

Minimum quality requirements QA 6.0

Woven

Test	ISO/EN Norm	Article	Blouses/lining						Blazers, dresses, skirts, trousers, shorts					Jackets, (rain)coats, bodywarmers				Pigment		
			Cotton blends	Linen blends	Viscose blends	Silk blends	Poly blends	Elasthan blends	Cotton blends	Linen/Viscose blends	Poly blends	Elasthan blends	Wool blends	Cotton se blends	Poly Visco blends	Wool blends	dye/print Suedine/Pile/Cupro/Brushed			
		Units	s	s	s	s	s	s	s	s	s	s	s	s	s					
Tensile strength (strip met hod)	ISO 13934-1	N	240	240	240	240	240	240	300	300	240	300	300	250	350	240	350	250	-	
			Voile 100N																	
Tear strength	EN-ISO 13937-1	N	8	8	8	8	8	8	15	15	15	15	15	15	12	12	12	12	-	
			10	10	10	10	10	10	16	16	16	16	16	16	12	12	12	12	-	
Seam slippage	EN-ISO 13936-1	mm	6	6	6	6	6	6	6	6	6	6	6	6	4	4	4	4	-	
		N	4	4	80	80	120	80	120	100	100	120	100	100	140	100	140	100	-	
Pilling 36.000 turns/ 10 hr hairy/brushed flat	ISO 12945-1	1-5	3-4	3-4	3-4	3-4	4	3-4	3-4	3-4	3-4	4	3-4	-	3-4	3-4	4	-	-	
Pilling 15.000 turns/4 hrs flat	Garment/Fabric need to be tested as received	1-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pilling Martindale	ISO 12945-2	1-5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
After 125 revolutions	Garment/Fabric need to be tested as received		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
After 500 revolutions			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
After 1.000 revolutions			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
After 2.000 revolutions			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Raised Surface			4	4	3-4	3	3-4	3	4	3-4	3	3-4	3	3-4	4	3-4	3	3-4	3	
After 125 revolutions			3-4	3-4	2-3	3-4	3	2-3	3-4	3-4	2-3	2-3	2-3	2-3	3-4	3	2-3	2-3	2-3	
After 500 revolutions			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
After 1.000 revolutions			2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	
Dimensional stability	ISO 6330	%	Crepe/Crinkle: Shrinkage after wash: length according to nom, width to be defined for each fabric separately																	
- Domestic washing	ISO 5077 ISO 3759		3	4/3	3	3	3	3	3	4/3	3	3	3	3/5	4	3	3	3	-	-
- Dry cleaning	ISO 3175-1		4	-	-	3	2	2	4	-	-	3	-	-	4	-	3	-	-	
- Ironing/pressing/steaming			2	3	3	3	3	3	2	3	3	2	2	3	2	3	2	3	3	
- flat/line dry			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
- tumble dry			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Spirality before and after wash	ISO 16322-3								Spirality in (broken) twills <= 3%											
Abrasion unchanged at	EN-ISO 12947-2	turns	12.000	12.000	12.000	12.000	12.000	12.000	20.000	20.000	20.000	20.000	20.000	20.000	16.000	16.000	16.000	16.000	-	
Abrasion lining 10.000 turns			Flammability: the flame spread over 127 mm may not be shorter than 4 seconds.											ISO 4920						
Printed cotton 5.000 turns			Testing according to 16 CFR Part 1610 or ASTM D 1230											repellency ash 5 (100						
Im.leather/Pile/Suedine 5.000 turns														repellency ash 3 (70%						
Flockprints 1.000 turns																				

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Colour fastness to: - washing Change of colour	EN-ISO 105 C06	1-5													
Staining	D01														
Articles with contrast colours and contrastfull fabrics, stable - dry cleaning	X12														
- intensive/dark clrs		1-8	4 4					4 4 4 4 4					4 4 4		
- light/medium clrs			3-4 3-4					3-4 3-4 3-4 3-4 3-4					3-4 3-4 3-4		
- rubbing dry: intensive/dark clrs	B02		4 4					4 4 4 4 4					4 4 4	4	3-4 3
- wet: intensive/dark clrs			3-4 3-4					3-4 3-4 3-4 3-4 3-4					3-4 3-4 3-4	3-4 4	3-4
- lining 4-5	E04	1-5	3-4 3-4					3-4 3-4 3-4 3-4 3-4					3-4 3-4 3-4	3-4	3
- light change of colour			4 4					4 4 4 4 4					4 4 4		
- light/medium clrs	X11		4 4					4 4 4 4 4					4 4 4	4	4
- perspiration intensive/dark clrs			3-4 3-4					3-4 3-4 3-4 3-4 3-4					3-4 3-4 3-4	4	3-4
- light/medium clrs	E01		3-4 3-4					3-4 3-4 3-4 3-4 3-4					3-4 3-4 3-4	4	3*
- ironing/pressing/intensive/dark clrs			2-3 2-3					2-3 2-3 3 3 3					3-4 3-4 3-4	4	3
- stea Dark jeans and Dark corduroy			Dark jeans and Dark corduroy					Dark jeans and Dark corduroy					Micromoss/Peach dry 3-4 wet 3	3-4	2-3
- water intensive/dark clrs			4-5 4-5					4-5 4-5 4-5 4-5 4-5					4-5 4-5 4-5	4	4
- Neon clrs			3 3					3 3 3 3 3					3 3 3	5	4-5
- change of colour			4 4					4 4 4 4 4					4 4 4	4	4
- Staining			4 4					4 4 4 4 4					4 4 4	4	4
- ming change of colour			4 4					4 4 4 4 4					4 4 4	4	4
- Staining			4 4					4 4 4 4 4					4 4 4	4	4
- change of colour			3-4 3-4					3-4 3-4 3-4 3-4 3-4					4 4 4	4	3-4
- Staining			3-4 3-4					3-4 3-4 3-4 3-4 3-4					4 4 4	4	3-4
Crease tendency/recovery	ISO 9867	1-5	3-4 2-3					3-4 2-3 3-4 4 4 4					not applicable		not applicable

Knitted

Test	ISO/EN Norm	Composition	Cotton blends			Viscose blends			Poly blends			Elasthan blends			Wool blends	Pigment
			Interlock	Rib	Single Jersey	Interlock	Rib	Single Jersey	Interlock	Rib	Single Jersey	Interlock	Rib	Single Jersey	All knitting methods	Dye/ print Brushed/Silk
Bursting strength in kPa (7,3cm² orifice)	ISO 13938-2	kPa	200200		200	200	200	200		200	200	200		200		
Pilling 15.000 turns/ 4 hours	flat ISO 12945-1	1-5	3-4 3-4		3-4	3-4	3-4	3-4		3-4	3-4	3-4		3-4		
suedine/pile/hairy/brushed/ combed	Garment/Fabric need to be tested as received	1-5														
Pilling Martindale	ISO 12945-2		2-3 2-3													
After 125 revolutions flat	Garment/Fabric need to be tested as received		4 4		2-3	3-4 3	2-3	2-3		2-3	2-3	2-3		2-3		
After 500 revolutions			3-4 3-4			2-3				3						
After 1.000 revolutions suedine/pile/hairy/brushed/ combed			3 3		4	4	4	4		4	4	4		4		
After 125 revolutions			3-4 3-4		3-4 3	3-4 3	3-4 3	3-4 3		3-4 3	3-4 3	3-4 3		3-4 3		
After 500 revolutions			3 3		3-4 3	3-4 3	3-4 3	3-4 3		3-4 3	3-4 3	3-4 3		3-4 3		
After 1.000 revolutions			2-3 2-3		2-3	2-3	2-3	2-3		2-3	2-3	2-3		2-3		
Abrasion unchanged at flockprints: 1.000 turns	EN-ISO 12947-2	turns	10.00010.00010.000		10.00010.000			10.000		10.000	10.000	10.000		10.000		
			Flammability: the flame spread over 127 mm may not be shorter than 4 seconds.			Testing according to 16 CFR Part 1610 or ASTM D 1230										
Dimensional stability	ISO 6330	%													Silk 5/-5	
- Domestic washing warp/ weft flat/line dry	ISO 5077		6/-6	6/-8	6/-6	7/-8	7/-8	7/-8		6/-66/-8	6/-6	6/-8	6/-8	6/-8	5/-5	
- tumble dry	ISO 3759		5/-5	5/-10	5/-5	-	-	-		5/-5 5/-8	5/-5 e	-	-	-	-	
- Dry cleaning	ISO 3175-1		3	3	3	3	3	3		Acrylic not to be tumble dried	3	3	3	3	3	
- Superwash (wool) Woolmark methods	ISO 3005		-	-	-	-	-	-		-	-	-	-	3		
- Ironing/pressing/steaming			3	3	3	3	3	3		3	3	3	3	3		
Spirality before and after one wash group 4 and 8 all other groups	ISO 16322-3	%	5	5	5	5	5	5		5	5	5	5	5		
			3	3	3	3	3	3		3	3	3	3	3		

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Colour fastness to:			1-5															
-washing	Change of colour	light/medium clrs intensive/dark clrs																
Staining	light/medium clrs	intensive/dark clrs																
Articles with contrast colours and contrastfull fabrics, staining 4-5			CO6															
-dry cleaning	Change of colour			1-8	4													4
-rubbing	dry: Staining	light/medium clrs	D01	1-5	3-4 4	4	4	4	4	4	4	4	4	4	4	4	4	3-4 4
	intensive/dark clrs		X12		3-4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4 4	3-4
	wet: light/medium clrs	intensive/dark clrs***			4	4	4	4	4	4	4	4	4	4	4	4	4	4
-light	light/medium clrs	intensive/dark clrs	B02		4	4	4	4	4	4	4	4	4	4	4	4	4	4
neon clrs					3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3*
-perspiration	change of colour		E04		2-3	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3
	Staining - ironing/pressing/steaming		X11		4-5	2-3	2-3	3-4 3	3-4 3	3-4 3	3-4 3	3-4 3	3-4 3	3-4 3	3-4 3	3-4 3	3-4 3	2-3
	Change of colour				5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5 5	4-5
	Staining		E01		3	3	3	3	3	3	3	3	3	3	3	3	3	5
-water	Change of colour				4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Staining				4	4	4	4	4	4	4	4	4	4	4	4	4	4
					4	4	4	4	4	4	4	4	4	4	4	4	4	4
					4	4	4	4	4	4	4	4	4	4	4	4	4	4
					3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4
					3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4

Accessoires

Test	ISO/EN Norm	Lingerie underwear	Socks	Pantyhose	Legging	Gloves Leather	Gloves Fabric	Bags	Belts Fabric	Belts Pu	Shawls	Caps/Hats	Sunglasses
Shrinkage & Fitting	ISO 6330 ISO 5077 ISO 3175	warp 6%	Have to fit MSNL flat dummies of the labelled size after washing. Before washing max. 1 sz. bigger than label	The pantyhose has to fit on the labelled size	6/6		If washable: The gloves have to fit after washing	See fabrics or leather	-	-	6%	3%	Sunglasses need to comply with the European Directive
Breaking		190N -	- -	- -	- -	- -	- -	- -	- -	- -	150N 150N Viole 100N	150N 150N	Directive 89/686/EEC in accordance with standard Pr-EN1836:2005 (Sunglass for general use)
Bursting strength in kPa (7,3cm² orifice)	ISO 13938-2	200 kPa	-	-	200 kPa	-		-	-		-		
Seam strength		100N	-	-		-		>150N	-		-		
Tensile strength (strip method)	ISO 13934-1									PU Belts 300N			
Tear resistance		-	-	-		30 N pm.		cont. >10 ltr big bag 30N cont. <10 ltr small bag 20N	belts 50N pm		-		
Pilling 15.000 turns/ 4 hours Pilling Martindale After 125 revolutions After 500 revolutions After 1.000 revolutions	ISO 12945-1 ISO 12945-2 Garment/Fabric need to be tested as received				2-3 4 3 2-3		2-3 4 3 2-3				2-3 4 3 2-3	2-3 4 3 2-3	

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Colourfastness to	EN-ISO 105														
- washing	CO6								4						
Change of colour	ISO 3759		4		4		3-4		4					4	4
Staining	D01	4	4	4	4	3-4 4		4	4				4	4	4
rubbing															3-4
dry	B02	4	4	4	4	2-3	-	4	3-4				4	3-4	2-3
wet															
lightneon clrs		3-4	3-4	3	4-5			3-4					3-4	2-3 4	2-3
perspiration		4	-	-			3						4	3	5
Change of colour	E01	4	4	4	4	4	2						3-4	3	3
Staining														4	4
water	EN-ISO 11642	4	3	4	4	4	-							4	4
Change of colour		4-5 4	-	3-4	3-4	3-4	-	4	-					4	4
Staining			-	3-4	3-4	3-4	-	4	-					3	3
-water For leather							3								

Footwear

Test	ISO/EN Norm	Minimum Standard
Tear force (leather, synthetics)	EN ISO 3377-2	with lining: 36 N without lining: 50 N lining: 30 N
Tear force (textiles)	EN ISO 13937-1	with lining: 18 N without lining: 25 N
Seam force dynamic (only for seams in textile uppers for shoes and boots)	PFI 0205	shell: 10.000 cycles, 150 N load: no detachment lining:10.000 cycles, 75 N load: no detachment
Flexometer behaviour for leather	EN ISO 5402	only slight cracking/flanking after the following number of cycles: patent leather: 20.000 cycles, dry test leather without coating: 50.000 cycles, dry test leather with coating: 150.000 cycles, dry test
Flexometer behaviour for synthetics and coated textiles	DIN 53351	only slight cracking/flanking after the following number of cycles: 150.000 cycles, dry test
Flexing endurance of soles	EN ISO 17707	after 30.000 cycles max. cut growth 4 mm (total cut after testing max. 6mm) No further tearing out or cuts >6mm acceptable
Adhesion of soles	EN ISO 17708	City shoes, casual shoes, children shoes, sport shoes, boots: 4 N/mm Pumps, slings, moccasins, slippers, loafers, ballerinas, sneakers: 3,5 N/mm Carvas, sandals, mules, clogs, house shoes, sport shoes with EVA midsole: 2,5 N/mm
Abrasion of soles	DIN 53516 EN 12770	density ≥ 0,9: max. 250 mm² density < 0,9: max. 300 mm² heel patch: max. 250 mm²
Abrasion of heel lining (textile)	EN ISO 12947-2	dry: 51.000 revs. wet: 12.000 revs. No formation of holes
Slip resistance	EN 13287	floor condition: ceramic tiles + sodiumlaurylsulfate: whole sole: 0,32µ heel (angle 7°): 0,28µ floor condition: steel + glycerole: whole sole: 0,18µ heel (angle 7°): 0,13µ
Colour Fastness		
General principles	ISO 105-A01	
Change	ISO 105-A02	
Staining	ISO 105-A03	
Colour fastness to light	ISO 105-B02	change 4 change 3 (for nubuck, suede, split)
Colour fastness to water spotting	IUF 420	change 4 (for nappa) change 3 (for nubuck, suede, split)

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Colour fastness to rubbing for leather and synthetic leather upper (not applicable for nubuck, suede and split)	ISO 11640	appearance must be acceptable after: 20 cycles with polish no. 2 (polish with solvents) 20 cycles with polish no. 3 (water based polish) (tests carried out with felt)
Colour fastness to rubbing for leather and synthetic leather lining (not applicable for nubuck, suede and split)	ISO 11640	tested with standardized felt: grade 3 after following treatments: 50 revs. (dry) 20 revs. (wet) 20 revs. (pH8) (perspiration fluid according to ISO 11641)
Colour fastness to rubbing (textile lining)	ISO 11640	tested with standardized cotton fabric squares: grade 4 after following treatments: 50 revs. (dry) 20 revs. (wet) 20 revs. (pH8) (perspiration fluid according to ISO 11641)

Testmethods

General:	
Composition and carelabel	: See the appendix General instructions for clothing, chapter Labelling, paragraph Composition and carelabel difference between actual composition and mentioned composition may not be more than 3%
Colour difference:	: ISO 105-J01
ΔE requirement	: within 1 piece/set: ΔE 0.8 : from piece to piece and dyelot to dyelot: ΔE1.5 : difference between approved labdip and final delivery: ΔE 0.8 : all results are based on TL 83
Clarification on our minimum quality requirements for domestic washing:	
Figures are by example	
warp/weft	3 :both warp and weft may change 3%, eg. it may shrink or become wider
3/-5 :	warp may shrink or become wider 3%, weft may only shrink 5%, so not become wider
-3/5 :	warp may only shrink 3%, weft may shrink or become wider 5%
Checks and stripes	: woven: allowance in printing fluctuation 0% : knitted: allowance in printing fluctuation 3%
Square meter weighth	: may have a difference of 5% with the ordered weight

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Environment

Environmental requirements

To ensure health of our client and of the worldwide environment, all MSNL product need to be up to REACH

Please check for the up to date RSL and Candidate list the documents, RSL Coolinvestments v1.0 and REACH Candidate List

Prohibited

The following materials are not allowed to be used (as material, dyeing or finishing):

Pesticides

Regenerated Wool

Polyvinylchlorid (PVC)

No real animal fur

All accessories must be colourfast, rustproof and nickel free

MSNL prefers that all metal parts in our products are nickel free.

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Testing laboratories

We accept testresults from the laboratories below:

- 1 All Intertek Testing Services laboratories
- 2 All SGS laboratories
- 3 Bureau Veritas Consumer Products Services
- 4 Eurofins
- 5 Centexbel/ Zwijnaarde/ Belgium
- 6 FITI Testing & Research Institute/ Seoul/ Korea
- 7 Hohenstein Institute
- 8 Textile Lab/ Hengelo/ The Netherlands
- 9 TÜV Rheinland/The Netherlands
- 10 Compagnie Mauricienne DeTextile/Mauritius
- 11 All UL laboratories
- 12 Q-Text Greece, affiliated lab of Intertek

Should you have any queries about the testing laboratory you wish to test your fabrics or garments, please check with the QA department of MSNL first.