

B41M

PRINTING, DUPLICATING, MARKING, OR COPYING PROCESSES; COLOUR PRINTING, (correction of typographical errors [B41J](#); processes for applying transfer pictures or the like [B44C 1/16](#); fluid media for correction of typographical errors by coating [C09D 10/00](#); printing textiles [D06P](#))

Definition statement

This place covers:

- Non-digital and digital printing processes in general, wherein an image or pattern is created on a substrate surface.
- Materials used in such processes.

References

Limiting references

This place does not cover:

Printing apparatuses	B41F , B41J
Producing decorative effects	B44C
Special designs or pictures	B44F
Printing textiles	D06P
Photomechanical (UV-photosensitive) recording	G03F
Xerography	G03G
Printing semiconductor devices	H01L
Printing printed circuits	H05K

Informative references

Attention is drawn to the following places, which may be of interest for search:

Inks as such	C09D
Paper as such	D21H

B41M 1/00

Inking and printing with a printer's forme

Definition statement

This place covers:

- Non-digital printing methods, i.e. "conventional" printing methods.
- Only methods that are purely printing methods.

Relationships with other classification places

The subgroups relating to different printing methods (e.g. intaglio printing, [B41M 1/10](#)) maybe used in combination with the subgroups relating to security printing, [B41M 3/14](#).

B41M 1/26

Printing on other surfaces than ordinary paper ([B41M 1/40](#) takes precedence)

Definition statement

This place covers:

Non-digital printing methods, i.e. "conventional" printing methods, used for printing on other surfaces than ordinary paper, including: metals, organic plastics, horn or similar materials, rubber, glass or ceramic surfaces, wooden surfaces, leather or linoleum.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Ordinary paper	sheets made of traditional paper mass
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B41M 3/00

Printing processes to produce particular kinds of printed work, e.g. patterns ({printing apparatus or machines of special type or for particular purposes [B41F 17/00](#);} special designs or pictures per se [B44F](#); manufacturing printed circuits using printing techniques [H05K 3/12](#) {; manufacturing organic semiconductor devices using printing techniques [H10K 71/13](#)})

Definition statement

This place covers:

Digital or non-digital printing processes.

References**Limiting references**

This place does not cover:

Rapid manufacturing and prototyping of 3D objects by additive depositing	B29C 64/00
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B41M 3/005

{Colour cards; Painting supports; Latent or hidden images, e.g. for games; Time delayed images}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Scratch cards	A63F 3/0665
Postcards; Greeting, menu, business or like cards; Letter cards or letter-sheets with peel-away layer hiding information	B42D 15/025
Designs or pictures characterised by special or unusual light effects	B44F 1/00

B41M 3/006

{Patterns of chemical products used for a specific purpose, e.g. pesticides, perfumes, adhesive patterns; use of microencapsulated material; Printing on smoking articles}

Definition statement

This place covers:

E.g. printing adhesive patterns, printing silver ink patterns.

B41M 3/12

Transfer pictures or the like, e.g. decalcomanias {(processes for producing decorative surface effects [B44C 1/00](#); [B41M 5/0256](#) takes precedence)}

Definition statement

This place covers:

Methods of making (printing) the picture to be transferred.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Processes for applying transfer pictures or the like	B44C 1/16
Processes for decalcomanias; sheet material therefor	B44C 1/165

B41M 3/14

Security printing {(securities [B42D 25/29](#))}

Definition statement

This place covers:

Methods which concern the security printing process.

Relationships with other classification places

The subgroups relating to different printing methods (e.g. intaglio printing, [B41M 1/10](#)) maybe used in combination with the subgroups relating to security printing, [B41M 3/14](#).

References**Limiting references**

This place does not cover:

Security documents	B42D 25/29
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Preventing copies being made of an original by using an original which is not reproducible or only reproducible with a different appearance	G03G 21/043
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Testing paper currency	G07D 7/005
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B41M 3/148

{Transitory images, i.e. images only visible from certain viewing angles}

Definition statement

This place covers:

E.g. images printed with differently reflecting pigments.

B41M 3/18

Particular kinds of wallpapers

Definition statement

This place covers:

Methods for printing on wallpapers.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Paperhanging	B44C 7/00
Flexible structures being applied by the user, e.g. wallpaper	D21H 27/20

B41M 5/00

Duplicating or marking methods; Sheet materials for use therein (by using light-sensitive materials [G03](#); electrography, magnetography [G03G](#) {; repeatedly usable boards or tablets for writing or drawing [B43L 1/00](#)})

Definition statement

This place covers:

- Printing methods for printing on different kind of surfaces.
- Digital printing, i.e. not using printer's forme.
- Apparatus related methods excluded.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Laminates	B32B
Inks	C09D
Uncoated paper	D21H
Labels	G09F 3/00
Materials or methods for recording or reproduction by optical means (DVDs, CDs)	G11B 7/00

Laser applications in general	H01S
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B41M 5/0023

{Digital printing methods characterised by the inks used (inks per se [C09D 11/00](#))}

Definition statement

This place covers:

Methods where the ink is used in a special way, e.g. two per se known inks are used in combination giving a special effect.

B41M 5/0035

{Uncoated paper (paper making [D21](#))}

Definition statement

This place covers:

Methods for printing characterised by the ink receiving properties of the paper without a separate ink receiving layer.

B41M 5/0041

{Digital printing on surfaces other than ordinary paper ([B41M 5/0082](#) takes precedence; printing on textiles [D06P 5/00](#))}

Definition statement

This place covers:

Digital printing methods, i.e. not using printer's forme, used for printing on other surfaces than ordinary paper, including: metals and oxidated metal surfaces, plastics, horn, rubber, other organic polymers, glass, ceramic, tiles, concrete, stones, wooden surfaces, leather, linoleum, skin or flowers.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Deposition of organic semiconductor materials on a substrate by ink-jet printing	H10K 71/135
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Special rules of classification

In the subgroup [B41M 5/0041](#) and in its hierarchical lower subgroups it is highly desirable to add, if applicable, complementary classification in [B41M 5/0082](#) or in its hierarchical lower subgroups.

For example, if the invention is about an ink-jet printing method on a wooden surface, both classes [B41M 5/0047](#) and [B41M 5/0076](#) should be given.

However, if the invention is about an ink-jet printing method on a wooden surface having a particular shape (e.g. curved surface), the following classes should be given: [B41M 5/0088](#) and [B41M 5/0076](#).

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Ordinary paper	sheets made of traditional paper mass
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B41M 5/0082

{Digital printing on bodies of particular shapes (sublimation or volatilisation of pre-printed design [B41M 5/035](#))}

Special rules of classification

In the subgroup [B41M 5/0082](#) and in its hierarchical lower subgroups it is highly desirable to add, if applicable, complementary classification in [B41M 5/0041](#) or in its hierarchical lower subgroups.

For example, if the invention is about an ink-jet printing method on a wooden surface, both classes [B41M 5/0047](#) and [B41M 5/0076](#) should be given.

However, if the invention is about an ink-jet printing method on a wooden surface having a particular shape (e.g. curved surface), the following classes should be given: [B41M 5/0088](#) and [B41M 5/0076](#).

B41M 5/025

by transferring ink from the master sheet

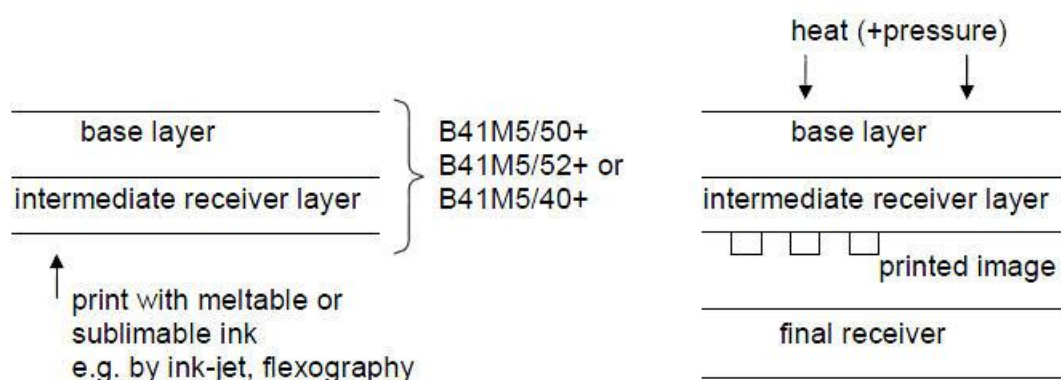
Definition statement

This place covers:

Transfer printing with intermediate carrier.

The principle of transfer printing is as follows:

WITH INTERMEDIATE CARRIER



the image transfers by melting: [B41M 2205/06](#)

the image transfer by sublimation: [B41M 2205/02](#)

[B41M 5/025](#) (melting image)

[B41M 5/035](#) (sublimating image)

[B41M 5/0256](#) (melting + sublimating image)

B41M 5/0256

{the transferable ink pattern being obtained by means of a computer driven printer, e.g. an ink jet or laser printer, or by electrographic means}

Definition statement

This place covers:

E.g. transfer pictures for T-shirts are quite often printed with this kind of method.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Computer driven printer	printers for digital printing methods, i.e. methods not using printer's form
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B41M 5/035

by sublimation or volatilisation of {pre-printed} design {, e.g. sublistatic ([B41M 5/0256](#) takes precedence; printing on textiles [D06P 5/00](#))}

Definition statement

This place covers:

- Methods wherein the already printed design is transferred using heat on a substrate.
- Only the design i.e. the ink is transferred and not the whole layer. The designs may be produced by the methods classified in [B41M 5/0256](#).

References**Limiting references**

This place does not cover:

Methods concerning imagewise heating	B41M 5/382
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B41M 5/0358

{characterised by the mechanisms or artifacts to obtain the transfer, e.g. the heating means, the pressure means or the transport means}

Definition statement

This place covers:

Printing methods where the transfer of the ink from the master sheet is made by sublimation or volatilisation of desing and wherein the method is characterised by specific details of the mechanisms to obtain the transfer, e.g. the heating means, the pressure means or the transport means.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Transfer printing apparatus	B41F 16/00
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B41M 5/124

using pressure to make a masked colour visible, e.g. to make a coloured support visible, to create an opaque or transparent pattern, or to form colour by uniting colour-forming components

Definition statement

This place covers:

Pressure sensitive papers.

B41M 5/24

Ablative recording, e.g. by burning marks; Spark recording {(marking by high energetic means, e.g. by laser otherwise than burning or ablative removal [B41M 5/26](#); materials or methods for recording or reproduction by optical means [G11B 7/00](#))}

Definition statement

This place covers:

Methods wherein the material is removed from the surface (only ablation imaging).

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Working by laser beam, e.g. welding, cutting, boring	B23K 26/00
Processes for producing decorative surface effects by removing surface-material with laser radiation	B44C 1/228

B41M 5/26

Thermography ([B41M 5/20](#), [B41M 5/24](#) take precedence); {Marking by high energetic means, e.g. laser otherwise than by burning, and characterised by the material used ([B23K](#) takes precedence; thermographic or photothermographic systems using noble metal compounds [G03C 1/494](#))}

Definition statement

This place covers:

Methods wherein the material changes colour, when marked (without ablation).

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Laser applications in general	H01S
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B41M 5/262

{recording or marking of inorganic surfaces or materials, e.g. glass, metal, or ceramics (marking of plastic artifacts with inorganic additives [B41M 5/267](#))}

Definition statement

This place covers:

Thermographic recording or marking methods of inorganic surfaces or materials, including: glass, metal or ceramics. The recording or marking is usually made by an infrared laser.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Marking glass	C03C
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B41M 5/28

using thermochromic compounds or layers containing liquid crystals, microcapsules, bleachable dyes or heat- decomposable compounds, e.g. gas-liberating {([B41M 5/38271](#) takes precedence)}

Definition statement

This place covers:

- Also irreversible thermographic methods.
- Characteristic for these methods is that there is no chemical reaction, i.e. the colour change takes place within one compound or by destroying said compound.

B41M 5/30

using chemical colour formers ([B41M 5/34](#) takes precedence)

Definition statement

This place covers:

- Thermography without transfer, i.e. thermo-sensitive recording, direct thermal recording.
- There is chemical reaction between two or more compounds, which results in colour change.

Special rules of classification

The following table shows the relevant classification places for different layers of direct thermal recording sheets:

covering or protecting layer	B41M 5/42 and its hierarchical lower subgroups
imaging layer	B41M 5/30 - B41M 5/337
support	B41M 5/41
backcoat	B41M 5/42 and its hierarchical lower subgroups

+ [B41M 2205/00](#)*

*An Indexing Code (a hierarchical lower subgroup of [B41M 2205/00](#)) is given to specify the printing method and layer (e.g. direct thermal printing, intermediate layer, back layer, etc.).

B41M 5/333

Colour developing components therefor, e.g. acidic compounds

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Colour developing components	anything that reacts with the colour formers
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B41M 5/3336

{Sulfur compounds, e.g. sulfones, sulfides, sulfonamides}

Definition statement

This place covers:

Sulphur compounds having phenolic or carboxylic acid groups.

B41M 5/36

using a polymeric layer, which may be particulate and which is deformed or structurally changed with modification of its' properties, e.g. of its' optical hydrophobic-hydrophilic, solubility or permeability properties {([B41C 1/10](#) takes precedence)}

Relationships with other classification places

For lithographic printing plates normally only class in [B41C 1/10](#) is given. However, a class is given in subgroup [B41M 5/36](#) or in its hierarchical lower subgroups, when lithography is not mentioned in the independent claims.

B41M 5/382

Contact thermal transfer or sublimation processes (sublistatic printing using a pre-formed image [B41M 5/035](#); ink-, dye- or pigment-receptive coatings [B41M 5/52](#))

Definition statement

This place covers:

- Only the donor layers for imagewise heating.
- The donor layers of the thermal transfer ribbons are classified in this subgroup and its hierarchical lower subgroups.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Deposition of organic semiconductor materials on a substrate using non liquid printing techniques, e.g. thermal transfer printing from a donor sheet	H10K 71/18
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Special rules of classification

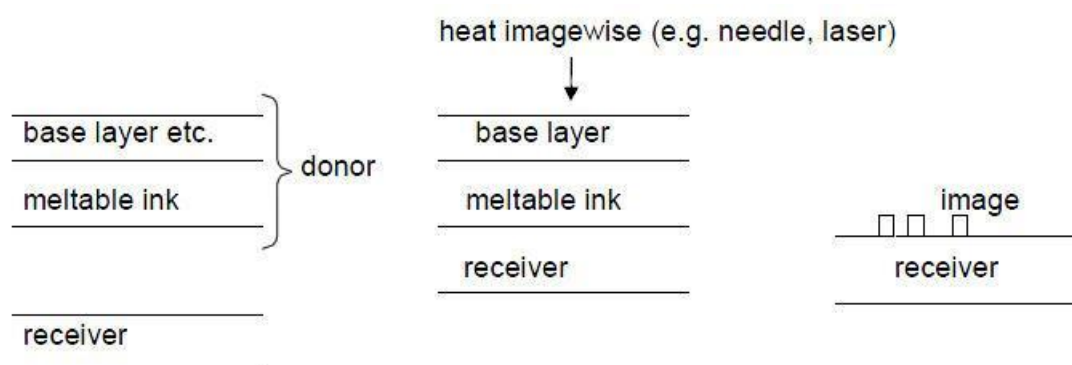
The following table shows the relevant classification places for different layers of thermal transfer donor sheets:

donor layer	B41M 5/382 and its hierarchical lower subgroups
intermediate layer	B41M 5/42 and its hierarchical lower subgroups
substrate	B41M 5/41
backcoat	B41M 5/42 and its hierarchical lower subgroups

*An Indexing Code (a hierarchical lower subgroup of [B41M 2205/00](#)) is given to specify the printing method and layer (e.g. melt transfer, d2t2, intermediate layer, back layer, etc.).

The principles of melt transfer and sublimation transfer are as follows:

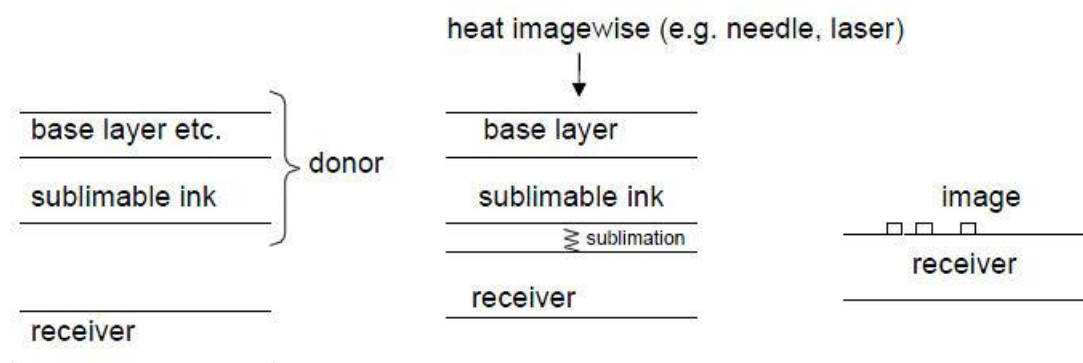
melt transfer:



[B41M 5/382](#) and its hierarchical lower subgroups

+ [B41M 2205/06](#) (for melt transfer)

sublimation transfer:

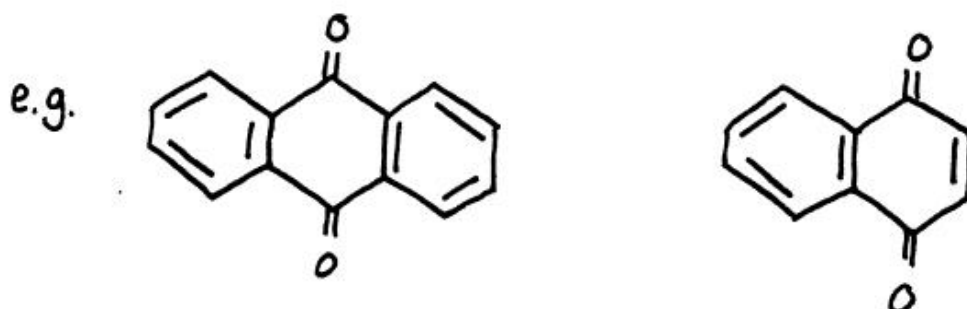


[B41M 5/382](#) and its hierarchical lower subgroups

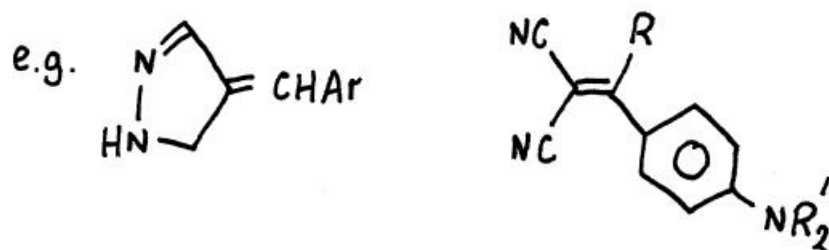
+ [B41M 2205/02](#) (for sublimation transfer)

B41M 5/3852

{Anthraquinone or naphthoquinone dyes}

Definition statement*This place covers:**Anthraquinone or naphthoquinone dyes***B41M 5/3854**

{Dyes containing one or more acyclic carbon-to-carbon double bonds, e.g., di- or tri-cyanovinyl, methine}

Definition statement*This place covers:**One or more acyclic carbon/carbon double bonds,
e.g. di- or tri-cyanovinyl*

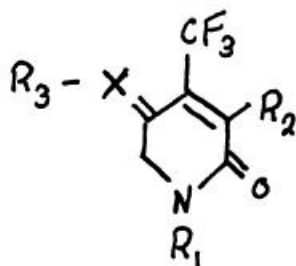
B41M 5/3856

{Dyes characterised by an acyclic $-X=C$ group, where X can represent both nitrogen and a substituted carbon atom}

Definition statement

This place covers:

An acyclic $-X=C$ group, where X can represent both nitrogen and substituted carbon.



where X is $-CH$ or nitrogen.

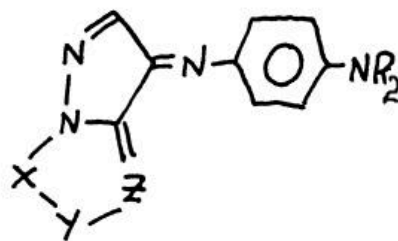
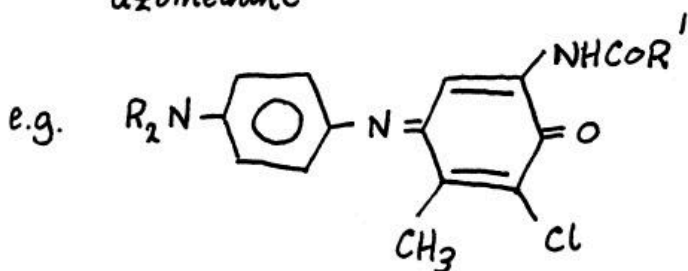
B41M 5/39

Dyes containing one or more carbon-to-nitrogen double bonds, e.g. azomethine

Definition statement

This place covers:

One or more carbon-to-nitrogen double bonds, e.g. azomethine



B41M 5/40

characterised by the base {backcoat}, intermediate, or covering layers, {e.g. for thermal transfer dye-donor or dye-receiver sheets}; Heat, radiation filtering or absorbing means or layers; combined with other image registration layers or compositions; Special originals for reproduction by thermography {(macromolecular ink- or dye-receptive coatings [B41M 5/52](#))}

Definition statement

This place covers:

The layer structures of both direct thermal recording and thermal transfer sheets (= thermal transfer donor sheets and thermal transfer receiving sheets) except the image receiving layer of the thermal transfer receiving sheets (see the table below).

Special rules of classification

Classification for thermal transfer receiving sheets:

image receiving layer	B41M 5/52 and its hierarchical lower subgroups
intermediate layer	B41M 5/42 and its hierarchical lower subgroups
Substrate	B41M 5/41
Backcoat	B41M 5/42 and its hierarchical lower subgroups

*An Indexing Code (a hierarchical lower subgroup of [B41M 2205/00](#)) is given to specify the printing method and layer (e.g. direct thermal printing, intermediate layer, back layer, etc.).

B41M 5/46

characterised by the light-to-heat converting means; characterised by the heat or radiation filtering or absorbing means or layers

Special rules of classification

An Indexing Code (a hierarchical lower subgroup of [B41M 2205/00](#)) shall be used to show which layer is in question, e.g. intermediate layer, cover layer or back layer.

B41M 5/50

Recording sheets characterised by the coating used to improve ink, dye or pigment receptivity, e.g. for ink-jet or thermal dye transfer recording {(printing on organic plastics using a printer's form [B41M 1/30](#); printing on pre-treated paper with a printer's form [B41M 1/36](#))}

Definition statement

This place covers:

The subgroup [B41M 5/50](#) and its hierarchical lower subgroups cover also recording sheets for non-digital printing methods (i.e. methods classified in group [B41M 1/00](#) and its hierarchical lower subgroups).

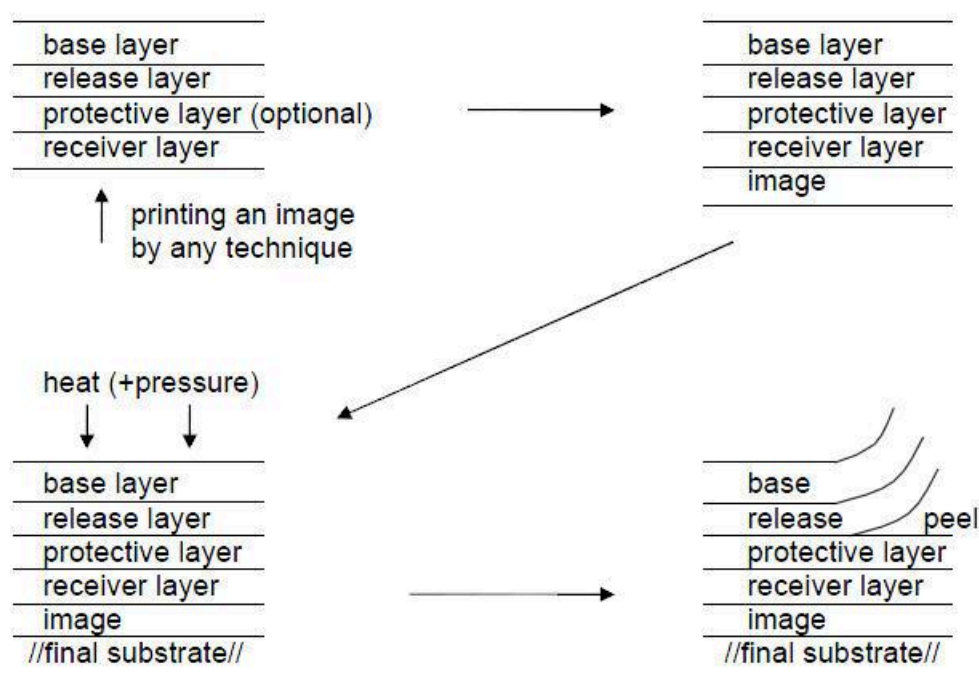
Special rules of classification

The following table shows the relevant classification places for different layers of all but thermal recording sheets:

ink receiving layer	B41M 5/52 and its hierarchical lower subgroups
intermediate layer	B41M 5/506
substrate	B41M 5/508
backcoat	B41M 5/504

*An Indexing Code (a hierarchical lower subgroup of [B41M 2205/00](#)) is given to specify the layer (e.g. intermediate layer, back layer, etc.).

In the following the principle of transfer printing when the whole layer with the printed image is transferred is shown:



for the method: [B41M 2205/10](#)

for the receiver: [B41M 5/50](#) and/or [B41M 5/52](#) and their hierarchical lower subgroups

for the protective layer: [B41M 7/0027](#), [B41M 7/0036](#), [B41M 7/0045](#) or [B41M 7/0054](#)

B41M 5/502

{characterised by structural details, e.g. multilayer materials (supports, backcoats or intermediate layers for thermal dye transfer donor and receiver sheets [B41M 5/41](#), [B41M 5/42](#))}

Definition statement

This place covers:

- Intermediate, support, and backcoat layers for non-thermal receiving elements.
- Particular shapes in receiving sheets, e.g. perforations, missing corners.

B41M 5/52

Macromolecular coatings

Definition statement

This place covers:

Ink, dye or pigment receiving coatings/layers for recording sheets.

B41M 7/00

After-treatment of prints, e.g. heating, irradiating, {setting of the ink, protection of the printed stock (pre-treatment or treatment during printing [B41M 5/0011](#); printers for treating or overcoating copy materials before, during or after printing [B41J 11/0015](#))}

Definition statement

This place covers:

- Any kind of after-treatment of previously printed material, also protective coatings.
- After-treatment of both digitally and non-digitally (by conventional printing methods) printed products.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pre-treatment or treatment during printing	B41M 5/0011
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B41M 7/0009

{Obliterating the printed matter; Non-destructive removal of the ink pattern, e.g. for repetitive use of the support}

Definition statement

This place covers:

E.g. methods relating to mechanical removing of the ink.

B41M 7/0018

{using ink-fixing material, e.g. mordant, precipitating agent, after printing, e.g. by ink-jet printing, coating or spraying}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Application of ink-fixing material on the substrate prior to printing	B41M 5/0017
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B41M 9/00

Processes wherein make-ready devices are used (make-ready devices per se [B41N 6/00](#))

Definition statement

This place covers:

Printing methods wherein make-ready devices are used. Typical methods using said devices are disclosed e.g. in documents US1730229, US2825282 and US2587439.

B41M 2205/40

Cover layers; Layers separated from substrate by imaging layer; Protective layers; Layers applied before imaging

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

After-treatment of prints, e.g. heating, irradiating	B41M 7/00
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