

PRISMATIC INKS PTY LTD

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APPLICATION NOTES

Rub Resistant UV Varnishes

Summary

There are a number of applications which require a scratch, scuff, rub or marr-resistant surface. In general, most UV-cured varnish has some or all of these properties, however there are a number of other issues which need to be considered when deciding which varnish to use.

Film weight

It needs to be kept in mind that different print processes will apply different varnish weights. A low varnish weight is not appropriate where the possibility for repetitive rubbing exists (e.g. wine labels in cases during transport). Typical film weights vary from offset (0.2-2 gsm), letterpress (0.5-4 gsm), flexo (0.5-5 gsm), roller coater (2.5-10 gsm) up to screen (5-25 gsm). In a continual rubbing situation therefore a screen varnish applied at 10 gsm will last approximately 10 times longer than a letterpress varnish applied at 1 gsm. This issue is particularly a problem for matt varnishes where lower film weights may be required to achieve the desired level of gloss.

Varnish Hardness

Harder varnishes do not necessarily improve rub resistance. Such varnishes typically tend to be more prone to flaking, adhesion failure, substrate curl and brittle die-cut, particularly at high film weights (such as screen print). Prismatic varnishes are formulated to provide optimum rub resistance for each print application. Prismatic offers a number of “high-rub” varnishes which are included in the attached table. Care needs to be taken with these by the end user to ensure that the film weight and job design do not compromise the varnish properties.

Embossing and foil

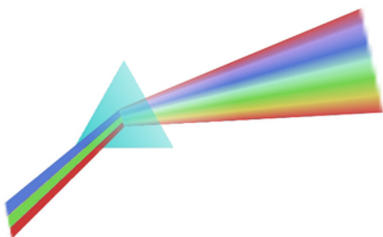
Any process which increases the height of part of a surface exposed to rubbing will concentrate the rubbing force in this area, therefore putting more demands on a varnish applied over this raised surface. Designs which include foiled or embossed borders are particularly susceptible to wear. It should also be noted that there are special foils with harder adhesives and colour coats which may be more appropriate in this more demanding situation.

Adhesion

Certain substrates (e.g. vinyls and foils) place particular demands on the varnish and the end user needs to establish that the chosen varnish is appropriate to the application. Adhesion to foils is particularly difficult, especially for gloss varnish. Where a varnish tapes off or scratches off a foil, then it is unlikely that it will perform well in service. It is important therefore to select an “over-foil” style varnish to ensure optimum adhesion and rub resistance. Your foil supplier can recommend foils which are more receptive to UV Varnish. We have found that Kurtz GT release 7 or 8 gives an acceptable adhesion result with our O/F varnishes

Cure Speed

Lamp curing systems need to be maintained at their peak in order to ensure the best possible cure for the varnish – high speeds, high film weights, old lamps and dirty reflectors all contribute to undercure which will result in a soft varnish with poor rub-resistance.



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Rub Resistant UV Varnishes

Code	Product	Over foil?	Foailable?	RRF
UV-Offset				
11021	Dry Offset Matt	No	No	1.5
11034	Supermatt 4.2	No	Yes	0.5
11046	Dry Offset Gloss	No	No	1.5
11076	Litho Hi-Speed	No	No	0.5
11071	FX Matt	No	No	2
UV-Letterpress				
11022	Pattern Matt	No	No	2
11034	Supermatt 4.2	No	Yes	0.5
11036	Satin HR	No	Yes	1.5
11043	Hi-Slip Gloss	No	No	0.8
11043HB	Hi-Body Gloss	No	No	1
11044	Foailable Gloss	No	Yes	0.5
11045	Duct LV	No	No	0.5
11047	Low Odour Gloss	No	No	0.8
11071	FX Matt	No	No	1
11072	FX Satin	No	No	1
11073	O/F Matt (UDD)	Yes	No	1
11074	O/F Gloss	Yes	No	1
UV-Flexo/Coater				
11003	Gloss Coating FB	No	Yes	1
11004	L/O Coating	No	No	1
11010	Ultra Matt	No	No	1
11012	Gloss O/F	Yes	No	1
11013	Satin O/F	Yes	No	1
11014	SR Coating	No	No	2
11015	Satin O/F S/F	Yes	Yes	1
11016	Supermatt FB	Yes	Yes	1
11019HR	Satin Hi-Rub	No	No	2
11025	Satin Coating L/O	No	No	1
11026	Matt Coating O/F L/O	Yes	No	1
11031	Matt Coating L/O	No	No	1
11032	VHS Coating	No	No	1
11042	Roller Coater Gloss (Sands)	No	No	1
11086	Desensitiser Coating	No	No	1
UV-Screen				
11050	Hi-Build Gloss	No	No	5-8
11051	Ultra Matt	No	No	3
11058	Matt Hi-Build	No	No	5-8
11059	O/F Satin	Yes	No	3
11060	Flash Gloss	No	No	3
11069	O/F Matt	Yes	No	3

RRF is relative rub resistance factor – a rough indication of expected performance based on film weight applied and varnish design

All information is given in good faith without warranty. This information does not constitute a specification.
Users are encouraged to assess the product under their own conditions and for their own applications.