Withdrawal from 2006-01-01 - SCAN-test methods of chemical character

Kappa number	**SCAN-C 1:00** (to be withdrawn)	**ISO 302:2004** (to replace SCAN)
Applicable to	Chemical and semi-chemical pulps (air-dry, slush, unscreened, **but also wet**).	Chemical and semi-chemical pulps (air-dry, slush, unscreened).
Kappa number range:	1 – 100	1 – 100
$KMnO_4$-consumption	20 – 60 %, corrected to 50 %	20 – 60 %, corrected to 50 %
Automatic Kappa number analysis	Yes, if it gives the same results.	Yes, if it gives the same results.
Automatic dry matter analysis	Yes, if it gives the same results.	Yes, if it gives the same results.
Definition	ml of 20 mmol/l of $KMnO_4$ consumed per 1 g oven-dry pulp	ml of 0,02 mol/l of $KMnO_4$ consumed per 1 g oven-dry pulp
Procedure		
Wet samples	With or without drying before analysis.	Always drying before analysis.
Number of parallel samples	duplicate	duplicate
Temperature, °C	25 ± 0,2	25 ± 0,2
Time	10 min ± 15 s	10 min ± 15 s
Blank	Yes	Yes
Kappa number 1-5		
Mass	x ± 0,001 g, x = 5,5 g – 2,5 g	x ± 0,001 g, x = 5,5 g – 2,5 g
Water to disintegration, ml	300 + 90	300 + 90
$KMnO_4$, ml	25 ± 0,1	25 ± 0,1
H_2SO_4, 2 mol/l, ml	50	50
Total volume, ml	500	500
KI solution, 1,0 mol/l, ml	10	10
$Na_2S_2O_3$ solution, 200 mmol/l	The volume to the nearest 0,1 ml	The volume to the nearest 0,1 ml
Kappa number 5-100		
Mass	x ± 0,001 g, x = 4,5 g – 0,25 g	x ± 0,001 g, x = 4,5 g – 0,25 g
Water to disintegration, ml	300 + 90	300 + 90
$KMnO_4$, ml	50 ± 0,1	50 ± 0,1
H_2SO_4, ml	50	50
Total volume, ml	500	500
KI solution	10	10
$Na_2S_2O_3$ solution	The volume to the nearest 0,1 ml	The volume to the nearest 0,1 ml
Report	Kappa number < 50: to nearest 0,1 50 – 100: to nearest 0,5	Kappa number < 50: to nearest 0,1 50 – 100: to nearest 0,5

Viscosity	**SCAN-CM 15:99** (to be withdrawn)	**ISO 5351:2004** (to replace SCAN)
Applicable to	Originally to bl. chemical pulp, any pulps that dissolves in CED solution	Any pulp that dissolves in CED (CED-soluble samples of bl. chemical pulp).
Principle	The sample in dissolved in CED solution. The efflux time is measured in a capillary-tube viscometer. The limiting viscosity number is calculated using Martin´s formula.	Measurement of efflux time of the pulp solution through a capillary-tube viscometer. The limiting viscosity number is calculated using Martin´s formula.

Reagents and equipment		
CED solution	1,00 mol/l	1,00 ± 0,02 mol/l for measuring 0,5 mol/l for calibration
Preparation of CED solution	No	Yes, in Annex A
Viscometer volume, ml	For calibration: 2,0 For measuring: 1,0	For calibration: 1,0 or 2,0 For measuring: 1,0
Temperature	(25,0 ± 0,1) °C	(25,0 ± 0,1) °C
$\eta \times c$	3,0 ± 0,4	3,0 ± 0,4 3,0 ± 0,1 for > 1100 ml/g
Preparation of the sample	Weigh to an accuracy of ± 0,5 mg.	Weigh to an accuracy of ± 0,5 mg.
Preparation of the test solution	Shake or stir until the sample is completely dissolved (less than 30 min). No guide for samples which are difficult to dissolve.	Incl. a guide to preparation of the test solution from pulps which are sometimes difficult to dissolve.
Determination of efflux time		To an accuracy of ± 0,2 s. The mean of the two determinations shall agree to within ± 0,5 %.
Report	In ml/g to the nearest 10 ml/g.	In ml/g to the nearest 10 ml/g.

Ash in paper and paperboard	**SCAN-P 5:63** (to be withdrawn)	**ISO 2144:1997** (to replace SCAN)
Applicable to	Paper and paperboard	Paper, board and pulps
Number of determinations	duplicate	duplicate
Principle	Complete combustion of the sample at 925 ± 25 °C. The ash content is calculated from the mass of the residue to the mass of the oven-dry sample.	The sample is incinerated at 900 ± 25 °C. The mass of the residue is determined by weighing. The residue is expressed as a percentage of the oven-dry mass of the sample.
Ignition of a crucible	15 min	30 min – 60 min
Cooling	1 min	Allow to cool in room temperature in a desiccator
Place in a desiccator or a dish	Approx 45 min	
Weighing	To nearest 0,1 mg	To nearest 0,1 mg
Sample size, g	Enough to produce not less than 10 mg of ash	Enough to produce not less than 10 mg of residue
Combustion	Low flame of a gas burner or in a furnace at < 400 °C	The sample shall burn without bursting into flames.
Ignition	1 h (with lid) + 30 min (without lid)	1 h
Ignition time	The difference, between two consecutive weighings, does not exceed 0,5 mg.	Do not attempt to reach constant mass, some constituents may lose mass slowly over a long period of time.
Report	< 2.5 % ash to the nearest 0,05 % 2,5 – 10 % ash, to the nearest 0,1 % > 10 %, to the nearest 0,2 %	To the nearest 0,1 %.