

CPC**COOPERATIVE PATENT CLASSIFICATION****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](#))

B41M 1/00

Inking and printing with a printer`s forme

B41M 1/02

- . Letterpress printing, e.g. book printing

B41M 1/04

- . . Flexographic printing

B41M 1/06

- . Lithographic printing

B41M 1/08

- . . Dry printing

B41M 1/10

- . Intaglio printing; { [Gravure printing](#) }

B41M 1/12

- . Stencil printing ; Silk-screen printing

B41M 1/125

- . . { [using a field of force, e.g. an electrostatic field, or an electric current](#) }

B41M 1/14

- . Multicolour printing

B41M 1/16

- . . using different inks which flow into one another to produce iridescent effects

B41M 1/18

- . . Printing one ink over another

B41M 1/20

- . . by applying differently-coloured inks simultaneously to different parts of the printing surface

B41M 1/22

- . Metallic printing ; Printing with powdered inks

B41M 1/24

- . combined with embossing ([printing machines for carrying out printing operations combined with embossing B41F 19/02](#))

B41M 1/26

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

B41M 1/28

- . . on metals

B41M 1/30

- . . on organic plastics, horn or similar materials { ([recording sheets having a coating to improve ink, dye or pigment receptivity B41M 5/50](#) ; marking or recording on plastic by irradiation with electromagnetic beams, e.g. laser, [B41M 5/26 L](#)) }

B41M 1/305

- . . . { [using mechanical, physical or chemical means, e.g. corona discharge, etching or organic solvents, to improve ink retention](#) }

B41M 1/32

- . . on rubber

B41M 1/34

- . . on glass or ceramic surfaces { ([ink-jet printing on glass or ceramic surfaces B41M 5/00](#)) }

B41M 1/36

- . . on pre-treated paper, e.g. parchment, oiled paper, paper for registration purposes { ([B41M 5/50](#) takes precedence) }

B41M 1/38

- . . on wooden surfaces, leather, or linoleum ([printing on matches or match boxes when combined with match manufacture C06F 1/18](#))

B41M 1/40

- . Printing on bodies of particular shapes, e.g. golf balls, candles, wine corks { ([sublimation or volatilisation of pre-printed design B41M 5/035](#)) }

- B41M 1/42
 - . Printing without contact between forme and surface to be printed, e.g. by using electrostatic fields { (using a stencil or screen [B41M 1/125](#)) }
- B41M 3/00**

Printing processes to produce particular kinds of printed work, e.g. patterns (special designs or pictures per se [B44F](#) ; { printing apparatus or machines of special type or for particular purposes [B41F 17/00](#) ; manufacturing organic semiconductor devices using printing techniques [H01L 51/0004](#) } ; manufacturing printed circuits using printing techniques [H05K 3/12](#))
- B41M 3/001
 - . { using chemical colour-formers or chemical reactions, e.g. leuco dyes or acids }
- B41M 3/003
 - . { on optical devices, e.g. lens elements; for the production of optical devices (production by thermal imaging means [B41M 5/265](#)) }
- B41M 3/005
 - . { Colour cards; Painting supports; Latent or hidden images, e.g. for games; Time delayed images }
- B41M 3/006
 - . { Patterns of chemical products used for a specific purpose, e.g. pesticides, perfumes, adhesive patterns; use of micro encapsulated material; Printing on smoking articles }
- B41M 3/008
 - . { Sequential or multiple printing, e.g. on previously printed background; Mirror printing; Recto-verso printing; using a combination of different printing techniques; Printing of patterns visible in reflection and by transparency; by superposing printed artifacts }
- B41M 3/02
 - . Maps ; Sea or meteorological charts
- B41M 3/04
 - . Music
- B41M 3/06
 - . Veined printings ; Fluorescent printings ; Stereoscopic images ; Imitated patterns, e.g. tissues, textiles
- B41M 3/10
 - . Watermarks
- 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) }
- B41M 3/14
 - . Security printing { (security documents [B42D 15/00](#)) }
- B41M 3/142
 - .. { using chemical colour-formers or chemical reactions, e.g. leuco-dye/acid, photochromes }
- B41M 3/144
 - .. { using fluorescent, luminescent or iridescent effects }
- B41M 3/146
 - .. { using a non human-readable pattern which becomes visible on reproduction, e.g. a void mark }
- B41M 3/148
 - .. { Transitory images, i.e. images only visible from certain viewing angles }
- B41M 3/16
 - . Braille printing (typewriters or selective printing mechanisms for braille printing [B41J 3/32](#))
- B41M 3/18
 - . Particular kinds of wallpapers
- 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](#) })

- B41M 5/0005 . { Enlarging or reduction of graphic information on a support by stretching or contracting the support, optionally in combination with the recording }
- B41M 5/0011 . { Pre-treatment or treatment during printing of the recording material, e.g. heating, irradiating (after-treatment of prints [B41M 7/00](#) ; printers for treating or overcoating copy materials before, during or after printing [B41J 11/0015](#)) }
- B41M 5/0017 . . { Application of ink-fixing material, e.g. mordant, precipitating agent, on the substrate prior to printing, e.g. by ink-jet printing, coating or spraying }
- B41M 5/0023 . { Digital printing methods characterised by the inks used (inks per se [C09D 11/00](#)) }
- B41M 5/0029 . { Formation of a transparent pattern using a liquid marking fluid }
- B41M 5/0035 . { Uncoated paper (paper making [D21](#)) }
- B41M 5/0041 . { Digital printing on surfaces other than ordinary paper ([B41M 5/0082](#) takes precedence; printing on textiles [D06P 5/00](#)) }
- B41M 5/0047 . . { by ink-jet printing }
- B41M 5/0052 . . { by thermal printing }
- B41M 5/0058 . . { on metals and oxidised metal surfaces }
- B41M 5/0064 . . { on plastics, horn, rubber, or other organic polymers }
- B41M 5/007 . . { on glass, ceramic, tiles, concrete, stones, etc. }
- B41M 5/0076 . . { on wooden surfaces, leather, linoleum, skin, or flowers }
- B41M 5/0082 . { Digital printing on bodies of particular shapes (sublimation or volatilisation of pre-printed design [B41M 5/035](#)) }
- B41M 5/0088 . . { by ink-jet printing }
- B41M 5/0094 . . { by thermal printing }
- B41M 5/025 . by transferring ink from the master sheet
- B41M 5/0253 . . { using a chemical colour-forming ink, e.g. chemical hectography ([B41M 5/035](#) takes precedence) }
- 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 }
- B41M 5/03 . . by pressure
- 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](#)) }
- B41M 5/0351 . . . { on anodized aluminium }
- B41M 5/0353 . . . { using heat shrinkable film material; Thermotransfer combined with the shaping of the workpiece; Recto-verso printing; Image correction }
- B41M 5/0355 . . . { characterised by the macromolecular coating or impregnation used to obtain dye receptive properties }
- B41M 5/0356 . . . { characterised by the inks used for printing the pattern on the temporary support or additives therefor, e.g. dyes, transferable compounds, binders or transfer promoting additives }
- 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 }
- B41M 5/04 . . using solvent-soluble dyestuffs on the master sheets, e.g. alcohol-soluble

- B41M 5/06 . . . using master sheets coated with jelly-like materials, e.g. gelatin
- B41M 5/08 Sheet materials therefor
- B41M 5/10 . . by using carbon paper or the like
- 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
- B41M 5/1243 . . { Inert particulate additives, e.g. protective stilt materials }
- B41M 5/1246 . . { Application of the layer, e.g. by printing }
- B41M 5/128 . . Desensitisers ; Compositions for fault correction, detection or identification of the layers
- B41M 5/132 . . Chemical colour-forming components ; Additives or binders therefor
- B41M 5/136 . . . Organic colour formers, e.g. leuco dyes
- B41M 5/1363 { Leuco dyes forming a complex with a metal cation }
- B41M 5/1366 { characterised solely by tri (aryl or hetaryl) methane derivatives ([B41M 5/1363](#) takes precedence) }
- B41M 5/145 with a lactone or lactam ring
- B41M 5/1455 { characterised by fluoran compounds }
- B41M 5/15 Spiro-pyrans
- B41M 5/155 . . . Colour-developing components, e.g. acidic compounds ; Additives or binders therefor ; Layers containing such colour-developing components, additives or binders
- B41M 5/1555 { Inorganic mineral developers, e.g. clays }
- B41M 5/165 . . Characterised by the use of microcapsules ; Special solvents for incorporating the ingredients
- B41M 5/1655 . . . { Solvents }
- B41M 5/20 . . using electric current ([B41M 5/24](#) takes precedence; { processes in which the current is transformed into a heat pattern for obtaining transfer to a receptor sheet [B41M 5/382](#) ; electro-coagulable or electro-adhesive printing or recording [B41C 1/10 C](#) })
- B41M 5/205 . . { and an eroding electrode }
- 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](#)) }
- B41M 5/245 . . { Electroerosion or spark recording }
- 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](#)) }
- 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](#)) }
- B41M 5/265 . . { for the production of optical filters or electrical components }
- B41M 5/267 . . { Marking of plastic artifacts, e.g. with laser }
- 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) }
- B41M 5/281 ... { using liquid crystals only }
- B41M 5/282 ... { using thermochromic compounds }
- B41M 5/283 { Inorganic thermochromic compounds }
- B41M 5/284 { Organic thermochromic compounds }
- B41M 5/285 { Polyacetylenes }
- B41M 5/286 ... { using compounds undergoing unimolecular fragmentation to obtain colour shift, e.g. bleachable dyes }
- B41M 5/287 ... { using microcapsules or microspheres only }
- B41M 5/288 ... { using gas liberating compounds, e.g. to obtain vesicular or blow-up images ([B41M 3/16](#) , [B41M 9/04](#) take precedence; thermogravure printing [B41M 7/02](#)) }
- B41M 5/30 .. using chemical colour formers ([B41M 5/34](#) takes precedence)
- B41M 5/305 ... { with reversible electron-donor electron-acceptor compositions }
- B41M 5/32 ... one component being a heavy metal compound, { e.g. lead or iron }
- B41M 5/323 ... Organic colour formers, e.g. leuco dyes
- B41M 5/327 with a lactone or lactam ring
- B41M 5/3275 { Fluoran compounds }
- B41M 5/333 ... Colour developing components therefor, e.g. acidic compounds
- B41M 5/3331 { Macromolecular compounds }
- B41M 5/3333 { Non-macromolecular compounds }
- B41M 5/3335 { Compounds containing phenolic or carboxylic acid groups or metal salts thereof }
- B41M 5/3336 { Sulfur compounds, e.g. sulfones, sulfides, sulfonamides }
- B41M 5/3338 { Inorganic compounds }
- B41M 5/337 ... Additives ; Binders { ([B41M 5/46](#) takes precedence) }
- B41M 5/3372 { Macromolecular compounds }
- B41M 5/3375 { Non-macromolecular compounds }
- B41M 5/3377 { Inorganic compounds, e.g. metal salts of organic acids }
- B41M 5/34 .. Multicolour thermography
- B41M 5/345 ... { by thermal transfer of dyes or pigments }
- 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 }
- B41M 5/361 ... { using a polymeric matrix with inorganic particles forming an image by orientation or agglomeration }
- B41M 5/363 ... { using materials comprising a polymeric matrix containing a low molecular weight organic compound such as a fatty acid, e.g. for reversible recording }
- B41M 5/366 ... { using materials comprising a polymeric matrix containing a polymeric particulate material, e.g. hydrophobic heat coalescing particles }
- B41M 5/368 ... { involving the creation of a soluble/insoluble or hydrophilic/hydrophobic permeability pattern; Peel development ([B41M 5/366](#) takes precedence) }
- 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](#))

B41M 5/38207	...	{ characterised by aspects not provided for in groups B41M 5/385 to B41M 5/395 }
B41M 5/38214	....	{ Structural details, e.g. multilayer systems (composition of individual layers B41M 5/42) }
B41M 5/38221	....	{ Apparatus features }
B41M 5/38228	...	{ characterised by the use of two or more ink layers }
B41M 5/38235	...	{ characterised by transferable colour-forming materials }
B41M 5/38242	...	{ characterised by the use of different kinds of energy to effect transfer, e.g. heat and light }
B41M 5/3825	...	{ Electric current carrying heat transfer sheets }
B41M 5/38257	...	{ characterised by the use of an intermediate receptor }
B41M 5/38264	...	{ Overprinting of thermal transfer images }
B41M 5/38271	...	{ using microcapsules }
B41M 5/38278	...	{ using ink-containing structures, e.g. porous or microporous layers, alveoles or cellules }
B41M 5/38285	...	{ characterised by magnetic components in the transfer ink }
B41M 5/38292	...	{ with correction means }
B41M 5/385	...	characterised by the transferable dyes or pigments { (infra-red absorbing dyes B41M 5/465) }
B41M 5/3852	....	{ 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 }
B41M 5/3856	....	{ Dyes characterised by an acyclic -X=C group, where X can represent both nitrogen and a substituted carbon atom }
B41M 5/3858	....	{ Mixtures of dyes, at least one being a dye classifiable in one of groups B41M 5/385 to B41M 5/39 }
B41M 5/388	....	Azo dyes
B41M 5/39	....	Dyes containing one or more carbon-to-nitrogen double bonds, e.g. azomethine
B41M 5/392	...	Additives, other than colour forming substances, dyes or pigments, e.g. sensitizers, transfer promoting agents
B41M 5/395	....	Macromolecular additives, e.g. binders
B41M 5/398	..	Processes based on the production of stickiness patterns using powders
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) }
B41M 5/405	...	{ characterised by layers cured by radiation (layers cured after recording B41M 7/0072) }
B41M 5/41	...	Base layers { supports or substrates }
B41M 5/42	...	Intermediate, { backcoat }, or covering layers { (B41M 5/405 takes precedence; multilayer thermal transfer systems in general B41M 5/38214) }

NOTE

When the invention information lies in the combination of features covered by more than one of the subgroups of [B41M 5/42](#) , classification is made

in [B41M 5/42](#) , using the corresponding indexing codes of its subgroups to identify the individual features

- B41M 5/423 { characterised by non-macromolecular compounds, e.g. waxes }
- B41M 5/426 { characterised by inorganic compounds, e.g. metals, metal salts, metal complexes }
- B41M 5/44 characterised by the macromolecular compounds
- B41M 5/443 { Silicon-containing polymers, e.g. silicones, siloxanes }
- B41M 5/446 { Fluorine-containing polymers }
- B41M 5/46 . . . characterised by the light-to-heat converting means ; characterised by the heat or radiation filtering or absorbing means or layers
- B41M 5/465 { Infra-red radiation-absorbing materials, e.g. dyes, metals, silicates, C black }
- B41M 5/48 . . . combined with other image registration layers or compositions ; Special originals for reproduction by thermography

- 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](#)) }
- 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](#)) }
- B41M 5/504 . . . { Backcoats }
- B41M 5/506 . . . { Intermediate layers }
- B41M 5/508 . . . { Supports }
- B41M 5/52 . . Macromolecular coatings { Note In this group, when the invention information lies in a combination of features covered by more than one of its subgroups, classification is made in [B41M 5/52](#) , using the corresponding indexing codes of its subgroups to identify the individual features }
- B41M 5/5209 . . . { Coatings prepared by radiation-curing, e.g. using photopolymerisable compositions }
- B41M 5/5218 . . . { characterised by inorganic additives, e.g. pigments, clays }
- B41M 5/5227 . . . { characterised by organic non-macromolecular additives, e.g. UV-absorbers, plasticisers, surfactants }
- B41M 5/5236 . . . { characterised by the use of natural gums, of proteins, e.g. gelatins, or of macromolecular carbohydrates, e.g. cellulose }
- B41M 5/5245 . . . { characterised by the use of polymers containing cationic or anionic groups, e.g. mordants }
- B41M 5/5254 . . . { characterised by the use of polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. vinyl polymers }
- B41M 5/5263 . . . { characterised by the use of polymers obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds }
- B41M 5/5272 { Polyesters; Polycarbonates }
- B41M 5/5281 { Polyurethanes or polyureas }
- B41M 5/529 . . . { characterised by the use of fluorine- or silicon-containing organic compounds }

- 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](#)) }

- B41M 7/0009 . { Obliterating the printed matter; Non-destructive removal of the ink pattern, e.g. for repetitive use of the support }
- B41M 7/0018 . { using ink-fixing material, e.g. mordant, precipitating agent, after printing, e.g. by ink-jet printing, coating or spraying }
- B41M 7/0027 . { using protective coatings or layers by lamination or by fusion of the coatings or layers }
- B41M 7/0036 . { using protective coatings or layers dried without curing }
- B41M 7/0045 . { using protective coatings or film forming compositions cured by mechanical wave energy, e.g. ultrasonics, cured by electromagnetic radiation or waves, e.g. ultraviolet radiation, electron beams, or cured by magnetic or electric fields, e.g. electric discharge, plasma }
- B41M 7/0054 . { using protective coatings or film forming compositions cured by thermal means, e.g. infrared radiation, heat }
- B41M 7/0063 . { Preservation or restoration of currency, books or archival material, e.g. by deacidifying }
- B41M 7/0072 . { using mechanical wave energy, e.g. ultrasonics; using magnetic or electric fields, e.g. electric discharge, plasma }
- B41M 7/0081 . { using electromagnetic radiation or waves, e.g. ultraviolet radiation, electron beams }
- B41M 7/009 . { using thermal means, e.g. infrared radiation, heat }
- B41M 7/02 . Dusting { e.g. with an anti-offset powder for obtaining raised printing such as by thermogravure ([B41M 7/0027](#) , [B41M 7/0036](#) , [B41M 7/0045](#) , [B41M 7/0054](#) , [B41M 7/0072](#) , [B41M 7/0081](#) , [B41M 7/009](#) take precedence) ; Varnishing (devices for treating the surfaces of sheets, webs, or other articles in connection with printing [B41F 23/00](#) , [B41L 23/00](#)) }
- B41M 9/00** **Processes wherein make-ready devices are used (make-ready devices per se [B41N 6/00](#))**
- B41M 9/02 . Relief make-readies
- B41M 9/04 . . photomechanical
- B41M 99/00** **Subject matter not provided for in other groups of this subclass**
- B41M 2005/00** **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](#) })**
- B41M 2005/26 . 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](#)) }

- B41M 2005/36 . . 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 }
- B41M 2005/365 . . . Marking of plastic artifacts, e.g. with a laser
- B41M 2205/00 Printing methods or features related to printing methods ; Location or type of the layers**
- B41M 2205/02 . Dye diffusion thermal transfer printing (D2T2)
- B41M 2205/04 . Direct thermal recording (DTR)
- B41M 2205/06 . relating to melt (thermal) mass transfer
- B41M 2205/08 . Ablative thermal transfer, i.e. the exposed transfer medium is propelled from the donor to a receptor by generation of a gas
- B41M 2205/10 . Post-imaging transfer of imaged layer ; transfer of the whole imaged layer
- B41M 2205/12 . Preparation of material for subsequent imaging, e.g. corona treatment, simultaneous coating, pre-treatments
- B41M 2205/14 . Production or use of a mask
- B41M 2205/16 . Correction processes or materials
- B41M 2205/18 . Erasure ; Erasable marking ; Non-permanent marking
- B41M 2205/20 . Stability against chemicals, e.g. grease
- B41M 2205/22 . improving gradation of image
- B41M 2205/24 . Reactive compound reacting in image receiving layer other than leuco dyes or mordants
- B41M 2205/26 . Donor or receiver with registry means
- B41M 2205/28 . Storage stability ; Improved self life
- B41M 2205/30 . Thermal donors, e.g. thermal ribbons
- B41M 2205/32 . Thermal receivers
- B41M 2205/34 . Both sides of a layer or material are treated, e.g. coated
- B41M 2205/36 . Backcoats ; Back layers
- B41M 2205/38 . Intermediate layers ; Layers between substrate and imaging layer

- [B41M 2205/40](#) . Cover layers ; Layers separated from substrate by imaging layer ; Protective layers ; Layers applied before imaging ([protective layers applied after imaging B41M 7/00](#))
- [B41M 2205/42](#) . Multiple imaging layers