KS70-FSC	FUTRPALGJI	8391945	82	98	-	100		Uncoated paper with black reverse side for increased opacity	●	●			●				

A4 transport & logistics products

FACE PROPERTIES (check TIS for further technical specs)

PRINTABILITY



Product	Sales code	EAN code	FACE PROPERTIES				Face description	PRINTABILITY		General purposes	High adhesion required	Removability required	High opacity block-out labels	Chill conditions	1-time repositionability	Water and chemical resistance	Warehouse eye-caching labels			
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	CIE whiteness (ISO 11475) %	Opacity (ISO 2471) %		LASER/LED	INKJET											
Fluor Lemon-FSC RPA4 KS55-FSC	BXRRPA4EJW	8391884	78	73	-	89	Fluorescent coated paper	●								●				
Fluor Orange-FSC RPA4 KS55-FSC	BXSRPA4EJW	8392591						●												●
Fluor Red-FSC RPA4 KS55-FSC	BXTRPA4EJW	8391907						●												●
Fluor Green-FSC RPA4 KS55-FSC	BXURPA4EJW	8392614						●												●
Jetlaser Multitac-FSC	IIURPA4EJW	8393109	70	90	164	92	Multi-layer construction of an uncoated, white paper label face on top of two kraft liners	●	●					●						
Polylaser Matt White TC 60 RRAF KSS 120	GBVRAFFGX	8270660	82	60	-	84	White, matt coated polyester film	●			●				●					
Polylaser Matt White RPAF KSS 120	33RPAFFGX	8238080	75	58	-	88		●							●					
PE Laser White RPAF KSS 120	MERPAFFGX	8238257	115	178	-	92	White matt high pigmented polyethylene film	●							●					

Industrial chemical



Industrial chemical labels identify the container contents from a safety perspective, enable traceability, assist stock rotation and prevent the loss of goods and capital. Outdoor labeling especially requires self-adhesive materials that tolerate fluctuations in temperature and humidity, are moisture-proof and UV-stable. Here film materials are often the most appropriate choice. Strong adhesion is essential due to the varying characteristics of the labeled surfaces and conditions.

Many different types of containers are used in industrial chemical applications. The most common ones for laser printed labels are steel drums, HDPE drums, rigid bulk containers (RIBC) and different types of small & medium size plastic containers. For applications requiring durability in high temperatures and/or chemical resistance, reliable performance is guaranteed by UPM Raflatac's polyester based Poly laser product range.

PE Laser White face film on the other hand has exceptional thickness and stability, being an excellent choice for large label sizes. PE Laser White also has flexibility and conformability and is optimal for rough and uneven labeling surfaces. Especially when labeling non-polar and rough/uneven surfaces of HDPE drums, adhesion tests under the actual conditions of use are highly recommended. Laser-printed labels for use in difficult environmental conditions must also provide excellent toner anchorage and adhesion. Inkjet label faces must have excellent ink-drying properties and a resilient coating.

Due to the image resilience required by outdoor and durable labeling, UPM Raflatac recommends the use of laser-printable filmic products for typical industrial chemical applications. To satisfy inkjet needs, printing and end-use tests are recommended due to the variety of ink qualities on the market. Pigment-based inks are generally recommended.

Labels on industrial chemical containers typically need to be resistant to UV and water, meaning film materials are often the most appropriate choice. In addition, labels on containers that hold dangerous goods for marine transport need to meet BS5609 regulatory requirements to ensure durability and easy identification.



BS5609 approved solutions

Our new RPFM water based acrylic adhesive is designed for the most demanding industrial chemical applications. PE Laser White face film paired with RPFM adhesive and KSS120 backing ensures:

- compliance with BS5609, Section 2 standard requirements
- strong adhesion for demanding outdoor labeling applications e.g. HDPE drums and other rough surfaces

The following product combinations have British Standard BS5609 approval for labeling dangerous goods transported by sea:

- Poly laser Matt White combined with either the RPAF or RPFH permanent adhesives
- PE Laser White with the RPFM permanent adhesive
- Polyjet Matt White with the RPAF adhesive

Our A4 product range covers the following main industrial chemical end-uses:

For applications requiring special combinations, your nearest UPM Raflatac sales representative will be pleased to recommend suitable options.



LABELS FOR STEEL DRUMS

Steel drums are considered the safest containers for transporting dangerous goods. They are relatively easy to reuse and recycle and are not affected by extreme temperatures, humidity or pressure variations. As the drum surface is smooth and polar in nature, a strong adhesive bond is quite easy to achieve.



LABELS FOR HDPE DRUMS

HDPE drums are a more cost-effective and corrosion-resistant alternative to steel drums, with a lower direct drum cost, lower freight costs and a more compact shape. They require a strong permanent adhesive for full adhesive wet-out and bonding combined with optimal face material.



LABELS FOR RIGID INTERMEDIATE BULK CONTAINERS (RIBCS)

RIBCs have a large capacity and are usually made of HDPE plastic. Labels for RIBCs are typically large and applied manually, so stiff materials are used. A flat, stainless steel plate on the container cage means adhesion is relatively straightforward on the smooth, polar surface.



LABELS FOR SMALL AND MEDIUM SIZE PLASTIC CONTAINERS

Plastic containers for industrial chemicals with typical size 1– 50 ltr come in different shapes, with sides that can be straight or slanted. Used for lower volume specialty chemicals. Typically for fluids and flowable materials, also for hazardous goods. Even if the surface is non-polar by nature, the adhesive requirements vary according to the shape and roughness of the container.



LABELS REQUIRING OUTDOOR AND CHEMICAL RESISTANCE

Applications requiring good label performance in outdoor conditions need to tolerate temperature and humidity variations and must be moisture-proof and stable under the heavy UV-radiation coming from the sun.



BS5609 APPROVED LABELS

Chemical industry companies must ensure that the goods shipped via sea are identified according to BS5609. Even though BS5609 refers specifically to demanding marine use, it is widely considered an industry-standard certificate for premium labelstock performance. We recommend, however, that you also test on the end-user application.

A4 industrial chemical products

FACE PROPERTIES (check TIS for further technical specs)

PRINTABILITY



Product	Sales code	EAN code	FACE PROPERTIES (check TIS for further technical specs)				PRINTABILITY		Steel drums	HDPE drums	Rigid Bulk containers (RIBC)	Small and Medium size plastic containers	Outdoor and chemical resistance	BS5609 approved
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	CIE whiteness (ISO 11475) %	Opacity (ISO 2471) %	Face description	LASER/LED	INKJET					
Polymer Matt White RPAF KSS120	33RPAFFGX	8238080	75	58	-	88	White, matt coated polyester film	●		●	●	Good	●	
Polymer Matt White RPFH KSS120	33RPFHFGX	8238097						●		●	●	Good	●	
PE Laser White RPAF KSS120	MERPAFFGX	8238257	115	178	-	92	White matt high pigmented polyethylene film	●		●	●	Good		
PE Laser White RPFH KSS120	MERPFHFGX	8238264						●		●	●	Good		
PE Laser White RPFM KSS120	MERPFGX	8341162						●		●	●	Good	●	
Polyjet Matt White RPAF KS85	GURPAF91	8159460	95	85	-		White, matt coated polyester film		●	●	●	Average	●	

Test tube & laboratory



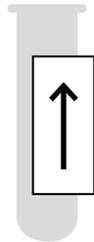
Test tube and laboratory applications in hospitals and analytical laboratories require variable identification information to be printed on the labels for various types of blood and specimen collection containers. In most A4 format printing applications it is done by laser printers and then labels are applied manually on test tubes or other types of containers.

Container type is the single most important factor for selecting the right label product for the application. There is a large number of different container types and labeling surfaces (glass, PE, PP, PET tubes, labeling on top of primary label, etc.) and container sizes (diameters and shapes). Storage and labeling conditions also impact label performance especially in most demanding small diameter applications. All of these will influence your label solution selection.

UPM Raflatac's thin, smooth and flexible Jetlite-FSC and Laserlab-FSC face materials combined with RPA6 adhesive are developed specifically for test tube and laboratory end-uses.

Jetlite-FSC RPA6 meets the requirements of most typical small diameter test tube applications with the tube diameter no smaller than 12mm.

Laserlab-FSC RPA6 is a premium performance product designed for hospital and laboratory applications. This product has superior mandrel hold performance and works in most demanding small diameter test tubes and specimen containers with outer diameter no smaller than 8mm.



Fiber
direction
of label

For test tube labels using UPM Raflatac's removable RRAR adhesive, the direction of conversion should run with the grain of the label to ensure good bond between the label and test tube and to avoid edge-lifting (see the picture). The direction in which the label fiber runs is not

so critical with the RPA6 permanent adhesive, but is highly recommended for securing the label adhesion even in most demanding low humidity conditions.

When there is a big number of small labels or perforations per sheet, the recommended backing is Kraft Special 70. For special applications requiring higher grammage backing, the tailored Kraft Special 85 option supports many small labels combined with perforations across the sheet.

We recommend converting with 4-edge stripping to prevent adhesive contamination into the printer and to minimize maintenance stops; see further converting recommendations on page 25.

All UPM Raflatac test tube and laboratory labeling products are continuously tested for premium performance on the most commonly used test tube and container types. This approach helps deliver technically proven labeling materials for this demanding end-use.

For applications requiring special combinations, your nearest UPM Raflatac sales representative will be pleased to recommend suitable options.



A4 test tube & laboratory products

			FACE PROPERTIES (check TIS for further technical specs)				PRINTABILITY					
			Substance (ISO 536) gsm	Caliper (ISO 534) mic	CIE whiteness (ISO 11475) %	Opacity (ISO 2471) %	Face description	LASER/LED	INKJET	Collection tubes diameter 12mm and above	Collection tubes diameter 8mm and above	Removability required
Jetlite-FSC RPA6 KS55-FSC	FGSRPA6EJW	8353509	58	63	120	86	Uncoated low caliper and flexible paper	●	●	●		
Jetlite-FSC RPA6 KS70-FSC	FGSRPA6GJI	8360262						●	●	●		
Jetlite-FSC RRAR KS70-FSC	FGSRRARGJI	8392515						●	●	●	●	
Laserlab-FSC RPA6 KS70-FSC	HJLRPA6GJI	8352731	45	39	130	86	Uncoated low caliper and flexible paper	●	●	●	●	

ADHESIVES

PAPER FACES		Performance (adhesion) on different substrates (1 LOW - 5 HIGH)											Application restrictions	Special converting recommendations See the general converting recommendations on page 25
		Tack (FTM9)	Minimum labeling temperature (°C)	Service temperature (°C)	Shelf-life (months)	PP/PE/HDPE, non-polars	Glass	Paper (forms, envelope, etc.)	Easy cardboards (smooth)	Difficult cardboards (corrugated, recycled)	Small diameter labeling	Removability required		
Adhesive	Description													
RPA2	General purpose permanent adhesive	12	5	-20 / 100	48	4	4	5	4	3	2	1	Pre-test recommended on cardboard substrates. Not recommended for small diameter applications	
RPA4	General purpose permanent adhesive	14	5	-20 / 100	48	4	4	5	4	3	2	1		
RPA6	Permanent adhesive for A4 test tube applications	14	5	-20 / 100	24	4	4	5	4	3	5	1		
RRAR	General purpose removable adhesive	2	5	0 / 80	24	2	2	2	2	1	3	5	Not recommended for labeling PVC or acrylic coated surfaces, long term removability might be restricted.	
RPAL	Extra-permanent adhesive, specially designed for transport and logistics applications	14	5	-20 / 100	24	5	5	5	5	5	2	1		4-edges matrix stripping recommended * and to the end OR possibly to refer to recommendations
R49F	Permanent adhesive for chill and freezer applications	8	-20	-40 / 80	24	5	5	5	5	5	2	1	Not suitable for labeling curved surfaces. Limited adhesion to moist surfaces.	4-edges matrix stripping recommended * and to the end

FILM FACES		Performance (adhesion) on different substrates (1 LOW - 5 HIGH)											Application restrictions	Special converting recommendations See the general converting recommendations on page 24
		Tack (FTM9)	Minimum labeling temperature (°C)	Service temperature (°C)	Shelf-life (months)	PP/PE/HDPE, non-polars	Glass	Paper (forms, envelope, etc.)	Easy cardboards (smooth)	Difficult cardboards (corrugated, recycled)	Small diameter labeling	Removability required		
Adhesive	Description													
RPAF	General purpose permanent adhesive	9	5	-20 / 100	24	3	4	5	5	4	2	1	For high end-use temperature applications, separated tests are recommended together with the face material.	
RPFH	Extra permanent adhesive	12	0	-20 / 70	24	4	5	5	5	5	2	1	High temperature and humidity during the storage might cause adhesive bleeding from the edges of the rolls. For high end-use temperature applications, separated tests are recommended together with the face material.	4-edges matrix strip-ping recommended * and to the end
RPFM	Extra permanent adhesive	14	5	-20 / 100	24	4	5	5	5	5	2	1	For high end-use temperature applications, separated tests are recommended together with the face material.	
RRAF	General purpose removable adhesive	3	5	-10 / 80	24	2	2	2	2	1	2	5		

CONVERTING: UPM Raflatac's A4 adhesives have been specially developed to cut well during the sheeting process

LASER PRINTING: the sheet edges stay clean and the adhesive shouldn't bleed from the sheet edges before or during printing. Laser printing and copying are especially demanding, as the adhesive needs to withstand the heat of the hot fusion process.

SHELF LIFE: From date of manufacture, under FINAT defined storage conditions (+20-

25°C and RH 40-50%). Prolonged storage at higher temperatures and/or humidity levels will shorten the shelf life.

FOOD LABELING: compliance information related to food labeling applications, please contact your local sales representative for a Declaration of Conformance (DoC) document. For finding a suitable food package labeling compliant product, please contact your local sales representative.

BACKINGS

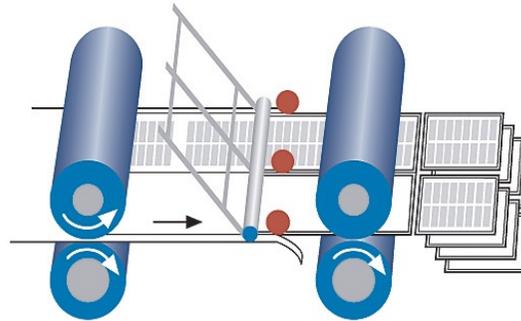
	Product name	Sales code	Substance (ISO 536)	Caliper (ISO 534)	Tensile Strength MD/CD (ISO 1924)	Description	Converting recommendations	Printing (laser/inkjet) recommendations
PAPER	Kraft Special 55 -FSC / Kraft Special 55	EJW /66	51	54	4.7 / 2.0	Universal Kraft backing for laser and inkjet printers	Less than 24 labels per A4 sheet / Not recommended for perforated sheets / Not recommended for fanfold end-uses	Printing speed generally below 50 ppm / Long-grain feeding in the printer recommended
	Kraft Special 70 -FSC / Kraft Special 70	GJI /90	66	69	5.6 / 2.5	Universal Kraft backing for laser and inkjet printers with special lay-out or laser printing requirements	More than 24 labels per A4 sheet / Recommended when sheet layout has 1–2 lines of perforation / Recommended for fanfold end-uses	Printing speed generally higher than 50 ppm / Long-grain feeding in the printer recommended
FILM	Kraft Special Stabilized 120	FGX	120	112	8.0 / 4.0	Universal Kraft backing for all laser end-uses, specially designed for laser printable filmic label faces. High dimensional stability providing superior lay-flatness		Long-grain feeding in the printer recommended
	Kraft Special 85	91	87	82	8.7 / 3.8	Universal Kraft backing for all laser end-uses, specially designed for inkjet printable filmic label faces		Long-grain feeding in the printer recommended

All UPM Raflatac A4 backings are designed for optimal feedability, runnability and post-printing layflat into Laser/LED/Inkjet printers.

CONVERTING RECOMMENDATIONS

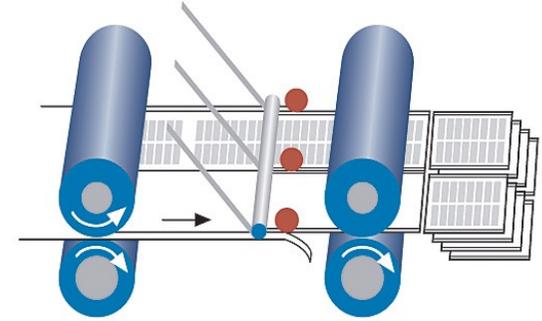
The following recommendations cover the most critical A4 converting issues. To minimize or eliminate adhesive-bleed, please note the following conversion methods, with the most recommended first and the least recommended last.

1.



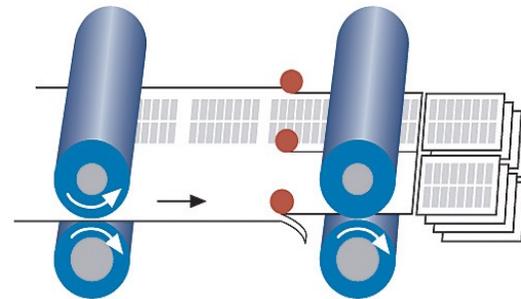
Strip the matrix from all 4 edges. This is the most demanding conversion method in regard to the press.

2.



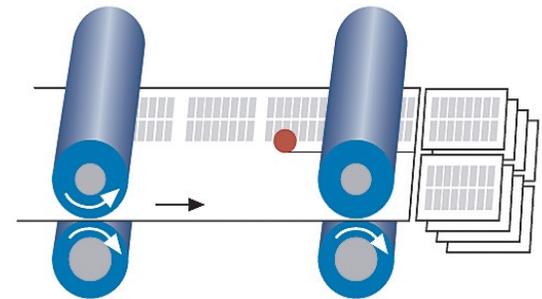
Strip the face so that is slightly narrower (1-2 mm) than the backing; this results in adhesive-free edges.

3.



No stripping at all, but edges slit on-press. No face stripping, but edge slitting done on the press.

4.



Only sheeting net A4-width material.

HANDLING AND STORAGE

When in storage, rolls must be kept in their plastic wrapping. The laminate must be stored near the converting machinery for at least 24 hours so that the temperature of the laminate is the same as the ambient temperature. A4 sheets should be placed in moisture-proof wrapping immediately after conversion.

Boxes of finished material should be stored indoors, away from sources of heat or humidity. Keep the boxes in near-printer conditions several hours before use and avoid sudden changes in conditions.



DIE CUTTING

General A4 products need special tools, both for paper and film-based solutions. UPM Raflatac always recommends that you contact your own die supplier, who will be able to advise you about the best die tools to use. Filmic A4 products need special care when die-cutting. As with all filmic face materials, a reinforced smaller die angle, 60° for example, is recommended.

ENSURING LAY-FLAT A4 SHEETS

Machine direction

When nearing the end of a roll, the laminate has a tendency to curl in the same direction as the core. To optimize runnability, the use of an anti-curl bar is recommended.

UPM Raflatac recommends using 6-inch cores for coated board or filmic products, which reduces the need for an anti-curl bar. If you have a 3-inch unwinder shaft, please contact your UPM Raflatac sales office, so they can provide further guidance and information about the right adapters when using 6-inch cores.

Cross direction

Because paper has a tendency to react in variable moisture levels for cross direction, ideal ambient conditions are strongly recommended: relative humidity of approximate 40–50% at a temperature of 20–25 °C.

MATRIX STRIPPING

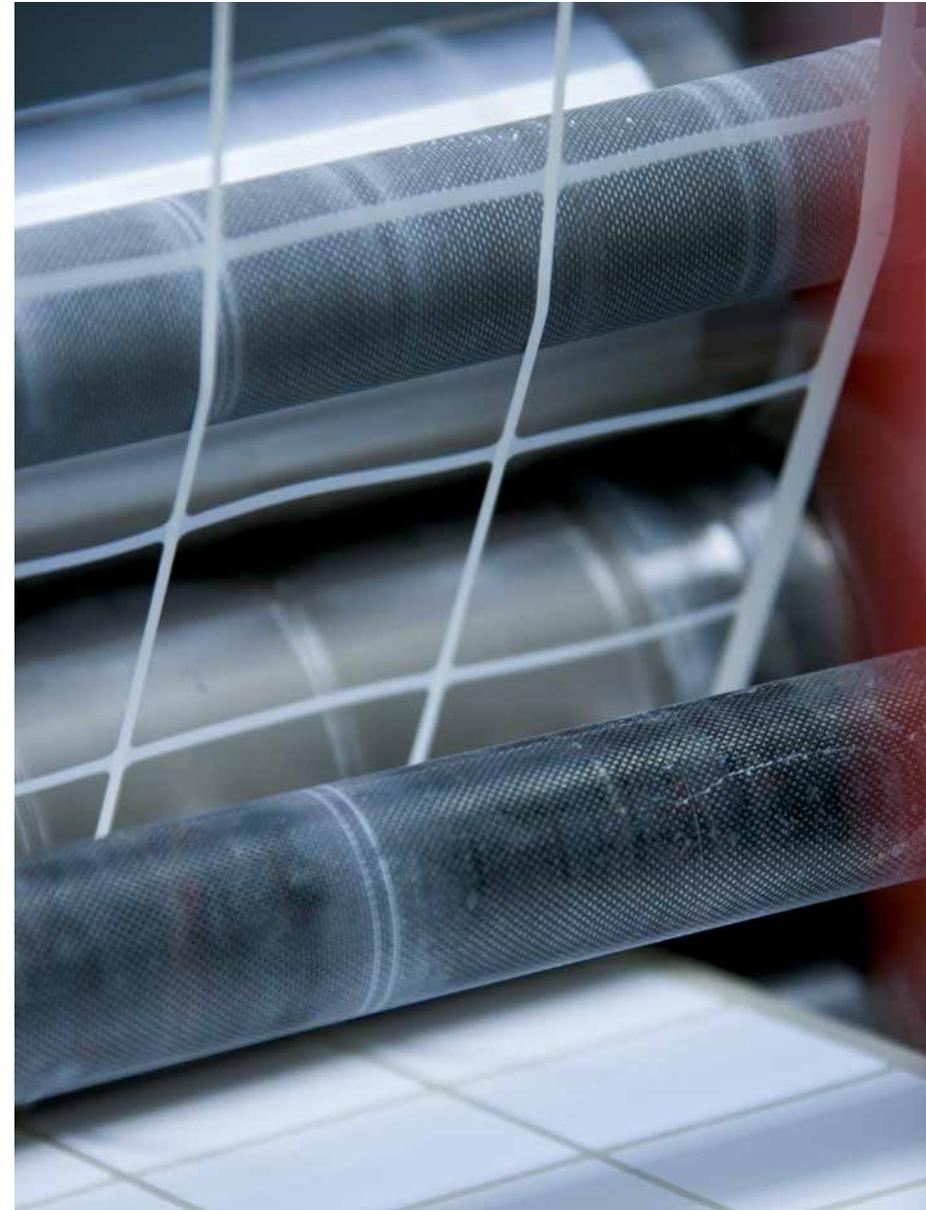
When releasing the matrix, three key factors should be considered to achieve an optimized process: a) the die-cutting plate specifications; b) the label (and matrix) layout, especially the label radius and matrix dimensions; and c) a quality label material with the required release level. UPM Raflatac A4 products release levels are optimized for matrix-stripping and also provide trouble-free performance during laser printing.

PRE-PRINTING

Water-based inks can easily cause cross-directional curl towards the backing material because the water in the ink affects the moisture balance of the laminate.

For applications where pre-printed materials are laser printed, check with your ink supplier for a recommended printing ink. We recommend using colored paper laminates from our range rather than printing solid color over an entire sheet.

The coatings on UPM Raflatac's inkjet products are specially designed for the purpose. The characteristics of these coatings may compromise the print result with conventional methods such as flexography and offset.



PRINTING RECOMMENDATIONS

PRINTING CONDITIONS

Store self-adhesive sheets in a dry environment. If the temperature and humidity levels are very different between the storage and printing environments, the sheets should be brought to the printing environment several hours before use.

Very dry conditions can negatively affect curling, feeding and even toner positioning. The optimal printing conditions are RH 40–50% and temperature of 20–25 °C.

PRINTER SETTINGS AND HANDLING

Follow the printer supplier's recommendations for printer settings. Most printer suppliers recommend to use by-pass/external tray feeding and specific label settings for printing self-adhesive sheets. It is also recommended to have fiber direction parallel to printing direction in order to avoid curling or paper jams.

For film based label stock printing process it is recommended to use manual feed or bypass tray, instead of standard feed tray. Print sheets on a straight pass, minimizing the risk of



jams and post-laser curling effect. Always fan the pile of sheets prior to printing in order to release accumulated electric charge.

PRINTER MAINTENANCE AND SERVICE

In case of heavy use of self-adhesive in net-width sheets, the maintenance cycle is shorter than with sheets that have the edges cleaned or sheets with adhesive-free edges. Carry out printer maintenance according to the original manufacturer's recommendations.

END-USER RECOMMENDATIONS

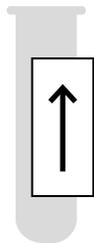
LABELED SURFACE AND CONDITIONS

Clean the surface to avoid any dust/grease or humidity on labeled surface and apply even pressure over the whole label for securing the adhesion. You can find labeling & service temperature recommendations and other label usage guidelines from product technical information documents.

The following factors can compromise the removability of the label (removable adhesives): UV light, moisture, high temperature exposure, high polarity of the surface labeled.



Choose the right adhesive depending on the end-use requirements (general purpose permanent, High tack permanent, removable, deep freeze). See the end-use segment information for selecting a right product.



Fiber direction of label

SMALL DIAMETER LABELING

When labeling small diameter and other curved surfaces with a paper label fiber, the direction of the label should be parallel with the container surface to ensure good bond between the label and test tube and to avoid edge-lifting (see the picture). Due to the product's nature, paper faces can be sensitive to humidity fluctuations.

The performance of the product should always be tested in the actual application conditions. Our recommendations are based on our most current knowledge and experience. As our products are used in conditions beyond our control, we cannot assume any liability for damage caused through their use. Users of our products are solely responsible that the product is suitable for its intended application, and have determined such at their sole discretion. Users must comply with any applicable legislation and/or testing requirements for the finished article, and are responsible for bringing their products to market.



TROUBLESHOOTING

1 CONVERTING

	PROBLEM	CAUSE	ACTION
PACKAGING AND TRANSPORT	Incorrect roll width	Incorrect knife setting	Contact your supplier. Roll width tolerance is +/- 0.5mm.
	Damaged edges	Transport damage	Contact your supplier with the order/delivery details
		Pallet in poor condition	Contact your supplier with the order details
UNWINDING	Adhesive bleed	Incorrect storing conditions	Make sure that material is stored in recommended conditions (+20–25°C and RH 40–50%). Prolonged storage at higher temperatures and/or humidity levels will shorten the shelf life.
		Coil tension too tight	Contact your supplier with the order details
		High weight overloaded at the stock	Avoid overloaded material especially during summer
		Coils stored without siliconized sheets separating them	Keep coil with siliconized sheets
		Adhesive recipe	Contact your supplier with the order details

	PROBLEM	CAUSE	ACTION
PRE-PRINTING	Uneven flexo/ offset coverage	Substrate has uneven thickness or absorption characteristics	Contact your supplier with the order details
		Improper impression	Check plates, inks, machine settings
	Poor ink adhesion	Improper impression	Consult your ink manufacturer and/or check drying conditions
	Picking (inkjet materials)	Ink picks up the fiber due to high tack or viscosity, or when printing solid areas	Check ink condition. The inkjet coating has been specially designed for the purpose, and the characteristics of these coatings can compromise the print result when using conventional methods such as flexography and offset.
	Cross-direction curl	High amount of water (with water-based inks) and/or improper drying	Water-based ink changes the optimized humidity level of the laminate. Anti-curl additives are recommended in addition to adjusting the ink/water volume and drying level.
Whole sheet printed in solid colored		UPM Raflatac recommends using colored paper laminates rather than printing solid colour over an entire sheet	
DIE-CUTTING	Die-cut too deep or incomplete	Variation in backing thickness	Contact your supplier with the order details
		Incorrect magnetic plate specifications (height and angle)	Contact your magnetic plate supplier for specific advice. For filmic faces, UPM Raflatac recommends the use of lower die angles (60–70 °C) than typically used for papers (70–90 °C).
		Excessive pressure at die-cut station/old plate	Check the magnetic plate supplier's recommendations for use. Avoid the use of filmic tapes between the magnetic cylinder and plate – it may damage the backing when die-cutting.
	Matrix breakage	High release or siliconeless voids on backing paper	Contact your supplier with the order details
		90° angles in the label design	Rounded angles are highly recommended when the matrix is removed
		Improper matrix dimensions	As a general rule, length-ways matrix dimensions should be double those of cross-matrix dimensions
		Unsuitable product	Contact your supplier for technical advice

	PROBLEM	CAUSE	ACTION
STACKING	Cross-directional curl when converting within Relative Humidity tolerance of 40–50%	Poor moisture level in laminate	Contact your supplier with the order details
		Improper impression/drying (when face and/or backing are flexo/offset printed)	Water-based ink changes the optimized humidity level of the laminate. Anti-curl additives are recommended in addition to adjusting the ink/water volume and drying level. Rather than print sheets in solid colour, UPM Raflatac recommends using colored paper laminates.
		Coil storage conditions	Coils must be kept in their plastic wrapping to protect them from environmental extremes which can have an adverse effect on convertibility. We recommend that materials are stored at 20–25 °C and RH 40–50%.
		Converting conditions	A4 products are sensitive to variations in moisture and temperature. UPM Raflatac recommends that A4 materials are converted under controlled conditions: 20–25 °C and RH 40–50%. Outside these tolerances, the lay-flat performance may be unreliable. When converting A4 papers, a cross-direction curl (CD) towards the face indicates a lack of moisture, while a CD curl towards the backing indicates a high moisture level. When converting A4 Films, CD curl towards the face indicates a high moisture level, while CD curl towards the backing indicates a lack of moisture.
	Machine-direction curl	High/low laminate tension	Contact your supplier with the order details. UPM Raflatac recommends the use of anti-curl bar adjustment, especially with flexible products like films.
	Machine-direction curl near the coil join	Mechanical shape taken from the laminate core or mixing two different curling profile	Curvature will return to flat after 24 hours in the sheet pile
	Machine-direction curl near the core	Mechanical shape taken from the coil core	UPM Raflatac recommends the use of a 6-inch (152 mm) core instead of a 3-inch (76 mm) core to minimize curl. An anti-curl bar is also highly recommended.
	Diagonal curl	High/low laminate tension and poor moisture level in laminate	Contact your supplier with the order details
	Adhesive-bleed: sheets stick together	Adhesive properties out of tolerance	Contact your supplier with the order details
		Poor or roughly slit edges	Check the condition of the knife and replace when needed
Adhesive residue clumps	Adhesive properties out of tolerance	Contact your supplier with the order details. Adhesive residue clumps, adhesive stringing, fiber dust.	
	Knife condition (long and/or cross)	Check the condition of the knife and replace when needed	

2 PRINTING (LASER/INKJET)

	PROBLEM	CAUSE	ACTION
FEEDING	Not feeding: poor lay-flatness	Sheet storage conditions	Sheet boxes should have a moisture barrier to guarantee that the humidity level of the sheets remains correct. Store sheets in a dry environment. If the temperature and humidity levels are very different between the storage and printing environments, the sheets should be placed near the printer several hours before use.
		Sheet printing conditions	Too dry conditions can negatively affect curling, feeding and even toner positioning. The optimal RH is 40–50% at a temperature of 20–25 °C.
	Not feeding: double feeding	Adhesive properties out of tolerance	Contact your supplier with the order details
		Sheet storage conditions	See recommendations for 'Not feeding – Poor lay-flatness'. Also, refresh the sheet pile before setting it in the cassette or manual feeder.
		Edge stuck due to adhesive bleeding	To minimize adhesive-bleed, matrix-stripping is highly recommended. The most recommended is the four-edge clean, followed by the two edge clean. When not matrix-stripping, edge slitting on-press is preferable to net A4 width. The free-edge should not exceed 1–2 mm: the edges could bend and jam inside the printer.
		Printer condition	Please note that when net-width sheets are used in printers, the maintenance cycle is shorter than with sheets that have the edge cleaned. Carry out printer maintenance according to the original manufacturer's recommendations.
		Die-cut too deep – lack of stiffness	Die-cutting too deeply diminishes the laminate's stiffness and makes the face uneven. Check the condition of the die-cut.
		Excessive curling	Too dry conditions can negatively affect curling, feeding and even toner positioning. The optimal RH is 40–50% at a temperature of 20–25 °C. Contact your supplier with the order details

	PROBLEM	CAUSE	ACTION
PRINTING	Paper jam	Improper sheet size	Contact your supplier with the order details. Despite ISO 216 standards, a tolerance of +/- 0.5 mm is highly recommended in order to optimize feedability across a broad range of printers.
		Improper grain direction	Follow the printer supplier's recommendations. As a general indication, most recommend feeding in the long-grain direction to maintain sheet stiffness. The number and design of the labels may compromise sheet stiffness. UPM Raflatac has developed a wide range of backings to cover end-user requirements: please refer to the backing selector on page 24.
		Labels predispending	Contact your supplier with the order details
		Die-cut too deep – lack of stiffness	Contact your supplier with the order details. Die-cutting too deeply diminishes the laminate stiffness
		Excessive curling	Too dry conditions can negatively affect curling, feeding and even toner positioning. The optimal RH is 40–50% at a temperature of 20–25 °C. Contact your supplier with the order details
		Double feeding	Refer to 'Not Feeding – Double feeding' on this page
	Poor laser and/or copier toner positioning and anchorage	Electrical factors regarding toner positioning	Contact your printer supplier with the order details
		Physical surface properties	Contact your supplier with the order details
		Printer driver set-up	Contact your printer supplier. Follow the printer manual and the supplier's recommendations.
		Toner quality	Use only original toner cartridges
	Poor inkjet absorption/drying	Poor surface ink absorption	Contact your supplier with the order details
		Printer driver set-up	Contact your printer supplier. Follow the printer manual and the supplier's recommendations.
		Ink quality	Use only original ink cartridges

	PROBLEM	CAUSE	ACTION
OUTPUT	Static electricity (filmic faces)	Low moisture conditions	Make sure that material is stored in recommended conditions (+20-25°C and RH 40-50%). Samples conditioning before printing is recommended.
		Wrong feed tray selected	We recommend manual feed or to use bypass tray for laser printing, instead of standard feed tray. This allows sheets to be printed on a straight pass, minimizing the risk of jams and post-laser curling effect of labelstock with filmic face material. Always fan the pile of sheets prior printing in order to release accumulated electric charge
		Raw material fault	Contact your supplier with the order details
	High level of post-laser curl	Moisture level of laminate	Contact your supplier with the order details
		Improper grain direction	Follow the printer supplier's recommendations. As a general indication, most recommend feeding in the long-grain direction to maintain sheet stiffness. The number and design of the labels may compromise sheet stiffness. UPM Raflatac has developed a wide range of backings to cover various end-user requirements: please refer to the backing selector on page 24.
		Printing conditions	Too dry or moist conditions can have a negative impact on curling after printing. Optimal conditions are RH 40–50% at 20–25 °C.

CONTACT US TO LEARN MORE



Send an inquiry to get in touch with your nearest sales representative. Learn more about UPM Raflatac's A4 label product range to boost your visual performance, efficiency and sustainability.

Warranty

Our recommendations are based on our most current knowledge and experience. As our products are used in conditions beyond our control, we cannot assume any liability for damage caused through their use. This publication replaces all previous versions. All information is subject to change without notice. For our latest product range, please contact your nearest UPM Raflatac representative.



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