

Technical Data Sheet



Revision: 01/20.04.2007
TATDPR-M480_09-0x_8102-482D8.doc

Rigid PVC-film: **Pentaprint PR M480/09**

Colour: **07/8102 - white opaque**
09/8102 - white opaque

Surface: **482D8 – fine matt / fine matt**
corona treated on both sides

Regarding the heavy metal limits these calendered rigid PVC films meet the requirements of the EC directive 94/62/EC and their supplements 99/42/EC, 99/177/EC, 2004/12/EC and 2005/20/EC.

- Specific properties:
- medium impact strength
 - suitable for screenprinting
 - good chemical resistance

Properties	Standard	Value	Unit	Remarks
Thickness	DIN 53370 ISO 4593	140 – 500	mic	tolerances: ± 10 % (≤ 200 mic) ± 7 % (> 200 ... 400 mic) ± 5 % (> 400 mic)
Density	DIN EN ISO 1183-2	1,38 ± 0,04 1,43 ± 0,04	g/m ²	for colour 07/8102 (401 ... 500 mic) for colour 09/8102 (140 ... 400 mic)
Tensile strength - depends on thickness	DIN EN ISO 527-7	≥ 42	N/mm ²	test speed V (50 mm/min); measured lengthwise
Tensile impact strength	DIN EN ISO 8256	≥ 450	kJ/m ²	measured lengthwise
VICAT-softening point	DIN EN ISO 306	75 ± 2	°C	measured in oil, method B/50
Shrinkage - longitudinal - transverse	DIN 53377	max. - 10 max. - 8 max. ± 2	%	storage in heated cupboard, at 140 °C/10 min (≤ 200 mic) (> 200 mic)
max. Temperature load without remaining shrinkage		+ 55	°C	
Cold break temperature	DIN EN 1876-2	- 15	°C	drop hammer method
Surface tension	DIN ISO 8296	≥ 42	mN/m	measured with test inks
Surface reflexion		10 – 35	GE	measuring angle 85°
Surface roughness – RZ	DIN 4768	6 ± 2	mic	masured with Perthometer, length 15 mm

All details in this data sheet are based on our present technical knowledge.
They neither guarantee certain characteristics of products nor their suitability for a particular application.

Technical Data Sheet

Product name: Pentaprint® PR M295/91-04/8420-120_1
PR-M295/91-04/8420-120_1

Description: high impact strength
suitable for screen printing and UV offset
Quality segment: PR - PRINT APPLICATION
Type: M295/91 - PVC Polyvinylchloride
Colour: 04/8420 - White opaque
Surface: 120_1 - glossy/glossy

Properties	Standard	Unit	Values
Thickness	DIN 53370 / ISO 4593	µm	301 ... 800
Tolerance of Thickness	DIN 53370 / ISO 4593	%	-10 ... 10 200 µm -7 ... 7 201 ... 400 µm -5 ... 5 401 ... 800 µm
Density	DIN EN ISO 1183-2	g/cm ³	1,36 ... 1,40
Tensile strength, min.	DIN EN ISO 527 test speed V 50 mm/min, measured lengthwise (depends on thickness)	MPa	45
Impact strength, min.	DIN EN ISO 8256 measured lengthwise	kJ/m ²	550
VICAT-softening point	DIN EN ISO 306 measured in oil, method B/50	°C	72 ... 76
Dimensional stability -longitudinal	DIN 53377 storage in heated cupboard, at 140 °C/10 min	%	-5,0 ... 0,0 301 ... 400 µm -4,0 ... 0,0 401 ... 800 µm
Dimensional stability -transverse	DIN 53377 storage in heated cupboard, at 140 °C/10 min	%	-2,0 ... 2,0 301 ... 800 µm
Max. processing temperature	no remaining change of size	°C	55
Cold Break Temperature	DIN EN 1876-2 drop-hammer method	°C	-25
Surface tension, min.	DIN ISO 8296 measured with test inks	mN/m	34
Surface reflexion, 20°	DIN 67530 measuring angle 20°		70 ... 90

Regulatory: The product corresponds to:
- Packaging requirements for heavy metals
- Supplementary confirmations to the above-named points can be issued on request.

Storage conditions:

- Ideal storage conditions between 10 - 30°C (50 - 86°F)
- Ideal RH 40 - 70%
- Should not be stored in direct sunlight and avoid major thermal fluctuation
- Store in original packaging

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Revision: 3/18.08.2010

- Before working up the films should be conditioned a minimum of 24 hours room temperature (15 - 30°C)
- recommended use of the material within one year of production date

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Revision: 3/18.08.2010

Technical Data Sheet



Product name: Pentaprint® PVC PR-M295/90-71/9400-100_0-ZZZ

Description: high impact strength
suitable for screen printing and UV offset

Quality segment: Print film
Type: PVC
Color: 1-RG-Grey, crystal clear-000
Surface: Glossy / Glossy-00
Additional treatment: No additional treatment-00

Properties	Standard	Unit	Values
Thickness	DIN 53370 / ISO 4593	µm	80 ... 299
Tolerance of Thickness	DIN 53370 / ISO 4593	%	-10 ... 10 200 µm -7 ... 7 201 ... 299 µm
Density	DIN EN ISO 1183-2	g/cm ³	1,31 ... 1,35
Tensile strength, min.	DIN EN ISO 527 test speed V 50 mm/min, measured lengthwise, depending on thickness	MPa	45
Impact strength, min.	DIN EN ISO 8256 measured lengthwise	kJ/m ²	550
VICAT-softening point	DIN EN ISO 306 measured in oil, method B/50	°C	72 ... 76
Dimensional stability -longitudinal	DIN 53377 storage in heated cupboard at 140°C/10min	%	-15,0 ... 0,0 80 ... 100 µm -7,0 ... 0,0 101 ... 200 µm -5,0 ... 0,0 201 ... 299 µm
Dimensional stability -transverse	DIN 53377 storage in heated cupboard at 140°C/10min	%	-4,0 ... 4,0 80 ... 100 µm -2,0 ... 2,0 101 ... 299 µm
Max. processing temperature	no remaining change of size	°C	55
Cold Break Temperature	DIN EN 1876-2 drop-hammer method	°C	-25
Surface tension, min.	DIN ISO 8296 measured with test inks	mN/m	34
Surface reflexion, 20°	DIN 67530; ASTM D-523 measuring angle 20°	GE	70 ... 90

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Regulatory:

The product corresponds to:

- Packaging requirements for heavy metals
- Supplementary confirmations to the above-named points can be issued on request.

Storage conditions:

- Ideal storage conditions between 10 - 30°C (50 - 86°F)
- Ideal RH 40 - 70%
- Should not be stored in direct sunlight and avoid major thermal fluctuation
- Store in original packaging
- Before working up the films should be conditioned a minimum of 24 hours room temperature (15 - 30°C)
- recommended use of the material within one year of production date

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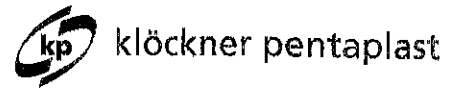
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Technical Data Sheet



Product name: Pentaprint® PVC PR-M180/09-05/9200-482D8-ZZZ

Description: medium impact strength
 suitable für screen printing and UV offset
Quality segment: Print film
Type: PVC
Color: 1-White, opaque-033
Surface: FIMat/FIMat;2Side Corona-00
Additional treatment: No additional treatment-00

Properties	Standard	Unit	Values
Thickness	DIN 53370 / ISO 4593	µm	601 ... 900
Tolerance of Thickness	DIN 53370 / ISO 4593	%	-10 ... 10 200 µm -7 ... 7 201 ... 400 µm -5 ... 5 401 ... 900 µm
Density	DIN EN ISO 1183-2	g/cm³	1,41 ... 1,45
Tensile strength, min.	DIN EN ISO 527 test speed V 50 mm/min, measured lengthwise, depending on thickness	MPa	45
Impact strength, min.	DIN EN ISO 8256 measured lengthwise	kJ/m²	450
VICAT-softening point	DIN EN ISO 306 measured in oil, method B/50	°C	70 ... 74
Dimensional stability -longitudinal	DIN 53377 storage in heated cupboard at 140°C/10min	%	-10,0 ... 0,0 140 ... 200 µm -7,0 ... 0,0 201 ... 400 µm -5,0 ... 0,0 401 ... 900 µm
Dimensional stability -transverse	DIN 53377 storage in heated cupboard at 140°C/10min	%	-2,0 ... 2,0 101 ... 900 µm
Max. processing temperature	no remaining change of size	°C	55
Cold Break Temperature	DIN EN 1876-2 drop-hammer method	°C	-15
Surface tension, min.	DIN ISO 8296 measured with test inks	mN/m	42
Surface reflexion, 85°	DIN 67530; ASTM D-523 measuring angle 85° back surface	GE	10 ... 35
Surface reflexion, 85°	DIN 67530; ASTM D-523 measuring angle 85°	GE	0 ... 15

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Technical Data Sheet

Properties	Standard	Unit	Values
	upper surface		
Surface roughness # RZ	DIN 4768 measured with Perthometer M4P Lt 2,5 = measuring length 15 m m	μm	5 ... 11

Regulatory:

The product corresponds to:

- respective regulations and directives for food contact
- Packaging requirements for heavy metals
- Supplementary confirmations to the above-named points can be issued on request.

Storage conditions:

- Ideal storage conditions between 10 - 30°C (50 - 86°F)
- Ideal RH 40 - 70%
- Should not be stored in direct sunlight and avoid major thermal fluctuation
- Store in original packaging
- Before working up the films should be conditioned a minimum of 24 hours room temperature (15 - 30°C)
- recommended use of the material within one year of production date

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Technical Data Sheet



Product name: Pentaprint® PR M480/09-09/8102-482D8
PR-M480/09-09/8102-482D8

Description: medium impact strength
suitable for screen printing
Quality segment: PR - PRINT APPLICATION
Type: M480/09 - PVC Polyvinylchloride
Colour: 09/8102 - White high opaque
Surface: 482D8 - fine matt/fine matt, 2-sides Corona

Properties	Standard	Unit	Values
Thickness	DIN 53370 / ISO 4593	µm	140 ... 400
Tolerance of Thickness	DIN 53370 / ISO 4593	%	-10 ... 10 200 µm -7 ... 7 201 ... 400 µm -5 ... 5 401 ... 500 µm
Density	DIN EN ISO 1183-2	g/cm ³	1,39 ... 0,47
Tensile strength, min.	DIN EN ISO 527 test speed V 50 mm/min, measured lengthwise (depends on thickness)	MPa	45
Impact strength, min.	DIN EN ISO 8256 measured lengthwise	kJ/m ²	450
VICAT-softening point	DIN EN ISO 306 measured in oil, method B/50	°C	73 ... 77
Dimensional stability -longitudinal	DIN 53377 storage in heated cupboard, at 140 °C/10 min	%	-10,0 ... 0,0 140 ... 200 µm -8,0 ... 0,0 201 ... 500 µm
Dimensional stability -transverse	DIN 53377 storage in heated cupboard, at 140 °C/10 min	%	-2,0 ... 2,0 140 ... 500 µm
Max. processing temperature	no remaining change of size	°C	55
Cold Break Temperature	DIN EN 1876-2 drop-hammer method	°C	-5
Surface tension, min.	DIN ISO 8296 measured with test inks	mN/m	42
Surface reflexion, 85°	DIN 67530 measuring angle 85°		10 ... 35
Surface roughness # RZ	DIN 4768 measured with Perthometer M4P, Lt 2,5 = measuring length 15mm	µm	4 ... 8

Regulatory: The product corresponds to:
- Packaging requirements for heavy metals
- Supplementary confirmations to the above-named points can be issued on request.

Storage conditions: - Ideal storage conditions between 10 - 30°C (50 - 86°F)
- Ideal RH 40 - 70%

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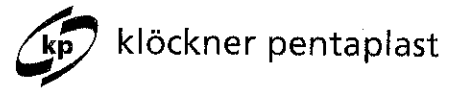
Revision: 3/18.08.2010

- Should not be stored in direct sunlight and avoid major thermal fluctuation
- Store in original packaging
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- recommended use of the material within one year of production date

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Revision: 3/18.08.2010

Technical Data Sheet



Product name: Pentaprint® PR-M480/09-07/8101-482_8-ZZZ

Description: old Nomenclature: Pentaprint® PR M480/09-07/8101-482_8
medium impact strength
suitable for screen printing

Quality segment: Print film
Type: PVC
Color: 1-White, high opaque-011
Surface: Fine Matted/Fine Matted-00
Additional treatment: No additional treatment-00

Properties	Standard	Unit	Values
Thickness	DIN 53370 / ISO 4593	µm	401 ... 500
Tolerance of Thickness	DIN 53370 / ISO 4593	%	-10 ... 10 200 µm -7 ... 7 201 ... 400 µm -5 ... 5 401 ... 500 µm
Density	DIN EN ISO 1183-2	g/cm ³	1,38 ... 1,46
Tensile strength, min.	DIN EN ISO 527 test speed V 50 mm/min, measured lengthwise, depending on thickness	MPa	42
Impact strength, min.	DIN EN ISO 8256 measured lengthwise	kJ/m ²	450
VICAT-softening point	DIN EN ISO 306 measured in oil, method B/50	°C	73 ... 77
Dimensional stability -longitudinal	DIN 53377 storage in heated cupboard at 140°C/10min	%	-10,0 ... 0,0150 ... 200 µm -8,0 ... 0,0201 ... 500 µm
Dimensional stability -transverse	DIN 53377 storage in heated cupboard at 140°C/10min	%	-2,0 ... 2,0150 ... 500 µm
Max. processing temperature	no remaining change of size	°C	55
Cold Break Temperature	DIN EN 1876-2 drop-hammer method	°C	-5
Surface tension, min.	DIN ISO 8296 measured with test inks	mN/m	36
Surface reflexion, 85°	DIN 67530 measuring angle 85°	GE	10 ... 35
Surface roughness # RZ	DIN 4768 measured with Perthometer M4P	µm	4 ... 8

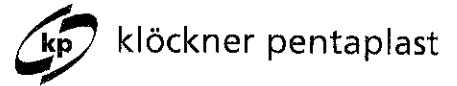
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Technical Data Sheet



Properties	Standard	Unit	Values
	Lt 2,5 = measuring length m	15 m	

Regulatory:

The product corresponds to:

- Packaging requirements for heavy metals
- Supplementary confirmations to the above-named points can be issued on request.

Storage conditions:

- Ideal storage conditions between 10 - 30°C (50 - 86°F)
- Ideal RH 40 - 70%
- Should not be stored in direct sunlight and avoid major thermal fluctuation
- Store in original packaging
- Before working up the films should be conditioned a minimum of 24 hours room temperature (15 - 30°C)
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Revision: 5/24.09.2012

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Technical Data Sheet



Product name: Pentaprint® PR M180/23-71/9400-100_0
PR-M180/23-71/9400-100_0

Description: high impact strength
suitable for screen printing and UV offset
Quality segment: PR - PRINT APPLICATION
Type: M180/23 - PVC Polyvinylchloride
Colour: 71/9400 - Grey glassclear
Surface: 100_0 - glossy/glossy

Properties	Standard	Unit	Values
Thickness	DIN 53370 / ISO 4593	µm	80 ... 800
Tolerance of Thickness	DIN 53370 / ISO 4593	%	-10 ... 10 200 µm -7 ... 7 201 ... 400 µm -5 ... 5 401 ... 800 µm
Density	DIN EN ISO 1183-2	g/cm ³	1,31 ... 1,35
Tensile strength, min.	DIN EN ISO 527 test speed V 50 mm/min, measured lengthwise (depends on thickness)	MPa	45
Impact strength, min.	DIN EN ISO 8256 measured lengthwise	kJ/m ²	550
VICAT-softening point	DIN EN ISO 306 measured in oil, method B/50	°C	72 ... 76
Dimensional stability -longitudinal	DIN 53377 storage in heated cupboard, at 140 °C/10 min	%	-10,0 ... 0,0 0 ... 100 µm -7,0 ... 0,0 101 ... 200 µm -5,0 ... 0,0 201 ... 400 µm -4,0 ... 0,0 401 ... 800 µm
Dimensional stability -transverse	DIN 53377 storage in heated cupboard, at 140 °C/10 min	%	-2,0 ... 2,0 80 ... 800 µm
Max. processing temperature	no remaining change of size	°C	55
Cold Break Temperature	DIN EN 1876-2 drop-hammer method	°C	-20
Surface tension, min.	DIN ISO 8296 measured with test inks	mN/m	34
Surface reflexion, 20°	DIN 67530 measuring angle 20°		100 ... 130

Regulatory: The product corresponds to:
- respective regulations and directives for food contact
- Packaging requirements for heavy metals
- Supplementary confirmations to the above-named points can be issued on request.

Storage conditions: - Ideal storage conditions between 10 - 30°C (50 - 86°F)
- Ideal RH 40 - 70%
- Should not be stored in direct sunlight and avoid major thermal

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Revision: 4/18.08.2010

fluctuation

- Store in original packaging
- Before working up the films should be conditioned a minimum of 24 hours room temperature (15 - 30°C)
- recommended use of the material within one year of production date

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