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Determination	Unit	Method
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1. Handling and Testing of Raw Materials

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1.1 Fiber raw material

Maceration		Internal
Dry matter content		SCAN-CM 39:94
Chip size distribution		SCAN-CM 40:01
Chip thickness and thickness distribution		SCAN -CM 47:92
Basic density, chips		SCAN-CM 43:95
Basic density, disk		SCAN-CM 43:95
Chip bulk density		SCAN-CM 46:92
Brightness of chips		SCAN-CM 59:01, ISO 2470:99
Brightness of disc		SCAN-CM 59:01, ISO 2470:99
Acetone soluble matter		SCAN-CM 49:03
Cyclohexane-acetone soluble matter		SCAN-CM 67:03
Carbohydrate composition, lignin (Klason and acid soluble) and acetone soluble matter		SCAN-CM 71:09 modif TAPPI T 222 cm-00, modif. SCAN-CM 49:03
Metal analyses: Li, Na, K, Cs, Be, Mg, Ca, Sr, Ba, Ti, V, Cr, Mo, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd, Hg, B, Al, Si, Sn, Pb, P, As, Sb, Bi, S, Se etc.		Internal

1.2 Pigments

Dry matter content		SCAN-P 39:80
Ignition residue (925°C)		SCAN-P 40:80
pH, aqueous suspension		SCAN-P 48:83
Brightness and color (dry pigment, filler)		SCAN-P 89:03, modif.
Brightness and color (pigment slurry)		SCAN-P 89:03, modif.
Viscosity (Brookfield) (pigment slurry)		SCAN-P 50:84
Viscosity, capillary viscometer (ACAV) (pigment slurry)		Internal
Inorganic components, qualitative (EDS)		Internal
Inorganic components, semi-quantitative (EDS)		Internal
Pigment dispersion	B	Internal
Abrasion (coated paper)		Internal

2. Characterisation of Pulp

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2.1 General pulp properties

Kappa number		ISO 302:2004
Viscosity of pulp		ISO 5351:2004
ISO brightness of pulp		ISO 3688:99, ISO 3688:99 modif., ISO 2470:99
ERIC		TAPPI T 567 pm-97
Brightness reversion, pc-number		Internal
Wet disintegration		EN ISO 5263:04
Hot disintegration		ISO 5263:04
Somerville shives		TAPPI T 275
Somerville shive removal		Internal
PFI mini shives		Internal
Estimation of dirt and shives, reflected light		ISO 5350-3:97
Estimation of dirt and shives, transmitted light, laboratory sheets		ISO 5350-1
Estimation of dirt and shives, transmitted light, mill sheeted pulps		ISO 5350-2

1) A = Area, B = Batch, C = Color, D = Direction, L = Level, M = Meter, P = Testing pair, S = Side, ST= Strip, TP = Trial point, Unmarked = Sample

2) Accredited analyses are marked in the list (Δ)

Determination	Unit	Method
Pulmac shives		Internal
Dry matter content		ISO 638:78
Moisture content		ISO 287:85, modif.
Drainability, CSF		ISO 5267-2:01
Drainability, SR-number		EN ISO 5267-1:99, Corr. 1:01
Water retention value, WRV		ISO 23714:07 modif.
McNett fractionation		SCAN-M 6:69
Specific filtration resistance (F 48/200)		Internal
Ash (525 °C) (dry samples) Δ		ISO 1762:01
Ash (525 °C), (wet and slush samples)		ISO 1762:01
Initial wet tensile properties	dry cont.	Internal or SCAN-CM 69:09
Fish eyes (Sclereid content)		Internal
pH, aqueous extract		ISO 6588:05
Conductivity, aqueous extract		ISO 6587:92
pH and conductivity, aqueous extract		ISO 6588:05, ISO 6587:92

2.2 Fiber and fines properties, Fractionation

Fiber dimensions, manual		Internal
Fibre analysis, complete, FS-300		Internal
Fibre analysis, basic FS-300		Internal
Fibre wall thickness and fibre width		Internal
Cross-sectional fiber dimensions, SEM		Internal
Dislocations		Internal
Fibre flexibility (Steadman)		Internal
Fibre stiffness (TD&K)		Internal
External fibrillation of fibres		Internal
Internal fibrillation of fibres (Simons)		Internal
EWNN Swelling		Internal
Collection of McNett fractions		Internal
Fines separation with Super DDJ		Internal
Fines washing with Super DDJ		Internal
Fines content (DDJ) (pulp)		Internal
Fines separation (DDJ) (pulp)		Internal
Fibrillar content, apparent (fines sample)		Internal
Specific sedimentation volume (SOT)		Internal
Fibre damage classification		Internal
Sclereid content		Internal
Calculation of bands		Internal
Dimensions of bands (inkl. Fiber length)		Internal
Light microscopy (BF, DF, DIC, Phase contrast, Fluorescence)	h	Internal
SEM imaging		Internal
Micrography		Internal

2.3 Furnish composition

Wood species, Scandinavian and Euca		ISO 9184 1-7(1-5:90, 6-7:94), SCAN-G 3:90, SCAN-G 4:90
Wood species, other than Scandinavian and Euca		ISO 9184 1-7(1-5:90, 6-7:94), SCAN-G 3:90, SCAN-G 5:03
Chemical pulp content (Strelis)		Internal
Qualitative fiber composition		Internal
Quantitative fiber composition		Internal
Softwood/hardwood ratio		Internal
Earlywood/latewood ratio		Internal

Determination	Unit	Method
Cell type content (fiber, vessel, parenchyma)		Internal
Cell type content (fiber, vessel, parenchyma) and intactness of vessels		Internal
Size distribution of vessels or parenchyma cells		Internal
Vessel picking tendency of hard wood pulps		Internal
2.4 Carbohydrates, lignin and extractives		
Carbohydrate composition		SCAN-CM 71:09
Carbohydrate composition, lignin (Klason and acid soluble) and acetone soluble matter		SCAN-CM 71:09 TAPPI T 222 cm-00, modif. SCAN-CM 49:03
Lignin (Klason and acid soluble) and acetone soluble matter		TAPPI T 222 om-02, modif. SCAN-CM 49:03
Acetone soluble matter		SCAN-CM 49:03
Cyclohexane-acetone soluble matter		SCAN-CM 67:03
Uronic acids		Internal
Carbonyl groups		Internal
Carboxyl groups		Internal
Acetone soluble matter (pulp)		SCAN-CM 49:93
Cyclohexane-acetone soluble matter (pulp)		SCAN-CM 67:03
Extractives (fatty and resin acids, sterols, lignans, sterylesters, triglyserides) - spruce		Internal (spruce/others)
Extractives (fatty and resin acids, sterols, lignans, sterylesters, triglyserides) - birch, pine, eucalyptus and others than spruce		Internal
2.5 Analysis of deposits and disturbing substances		
Composition of stickies, spots and deposits, for example:		
- qualitative analyses of organic compounds (IR)		
- semi-quantitative analyses of elements (EDS)		
- microscopy		
- microbiology		Internal
2.6 Metals		
<u>Pretreatment</u>		
- Wet digestion		Internal
-Ashing		Internal
<u>Measuring</u>		
- Ca, Mg, Fe, Mn, Cu (acid soluble) meaurment package		SCAN-CM 38:05, SCAN-P 74:05
- Cd, Pb measurement package		SCAN-CM 54:97 SCAN-P 73:97
Metal analyses: Li, Na, K, Cs, Be, Mg, Ca, Sr, Ba, Ti, V, Cr, Mo, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd, Hg, B, Al, Si, Sn, Pb, P, As, Sb, Bi, S, Se etc.		Internal
2.7 Chlorine, nitrogen, sulphur and their compounds		
Chlorine, total		ISO 11480:97
Chlorine, organically bound, OCl		ISO 11480:97
Chloride or sulphate, water-soluble		ISO 9197:98, ISO 9198:01
Adsorbable organically bound halogens, AOX removable by washing (dried market pulp)		SCAN-CM 44:97
Nitrogen (Kjeldahl)		Internal
Sulphur, total (pulp, paper, board)		Internal (ICP-AES)
Sulphur, total (wood, coated paper)		Internal (ICP-AES)
Sulphur, reducible (paper)		Internal
2.8 Other chemical analyses		

Determination	Unit	Method
Efficiency of washing water-soluble COD		SCAN-CM 45:00 (wet) SCAN-CM 44:97 (dry)
Oxalate (dissolved and precipitated of pulp suspensions)		SCAN-N 39:05 modif.
Bromine, total		SCAN-CM 51:94, modif.
Fluorine, total		SCAN-CM 51:94, modif.
Carboxylic acids (formic, acetic, propionic and butyric acids)		Internal
Alkali solubility		ISO 692:82
Alkali resistance		ISO 699:82

3. Laboratory Refining

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Laboratory refining - Voith Sulzer		Internal
Laboratory beating - PFI		ISO 5264-2:02, EN 25264-2

4. Preparation and Testing of Laboratory Sheets

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4.1 Preparation of Laboratory Sheets

Wet disintegration		EN ISO 5263:04
Hot disintegration		ISO 5263:04
Preparation of laboratory sheets		EN ISO 5269-1:05
Fraction sheets		Internal
Preparation of laboratory sheets with recirculated white water		EN ISO 5269-3:08
Blend sheets		Internal
Filler containing sheets		Internal
Filler containing blend sheets		Internal
Pigment dispersion	B	Internal
Sheet calendering, Gradek sheet calender	TP	Internal
Preparation of sheets with the dynamic sheet former		Internal
Blend sheets with the dynamic sheetformer		Internal
Pulp drying with the dynamic sheet former		Internal
Ash (525 °C) (dry samples) Δ		ISO 1762:01

4.2 Tensile strength properties

Tensile properties		EN ISO 5270:98, EN ISO 1924-2:94 modif.
Tensile index Δ		
Stretch at break Δ		
Tensile energy absorption index Δ		
Tensile stiffness Δ		
Elastic modulus Δ		
Initial wet tensile properties	dry cont.	Internal or SCAN-CM 69:09
Zero span tensile index, rewetted (Pulmac)		ISO 15361:00
Zero span tensile index, dry (Pulmac)		ISO 15361:00
Fracture toughness test		
Fracture toughness index		
Nominal tensile index		
Nominal stretch		SCAN-P 77:95 modif.
Tensile strength after immersion in water	D	ISO 3781:83, SCAN-P 20:95
Z-directional tensile strength		TAPPI T541 om-99
Z-directional tensile strength + stress-strain curve		TAPPI T541 om-99

4.3 Other strength properties

Tear index Δ		EN ISO 5270:98, ISO 1974:90, EN 21974:95
Internal bonding strength		TAPPI T 569:00

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2) Accredited analyses are marked in the list (Δ)

Determination	Unit	Method
Burst index		ISO 5270:98, ISO 2758:01
Folding endurance	D	EN ISO 5270:98, ISO 5626:93
4.4 Sheet structure		
Apparent bulk density Δ		EN ISO 5270:98, ISO 534:05
Air resistance, Gurley		EN ISO 5270:98, ISO 5636-5:03
Air permeance, Bendtsen Δ		ISO 5636-3:92
Roughness, Bendtsen Δ	S	ISO 8791-2:90
In-plane shrinkage of laboratory sheets		SCAN-CM 70:09
Sheet shrinkage		Internal
4.5 Optical properties		
Optical properties of laboratory sheets		
ISO brightness		ISO 2470-1:09
Light scattering coefficient		ISO 9416:09
Opacity		ISO 2471:08
Light absorption coefficient		ISO 9416:09
Colour CIE L*, a*, b* (C/2°)		ISO 5631-1:09
4.6 Other properties		
Bending stiffness, resonance method	D	ISO 5629:83
Resistance to bending, L&W, 15°	D	ISO 2493:92, SCAN P 29:95
Capillary rise, Klemm		ISO 8787:86 modif.
Water absorbency, Cobb	S	ISO 535:91

5. Testing and Analysis of Paper and Board

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5.1 Effects of moisture and temperature

Moisture content		ISO 287:85 modif.
Hysteresis effect of hygroexpansion and moisture content, OPTIDIM		Internal
Hysteresis effect of hygroexpansion, OPTIDIM		Internal
Hysteresis of moisture content, OPTIDIM		Internal
Hygroexpansivity, OPTIDIM		Internal
Wet dimensional stability, OPTIDIM, per hour		Internal
Humidity control cabin without measurement, OPTIDIM	Day	Internal
Hygroexpansion induced curl, (1-4 samples), OPTICUM		Internal
Weiss test cabinet (RH15-95%, T-10-180°C)	Day	
Arctest (RH20-95%, T-40-180°C)	Day	
Tropical room (RH 30-80%, T-5-60°C)	Day	

5.2 Sorption properties

Water absorbency, Cobb	S	ISO 535:91
Oil absorbency, Cobb-Unger	S	SCAN-P 37:77
Oil absorbency with nozzle applicator	S	Internal
Water absorbency with nozzle applicator	S	Internal
Stain length	S	Internal
Quick water absorbency (basepaper) STFI	S	Internal
Hercules Sizing Test	S	TAPPI T 530:89
Grease resistance, KIT test	S	TAPPI T 559
Grease resistance		ASTM F 119-82 modif.
Ink absorbency K & N	S	SCAN-P 70:95
Water absorption time and capacity, tissue paper		ISO 12625-8:06

5.3 Tensile strength properties

1) A = Area, B = Batch, C = Color, D = Direction, L = Level, M = Meter, P = Testing pair, S = Side, ST= Strip, TP = Trial point, Unmarked = Sample
2) Accredited analyses are marked in the list (Δ)

Determination	Unit	Method
Tensile properties		
Tensile strength Δ		
Stretch at break Δ		
Tensile energy absorption Δ		
Tensile stiffness Δ		
Elastic modulus Δ	D	EN ISO 1924-2:94 modif.
Tensile properties, tissue paper		
Tensile strength		
Stretch at break		
Tensile energy absorption	D	ISO 12625-4:05
Tensile strength after immersion in water	D	ISO 3781:83, SCAN-P 20:95
Determination of wet tensile strength, tissue paper	D	ISO 12625-5:05
Fracture toughness test		
Fracture toughness		
Nominal tensile strength		
Nominal stretch		SCAN-P 77:95
Z-directional tensile strength		TAPPI T541 om-99
Z-directional tensile strength + stress-strain curve		TAPPI T541 om-99
5.4 Stiffness properties		
Bending stiffness, resonance method	D	ISO 5629:83
Resistance to bending, L&W, 15°	D	ISO 2493:92
Bending stiffness, Droop	D	Internal
Bending stiffness, Taber, 15°	D	ISO 2493:92
Bending stiffness, 5°	D	DIN 53121:96
Bending stiffness, four-point method for corrugated board	D	SCAN-P 65:91
5.5 Compression strength properties		
Corrugated medium test (CMT)		EN ISO 7263:94
Ring crush resistance (RCT)	D	ISO 12192:02
Compressive strength (SCT)	D	ISO 9895:89
CCT value and CCT index - Corrugated crush test	D	SCAN-P 42:81
Edgewise crush resistance (ECT)- corrugated board		ISO 3037:94
Flat crush resistance (FCT) - corrugated board		ISO 3035:82
Compression strength of box	D	Internal
Compression strength of box + stress-strain curve	D	Internal
5.6 Other strength properties		
Tearing resistance Δ	D	ISO 1974:90
Internal bonding strength	D	TAPPI T 569:00
Surface strength, wax pick test, Dennison	S	TAPPI T 459 om-93
Bursting strength		ISO 2758:01
Bursting strength, board		ISO 2759:01
Folding endurance, Schopper, MIT, Köhler-Molin	D	ISO 5626:93
Picking resistance, IGT	D	ISO 3783:06
Strength of cracking at fold (heating, folding, tensile strength)	D	Internal
ISIT passes-to-pick/fail -test	S	Internal
5.7 Surface properties		
Smoothness, Bekk	S	ISO 5627:95
Roughness, Bendtsen Δ	S	ISO 8791-2:90
Roughness, PPS	S	ISO 8791-4:92
Topography, 5 μ m- 10mm, laserprofilometry	D/S	Internal
Topography, area measurement, per hour	A	Internal
Specular gloss, Hunter, 75° gloss, TAPPI method Δ	D/S	ISO 8254-1:99
Calender blackening by image analysis, SC paper	S	Internal
Contact angle (water), Fibro	S	Internal

Determination	Unit	Method
Friction coefficient, Tumila	P	Internal
5.8 Structure		
Grammage Δ		EN ISO 536:95 modif.
Thickness and apparent bulk density or apparent sheet density Δ		ISO 534:05 modif.
Thickness, bulking thickness and apparent bulk density, tissue paper		ISO 12625-3:05
Thickness of corrugated board		ISO 3034:75
Air permeance, Bendtsen Δ		ISO 5636-3:92
Air permeance, PPS		Internal
Air resistance, Gurley		ISO 5636-5:03
Water vapour transmission rate		SCAN 22:68
Formation, Ambertec		Internal
CD Shrinkage profile	M	Internal
Fibre orientation, NOMURA		Internal
Ash, (525°) Δ		ISO 1762:01
Ash, (900°) Δ		ISO 2144:97
Pore size and density distribution in z-direction by image analysis		Internal
Filler distribution in z-direction by SEM / BSE, 10 layers		Internal
Filler distribution in z-direction based on ash content, 4 layers		Internal
Fines distribution in z-direction, 4 layers		Internal
Starch distribution in z-direction, qualitative		Internal
Embedding, grinding and polishing		
Cross section preparation		Internal
Micrography of cross sections		Internal
Water repellency		EN 868:99, Annex A
5.9 Optical properties		
ISO brightness (C/2°) Δ		ISO 2470-1:09
Brightness (D65)		ISO 2470-2:08
Y value (C/2°)		ISO 5631-1:09
Opacity (C/2°) Δ		ISO 2471:08
Light scattering coefficient, s Δ		ISO 9416:09
CIE whiteness, CIE W (C/2°), indoor illumination conditions Δ		ISO 11476:00
CIE whiteness, CIE W (D65/10°), outdoor daylight Δ		ISO 11475:04
Fluorescence component, CIE W (D65/10°), F Δ		ISO 11475:04
Green/red tint, T_w (D65/10°) Δ		ISO 11475:04
CIELAB coordinates, L*, a*, b* (C/2°) Δ		ISO 5631-1:09
CIELAB coordinates, L*, a*, b* (D65/10°)		ISO 5631-2:08
Dominant wavelength, DW/Newsprint (C/2°)		SCAN-G 5:03
Excitation purity, P_e /Newsprint (C/2°)		SCAN-G 5:03
Yellowness (C/2°)		DIN 6167
5.10 Permanence of paper		
Paper for documents - Requirements for permanence (incl. tearing resistance, alkali reserve, kappa and pH value)		ISO 9706:94
Paper and board - Lifespan classes (incl. tearing resistance, tensile strength, stretch at break)		DIN 6738:07
Permanent paper - Requirements and test methods		NEN 2728:06
Colour fastness, Xenotest (incl. ISO brightness and L*, a*, b*)		Internal
5.11 Others		
Estimation of dirt and shives, reflected light		ISO 5350-3:97
Wood species, Scandinavian and Euca, 1 layer		ISO 9184 1-7 (1-5:90, 6-7:94), SCAN-G 3:90, SCAN-G 4:90

Determination	Unit	Method
Wood species, other than Scandinavian and Euca, 1 layer		ISO 9184 1-7 (1-5:90, 6-7:94), SCAN-G 3:90, SCAN-G 5:03
Chemical pulp content (Strelis), 1 layer		Internal
Fibre analysis, pulp types and wood species, qualitative, 1 layer		ISO 9184 1-7 (1-5:90, 6-7:94), SCAN-G 3:90, SCAN-G 4:90
Fibre analysis, pulp types and wood species, quantitative, 1 layer		ISO 9184 1-7 (1-5:90, 6-7:94), SCAN-G 3:90, SCAN-G 5:03
Coat weight		Internal
Coating coverage (BSE)	S	Internal
Burn out of coated paper, visual	S	Internal
Coating layer thickness		Internal
Coating layer surface microstructure (Porosity, SB-latex)		Internal
Sheet calendering, Gradek sheet calender	TP	Internal
Acid number, Köhler-Hall		Internal
Composition of coating layer (pigments, binders)		Internal
Carbonate content		SCAN-N 32:98, modif.
Starch content		TAPPI T 419 om-91
Metals (Hg, Cd, Pb), aqueous extract		EN 12498:05 EN 12497:05
Cr, aqueous extract		Internal
Nitrogen, aqueous extract		SFS 5505:88, modif.
Fluorine, total		SCAN-CM 51:94, modif.
Bromine, total		SCAN-CM 51:94, modif.
Sulphur, reducible (paper)		Internal

6. Laboratory Printing, Print Quality

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6.1 Test printing

Ink requirement	S	Internal
Ink requirement, set-off	S	Internal
Gravure printing smoothness and missing dots, Heliotest and measurement	S	Internal
ISIT - ink tack build up	S	Internal
Vessel picking tape analysis		Internal
Special testing of laboratory printing, per hour		Internal

6.2 Print quality analysis

Print gloss	A	Internal
Print density	A	Internal
Relative contrast	A	Internal
Trapping	A	Internal
Dot gain	A	Internal
Set-off	A	Internal
Rub-off	A	Internal
Print through, Elrepho	A	Internal
Print through, image analysis		Internal
Bleeding, both directions		Internal
Show through	A	Internal
Show through, image analysis		Internal
Unevenness of print, mottle	A	Internal
Void rate of solid print		Internal
Geometrical properties of halftone dots	A	Internal
Optical properties of halftone dots	A	Internal
Missing dots (number/unit area)	A	Internal

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2) Accredited analyses are marked in the list (Δ)

Determination	Unit	Method
Contrast transfer function	A	Internal
Print sharpness; normal edge width and slope	A	Internal
Print sharpness; sharpness factor of halftone area		Internal
Pick analysis, tape method (measurement)	A	Internal
Width of cracking at fold (measurement by image analysis)	D	Internal
Amount of transferred fountain solution onto the paper (Li) (including 1 fountain solution)	A	Internal
Measurement of the amount of lint (heatset offset, sheet-fed offset)	Pc	Internal
Print quality control measurements, sheet-fed offset	TP	Internal
Residual solvent, mineral oil or toluene		Internal
Amount of ink on paper and print density (incl. one printing ink)		Internal

6.3 Printing ink

pH (ink jet)		Internal
Surface tension (ink jet)		Internal
Viscosity (ink jet)		Internal
Density (ink jet)		Internal
Water content (Karl Fischer) (ink jet)		Internal
Carbonate		Internal
Elements (e.g. S, Ca, Cu)		Internal

6.4 Fountain solution

pH		SFS 3021:79
Surface tension (static)		Internal
Viscosity		Internal
Isopropylalcohol, IPA		Internal
Hardness		SFS 3018:82
Conductivity		SFS-EN 27888:94
Amount of transferred fountain solution onto the paper (Li) (incl. one fountain solution)		Internal

7. Calibration Services for Paper Testing

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7.1 Calibration service for color measuring instruments

Non-fluorescent reference standard, IR 3, paper pad Δ
Non-fluorescent reference standard, IR 3, plate Δ
Fluorescent reference standard, plate Δ
Fluorescent reference standard, paper pad Δ
Cleaning of plate

7.2 CEPI comparative testing service for intercalibration

7.3 Reference material service for instrument checking

8. Wet End Testing and Microbiology

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8.1 Wet end testing

Charge (Mütek) (direct titration, process waters)		Internal
Charge (Mütek) (back titration)		Internal
Zeta-potential (pulp)		Internal
Surface charge		Internal
Turbidity		Internal
Chemical oxygen demand, COD _{Cr}		SFS 5504:98
Dissolved organic carbon, DOC		SFS-EN 1484:97

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2) Accredited analyses are marked in the list (Δ)

Determination	Unit	Method
Carbon, total organic, TOC		SFS-EN 1484:97
Metal analyses: Li, Na, K, Cs, Be, Mg, Ca, Sr, Ba, Ti, V, Cr, Mo, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd, Hg, B, Al, Si, Sn, Pb, P, As, Sb, Bi, S, Se etc.		Internal
Sulphur, total		Internal (ICP)
Sulphate		SFS-EN ISO 10304 (-1:95, -2:97, -3:98)
Fines content (DDJ) (pulp)		Internal
Fibrillar content, apparent (fines sample)		Internal
Retention values with DDJ		Internal
Fractionation (DDJ) (pulp suspension and white water)		Internal
Retention values (DDJ) (pulp suspension and white water), day		TAPPI T 261:94, modif.
Dynamic drainage (DDA) (pulp suspension and white water), day		Internal

8.2 Analysis of deposits and disturbing substances

Composition of stickies, spots and deposits, for example:	Internal
- qualitative analyses of organic compounds (IR)	
- semi-quantitative analyses of elements (EDS)	
- microscopy	
- microbiology	

8.3 Water analysis

pH	SFS 3021:79
Conductivity	SFS-EN 27888:94
	SFS 3021:79
	SFS-EN 27888:94
pH and conductivity	SFS-EN ISO 9963-1:96
Alkalinity	SFS 3005:81
Acidity	SFS 3008:90
Dry matter content	SFS 3008:90
Suspended solids	SFS-EN 872:05
Ignition residue (550 °C)	SFS 3008:90
Carbohydrates (white water)	Internal (acid methanolysis)
Carbohydrates (bleaching effluent)	Internal (acid hydrolysis)
Phenolic hydroxyl groups	Internal
Extractives (fatty and resin acids, sterols, lignans, sterylesters, triglyserides)	Internal (spruce process)
Extractives (fatty and resin acids, sterols, lignans, sterylesters, triglyserides)	Internal (other than process)
Starch content	TAPPI T 419 om-91, modif.
Lignin content, (UV-spectroscopy)	Internal
Metal analyses: Li, Na, K, Cs, Be, Mg, Ca, Sr, Ba, Ti, V, Cr, Mo, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd, Hg, B, Al, Si, Sn, Pb, P, As, Sb, Bi, S, Se etc.	Internal

8.4 Microbiological tests

Contacts: Kaarina Fagerholm +358 (0)40 8294548 or Satu Salo +358(0)40 8236827	
Bacteria, sporeforming and total count	ISO 8784-1:05, modif.
Molds/yeasts, total count	ISO 7954:87
	ISO 8784-1:05, modif.
	ISO 7954:87
Bacteria, sporeforming, total count and molds/yeasts total count	Internal
ATP	Internal
Anarobic bacteria	Internal
	ISO 8784-1:05
	ISO 7954:87
Total microbes	Internal
Starch degrading bacteria	Internal
Sulfur reducing bacteria	Internal

8.5 Papermaking chemicals

Dry matter content	SCAN-P 52:84, modif.
pH, aqueous suspension	Internal
Density	Internal

Determination	Unit	Method
Viscosity (Brookfield)		Internal

9. Analysis of Recovery Process Streams

Contacts: Mia Tehomaa +358 (0)40 7712058 or Jorma Torniainen +358 (0)40 8294669

9.1 Black Liquor

Dry matter content		SCAN-N 22:96
Ash (700°C)		Internal
Ratio of inorganic/organic matter		Internal
Fibre content		SCAN-N 22:96
Density		Internal
Tall oil (soap)		Internal
Carbon, hydrogen, nitrogen		ASTM D 5373, subcontr.
Residual alkali		SCAN-N 33:94
Na, K, S		SCAN-N 37:98
Ca, Mg, Fe, Mn, Al and Si		SCAN-N 38:01 modif.
Na, K, S, Ca, Cu, Fe, Mg, Mn and Si		SCAN-N 38:01 modif.
Ca, soluble		SCAN-N 38:01, modif.
Ca, Mg, Fe, Mn, Al, Si, Cr, Co, Ni, P, Ti, V, Zn, Ba, Mo, Sr, Na, K, S etc.		Internal
Chlorine, total		Internal
Nitrogen (Kjeldahl)		SFS 5505:88, modif.
Carbonate		SCAN-N 32:98
Oxalate, total		Internal
Sulphur, total		Internal
- sulphide		
- sulphite + thiosulphate		Internal
- sulphate		KCL-method 71
Volatile organic compounds		
- dimethylsulphide, dimethyldisulphide		
- methanol, ethanol, acetone, 1-propanol		Internal
Turpentine components (a-pinene, b-pinene, D ³ -carene)		Internal
Lignin content		Internal
Polysaccharides		Internal
Heat value		Internal
Boiling point rise, BPR		Internal
Swelling		Internal
Viscosity, dynamic		Internal
Viscosity, kinetic		Internal

9.2 White and Green Liquor

ABC-titration (total, active and effective alkali, pH-value)		SCAN-N 30:85
Sulphur, total		SCAN-N 5:83 SCAN-N 31:94
- sulphide		
- sulphite + thiosulphate		Internal
- sulphate		SCAN-N 6:85
Chloride		SCAN-N 4:78
Carbonate		SCAN-N 32:98
Na and K		Internal
Ca, Mg, Fe, Mn, Al and Si		Internal

9.3 Tall oil

Acid number		SCAN-T 11:72
Resin acids		SCAN-T 14:78

1) A = Area, B = Batch, C = Color, D = Direction, L = Level, M = Meter, P = Testing pair, S = Side, ST= Strip, TP = Trial point, Unmarked = Sample

2) Accredited analyses are marked in the list (Δ)

Determination	Unit	Method
Soap content		TAPPI T 689 om-93
Ash (625°C)		SCAN-T 4:66
Water content (Karl Fischer)		Internal
Density		Internal
Lignin content		Internal
Fibre content		Internal

9.4 Condensate

Sulfur (total)		Internal
TRS compounds (DMS, DMDS)		Internal
Methanol + Ethanol		Internal
Turpentine components (a-pinene, b-pinene, D3-carene)		Internal
Na and K		Internal
Water content (Karl Fischer)		Internal
Ca, Mg, Fe, Mn, Al and Si		Internal

9.5 Solid recovery samples (soap, lime, lime sludge, burnt lime, grit, green liquor sludge, fly ash, scalings)

Ignition loss (1000 °C)		Internal
Degree of causticizing		Internal
Available lime (burnt lime sludge)		SCAN-N 25:81
Carbonate		SCAN-N 32:98, modif.
Ash (575°C)		ISO 1762:01, modif.
Calcium in soap		Internal
Ca, Mg, Fe, Mn, Al and Si		Internal (ashing+ICP-measurement)
Al and Si		Internal

10. Environmental and Process Water Analyses

Contacts: Mia Tehomaa +358 (0)40 7712058 or Jorma Torniaainen +358 (0)40 8294669

10.1 General water analyses

pH		SFS 3021:79
Conductivity		SFS-EN 27888:94
Dry matter content		SFS 3008:90
Suspended solids		SFS-EN 872:05
Ignition residue (550 °C)		SFS 3008:90
Alkalinity		SFS-EN ISO 9963-1:96
Acidity		SFS 3005:81
Turbidity		Internal
Adsorbable organically bound halogens, AOX Δ		EN-ISO 9562:04
Chemical oxygen demand, COD _{Cr}		SFS 5504:98
Dissolved organic carbon, DOC		SFS-EN 1484:97
Carbon, total organic, TOC		SFS-EN 1484:97
Surface tension		Internal
Chlorine Compounds - Chloride, Chlorate or Chlorite		SFS-EN ISO 10304 (-1:95, -2:97, -4:99)
Bromide		SFS-EN ISO 10304 (-1:95, -2:97)
Fluoride		SFS-EN ISO 10304 (-1:95, -2:97, -3:98, -4:99) modif.
Nitrogen, (Kjeldahl)		SFS 5505:88
Nitrogen Compounds - Nitrate - Nitrite		SFS-EN ISO 10304-2:97
Phosphorus, total		Internal (ICP)

Determination	Unit	Method
Sulphur, total		Internal (ICP) SFS-EN ISO 10304 (-1:95, -2:97, -3:98)
Oxalate (total, water sample)		SCAN-N 39:05
Oxalate (soluble, water sample)		SCAN-N 39:05
Metal analyses: Li, Na, K, Cs, Be, Mg, Ca, Sr, Ba, Ti, V, Cr, Mo, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd, Hg, B, Al, Si, Sn, Pb, P, As, Sb, Bi, S, Se etc.		Internal
Different measurement techniques (FAAS, GFAAS, ICP-AES)		Internal
10.2 Analysis of solid samples		
pH (aqueous extract)		Internal
Adsorbable organically bound halogens, AOX		EN-ISO 9562:04, modif.
Carbon, hydrogen, nitrogen		ASTM D 5373, subcontr. ISO 11480:97, modif.
Chlorine, total		
Chlorine, organic		ISO 11480:97, modif.
Sulphur, total		Internal
Phosphorus, total		Internal
Nitrogen (Kjeldahl)		SFS-EN 13342:00
10.3 Analyses related to combustion		
Ash (815°C) (solid fuel)		DIN 51719
Volatile matter (900°C)		DIN 51720
Heat value		Internal
Specific analyses concerning black liquor (see Black Liquor)		

11. Microscopy Accessories

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11.1 Preparation of microscopic stains

Graff-C stain	100 ml	SCAN-G 4:90
Lofton Merrit stain	100 ml	SCAN-G 4:90
Herzberg stain	25 ml	SCAN-G 4:90
Sudan orange stain	100 ml	Internal
Toluidine blue stain	100 ml	Internal
Kongo red stain	100 ml	Internal
Sirius red	100 ml	Internal
Acredine Orange stain	100 ml	Internal
Iodine-Kaliumiodine stain for starch	100 ml	Internal
Simons stain	100 ml	Internal
Other stains also available		

11.2 Other

Preparation of glass knives	20 pc	Internal
Preparation of a cross section		Internal