



quality standard
for garment

made of **amaretta**TM

easy wear, easy care

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1. Composition

amaretta is a high quality suede type man-made leather for use in sophisticated garments as well as in many other fields as for example furniture, car interior etc.

amaretta has a light, soft touch, a writing effect the same as natural nubuck, and high grade beauty because of its special micro fibre structure.

A material made of interlacing bundles of micro fibres is integrated with a continuous and porous polyurethane, which permits air and vapor permeability. The thickness of the micro fiber is 0.001–0.003 dtex (one three thousandths of a silk yarn. 5 grams is enough to make a trip around the earth)

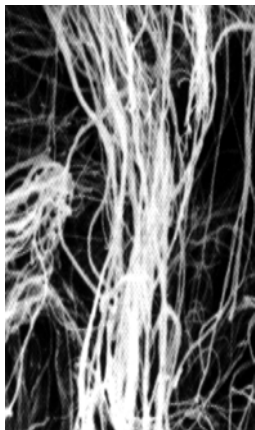
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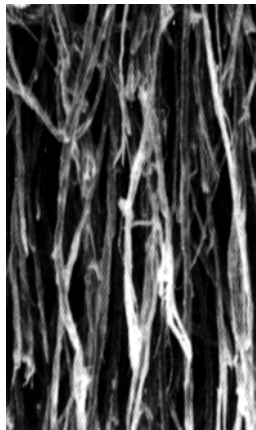
amaretta
- Cross-section -



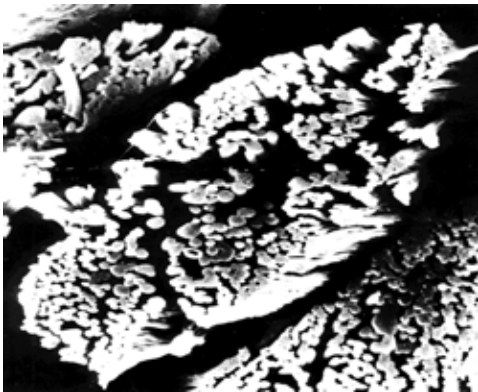
Calf nubuck
- Cross-section -



amaretta
- Surface -



Calf nubuck
- Surface -



Bundle of micro fibre

Shows the bundles of super fine fibres that make up the composition of amaretta.

1.1 Construction characteristics

amaretta is made of the following construction characteristics shown in a comparison between amaretta and natural calf nubuck.

Table 1 Construction characteristics of amaretta

Properties	Unit		amaretta KC7500	amaretta KX7080	Natural Calf Nubuk
Material Composition			Nylon 60% Polyurethan 40%	Nylon 60% Polyurethan 40%	typical values of collagen fibres
Weight	g/m²	ISO3801.DIN5385	180	320	270 – 450
Thickness	mm	ISO3801.DIN5385	0,48	0,8	0,6 – 0,9
Apparent density	g/m²		0,375	0,40	0,45 – 0,50
Overall width	cm		133 – 135	133 – 135	
Minimum useful width	cm		130	130	
Standard length of piece	m		40	40	2 – 3
Acceptable no. of faults	per m		max. 1 point / 5m	max. 1 point/5 m	

The figure of weight and thickness is an average one.

1.2 Finish characteristics

amaretta is dyed with dyestuffs which are selected to fit EU ecological standards (details in 4. Eco-Info).

It is finished with napping, cationic fixing agent finish, an antistatic finish or water repellent finish, depending on the final application. The water repellency is generally kept at 50–70 points according to AATCC22.

2. Advantages

amaretta has the following advantages:

a) **Easy to clean and easy to take care of**

amaretta can be washed by hand wash/delicate machine washing and also dry cleaned (dry cleaning is generally better) --- details in Chapter 8.

b) **Uniform quality**

amaretta has much better uniformity than natural leather, so that the garment made of amaretta is more uniform in appearance and texture. The result is a more sophisticated and attractive looking garment.

This consistent quality also gives an economical effect to garment manufacturers, because they can design amaretta garments as easily as textile garments.

The loss of amaretta material is much less than in natural leather. amaretta is supplied in rolls, ensuring maximum economic cutting.

c) **Light in weight**

amaretta needs much less weight and density in order to fulfill the requested physical properties/ performance compared with natural leather.

This gives a much more luxurious feeling, handling and wearing comfort.

d) **Will not stiffen. Dries fast.**

amaretta will not become stiff when exposed to rain or other moisture and dries fast.

e) **Will breathe**

amaretta has countless tiny openings in it that let air pass through, so it can “breathe”. The naturally breathing of amaretta is much better than of natural leather and many other materials.

3. **Technical information**

3.1 **Colour communication**

a) **Colour matching**

It is based on metameric match under standard light source.

b) **Colour matching lamps**

The standard lamp is D65, but TL84 is also available for colour matching when required by the customer.

c) **Colour measuring**

Final colour measuring is judged by the naked eye in comparison with our colour tolerance card.

A ΔE is sometimes used for colour measuring as an index of the colour difference from the target in textile field. But this is not available to man-made leather suede covered with ultra micro fibre like amaretta, because the irregular reflection of a light is too big, due to its complex superficial structure with tremendous superficial area.

A ΔE therefore is only used for reference to have the image of the colour with amaretta.

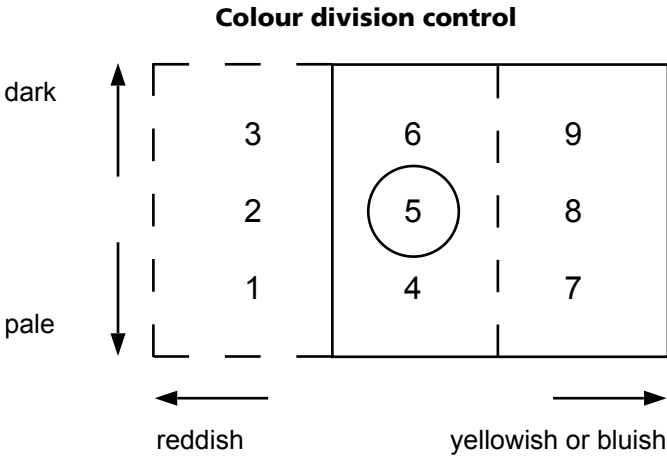
d) **Colour tolerance (ref. tolerance card)**

This is defined by 6 samples; its range is smaller than for natural leather, but bigger than for normal textile, due to its complex structure and its ultra micro fibre. It is commonly said, that the ΔE from the target should be less than 1.5 in the textile field, but amaretta sometimes has bigger ΔE though most of them are less than 1.5.

e) **Colour division**

Each amaretta colour with Colour number (C/#) is divided into 9 colour divisions to help the customers’ efficiency as shown in Fig. 1.

Fig. 1



Each colour no. has a 1–6 or 4–9 control. The division 5 is always the target. This no. is indicated in “Specification of goods” (Chap. 7, Fig. 2).

f) **Listing (colour difference between the center and the edge of the material)**

It is much better than natural leather, but several colours have it. It is inspected during the final quality control. Only those products which are within the tolerance in comparison with the limit sample will be delivered.

3.2 **Mechanical and physical properties**

(see: tables 2 and 3)

Table 2 **Mechanical and physical properties of amaretta**

Properties	Unit	Direction (Length, Cross)	Measurement method	amaretta KC7500	amaretta KX7080
Weight	g/m²		ISO3801.DIN5385	180	320
Thickness	mm		ISO3801.DIN5385	0,48	0,8
Breaking strength	N/25mm	L	DIN 53857	156	228
	N/25mm	C	DIN 53857	137	237
Breaking elongation	%	L	DIN 53857	110	86
	%	C	DIN 53857	125	119
Tearing strength	N	L	DIN 53862	35	39
	N	C	DIN 53862	30	36
Pilling behaviour	Class		ICI	3,5 – 4	3,5 – 4

The figures in the table are average ones.

Table 3 Dimensional stability

Shrinkage *	Unit	Direction (Length, Cross)	Measurement method	amaretta KC7500	amaretta KX7080
by steaming (pressing machine)	%	L	DIN 53894-2	2% in average	2% in average
	%	C	DIN 53894-2	2% in average	2% in average
by washing (acc. to care labelling)	%	L	DIN 53920.53892	2,5% in average	2,5% in average
	%	C	DIN 53920.53892	2% in average	2% in average
by dry cleaning	%	L	DIN 53898	2,5% in average	2,5% in average
	%	C	DIN 53898	2% in average	2% in average

* The shrinkage percentage is much influenced by conditions such as temperature or mechanical condition, so the figure shown in Table 3 is the data measured according to DIN standard. If the material is processed under different conditions (e.g. with very high temperature or very strong tumbling during washing), it would be possible to have bigger shrinkage.

3.3 Colour fastness

Table 4 Colour fastness of amaretta

Darkness of the Shade	Measurement method	change in shade		bleeding to cotton	
		light	dark	light	dark
to washing *	ISO 105 - C06	4 – 3	4 – 3	4 – 3	3 – 2
to dry cleaning *	ISO 105 - D01	4	4	4 – 3	4 – 3
to ironing	ISO 105 - X11	No change			
to light xenontest	ISO 105 - B02	4 – 3	4		
to perspiration (acid)	ISO 105 - E04	4 – 3	4 – 3	4 – 3	4 – 2
to perspiration (alkaline)	ISO 105 - E04	4 – 3	4 – 3	4 – 3	4 – 2
to water	ISO 105 - E01	4 – 3	4 – 3	4 – 3	4 – 3
to rubbing, dry	ISO 105 - X12	4 – 3	4 – 3	4 – 3	4 – 2
to rubbing, wet	ISO 105 - X12	4 – 2	4 – 2	4 – 3	4 – 1,5

* amaretta’s colour fastness is much better than natural leather, but especially dark or bright colours do not meet general textile standard due to the ultra micro fibre and excellent beauty of its appearance.

4. Eco-Info

a) Formaldehyde

The residual amount of formaldehyde is lower than 300 ppm and therefore substantially lower than required by legislation for labelling.

b) Pesticides

Pesticides are not used.

c) Dyestuffs

The following dyestuffs are not used:

- Azo-dyestuffs which can split off Amines of the MAK groups A1 and A2, in accordance with the actual version of German Ordinance on Commodities and the LMBG, pertaining to articles of daily use (LMBG).

- Allergic disperse dyestuffs of the type:

disperse blue 35
disperse blue 106
disperse blue 124
disperse yellow 3
disperse orange3
disperse orange37/76
disperse red 1

d) Cancerogenic, mutagenic, teratogenic and radioactive substances

No substances are in use which are listed in the technical advisory list (TRK) of harmful substances. Furthermore, radioactive substances are not in use.

e) Skin neutral pH-value

4.5 – 8.0 pH

f) Heavy metals

Test results of heavy metals in accordance with EN ISO 105 E04 (solution 2) are as follows:

total chromium less than 20 ppm
Chromium +4 may not be present
Copper less than 100 ppm
Nickel less than 10 ppm
Cobalt less than 10 ppm

After extraction with perspiration solution in accordance with EN ISO 105 E04 (solution 2). Extraction in accordance with the DTB method (40 °C, 1hr, liquid ratio 1:20, method can be obtained from DTB).

g) Carriers

Carriers are not used. The carriers e.g. based on chlorinated aromatics or biphenyl are not in use.

h) Solvents and halogenated Hydrocarbons

Easily evaporating halogenated hydrocarbons and other substances leading to the destruction of the ozone layer are not in use, further neither benzene nor recycled solvents.

i) Further Auxiliaries

Chlorinated bleaching agents, tetra- and pentachlorophenole, polychlorinated bi- and terphenylene, potassiumdichromate, cumarine containing brightners, alkylphenolethozylate (APEO), ethylenediamine, notetraacetic acid and dioxins and furanes are not applied. Antimicrobial chemicals and flameretardants are only applied on request of the customer.

5. ISO certification in substrate production

Kuraray is certified according to ISO 9002 in amaretta substrate production.

6. Trade specific information

- a) No EU origin specification in accordance with ECC-decree no. 3351/83.
- b) Customs tariff no. 56039490

7. Specification of goods

Every amaretta roll has a sheet of specification shown in Fig. 2

Case No.	
e.g.	0 1 0 3 - 9 5 1 9 / 0 1 (a b c d e f g h i)
a:	Length Code 0: standard length 50–65 m 1 – 2 pieces (1 piece is 20 m or more). 2: Total 1 roll length is between 10 and 65 m. 1 – 2 pieces (1 piece is 10 m or more). 9: Total 1 roll length is between 10 and 65 m. 2 – 5 pieces (1 piece is 5 m or more). The maximum length of 1 piece is 65 m.
b:	1 – internal code.
c:	0 – internal code.
d:	Colour division 1 – 9 (Shown in 3.1, Fig. 1)
e:	Year--- the last figure of AD. 9 - finally inspected in 1999
f–i:	Production lot

Dye Lot No.:

We also indicate the Dye lot No. (man in charge) on specification to help the colour information. The cut pieces for amaretta garment should be taken from the same piece/roll. If it is not possible, they should be taken from the same dye lot. The colour in the same dye lot is basically very uniform. If it is not possible, they should be taken from the same colour division number.

Length: Net and Gross

The difference of the net and gross length is the allowance as compensation for defects (details in sewing manual).

Fig. 2 Sheet of Specification

SPECIFICATION OF GOODS			
ARTICLE No.	K X 7 4 0 0		
COLOUR No.	3 4 5		
CASE No.	0 3 0 7 - 9 0 9 0 5 0 5 - 1 3		
WIDTH	1 3 0 , 0 C M		
LENGTH	NET	5 1 . 2	M
	GROSS	5 2 . 0	M
NUMBER OF PIECES	1		M
			M
MAN IN CHARGE		INSPECTOR	
6 2 5 - 5 3 8 8 3 1			
Arrow mark sticker on piece end indicates nap direction. Take care when marking and cutting.			
CONTENTS:			
60% POLYAMIDE			
40% POLYURETHANE			
KURARAY EUROPE GMBH			

MADE IN JAPAN, FINISHED IN EU

8. Sewing manual

8.1 Material preparation

- Storage: amaretta should always be stored lying flat. An ideal solution is to store each roll separately in their original packaging in order to avoid wrinkles on the material.
- Laying: amaretta has a light degree of lateral elasticity; therefore it should be rolled out without tension (where possible in an automatic, tension free laying machine with selvedge guides) at least 5 hours (24 hours recommendable) before cutting.
- amaretta material is designed to avoid electrostatic charging as much as possible. But when there is a problem during unrolling or during the cutting process, it is recommended to keep relatively high humidity in the working room or equip an earthing facility. amaretta is designed to keep a certain water repellency so that it is difficult to use much anti-static agent on the material.

8.2. Defects indication on the material

A small defect is marked with white marker or yarn at the edge of the material. A big defect is marked with red marker or yarn at the edge of the material.

Allowance as compensation:

20 cm / white marker or yarn (10 cm in textile generally)

40 cm / red marker or yarn (20 cm in textile generally)

Defects classification:

Shown in table 5.

Table 5 Defects classification

Item	Scale L	C	Marker or yarn
Stripe in warp direction	0 – 25 cm	0 – 2 cm	white
	25 – 100 cm	0 – 2 cm	red
Stripe in weft direction	0 – 2 cm	0 – 50 cm	white
	0 – 2 cm	50 cm or more	red
Defects which have an area (without scar or hole)	25 cm or less	25 cm or less	white
	20 cm or less	whole width or less	red
	50 cm or less	50 cm or less	red
Scar	3 cm or less in diameter		white
Hole	3 cm or less in diameter		white

8.3 Spreading

- After being unrolled, amaretta should be left to settle into shape before spreading is done.
- Since amaretta has a tendency to stretch sideways, an automatic tensionless spreading machine equipped with an automatic selvedge evener is recommended.
- In spreading, if some excess tension occurs in amaretta, settle it into shape before making.
- Spreading may be done with maximum of 50 layers, though 30 layers is advisable for easier cutting.

8.4 Marking

- Pattern direction on all parts (body, collar, pocket and sleeve) and a nap direction should be kept in the same direction as shown below.
- The cut pieces of all parts, such as body, sleeves, collar, pockets and so on, should be taken from the same piece. Suede like materials sometimes seem to have an unevenness of hue and luster because of the form of fine naps on the surface. Therefore, body and sleeves should also be taken along the same direction.
- When using tailor's chalk, it is impossible to remove the chalk mark completely. It is inadvisable to use chemical chalk, fluorescent chalks or wax chalk. (May not be removable.)

8.5. Cutting

- For labelling of the cut pieces, labels should be put on the back side of amaretta, to avoid a defect such as a wounded surface nap or a dull spot caused by paste.
- When cutting too many amaretta layers, the cut edges could become entangled, thus making separation difficult. Depending on the type and characteristics of the layers, one should carry out some prior trials.



**Fig. 3
Parts and nap direction**

Parts

Nap direction



Mark along the nap direction



An arrow symbol on the end of each piece indicates nap direction.

8.6 Pattern design

8.6.1 Adjusting dimensions

As a basis for calculating the pattern, the adjustment of dimensions can be taken from the following statistical results.

By steaming under general conditions:
Shrinkage of lateral and traverse directions is 2 % in average.
Fixing under operational conditions: Shrinkage is 2 % in average.

The shrinkage values are average values and are of dimensions customary for easy-to-care materials.

8.6.2 Seam stability

Compared to fabrics of a similar fineness, amaretta has good to very good seam stability. No detrimental effects are known or have been noticed under the usual conditions for fine, light textiles.

8.6.3 Form stability

amaretta has a high degree of springy elasticity, i.e. it has a very strong tendency to spring back into its original condition/dimension. This must be taken into consideration at the pattern design stage: the integration of additional widths can result in corrugations being formed in the area of the seams. It may be a practical idea to integrate tucks into design considerations as form-giving elements.

8.6.4 Fusing

Due to the surface characteristics of amaretta, spot bonding interlinings without profiled surfaces are to be used. The maximum recommended fixing temperature is 120 °C in order to avoid material damage. The shrinkage of the spot bonding interlinings is to be adjusted to suit the high degree of dimensional accuracy of amaretta. Shrinkage of greater than 0.5 % can produce corrugations along the surface of amaretta. For further details, please refer to volume 17 of "Bekleidungstechnische Schriftenreihe".

8.6.5. Sewing

8.6.5.1. Transport

If the material is transported from underneath, jerking or rolling transport, equip press with Teflon sole, or better, Teflon tape. Differential upper transportation is ideal, lower or needle transport can also be utilised. The press pressure should be set as low as possible in order to ensure the best possible movement. For best sewing results, speeds of between 3,000 and 3,500 stitches a minute are recommended.

8.6.5.2 Sewing needles, thread strengths, stitch density

The generally used tip forms R (round form) and SES (lightly rounded tip) are ideal for amaretta, special types of tip are not necessary and also bring no improvement. Nevertheless, it is important that the needle tips are free of damages in order to avoid unnecessary tearing of the needle hole. The thickness of the needles is to be matched to the section of the sewing thread (refer to table Matching of needle thickness – thread – stitch density).

Matching of needle thickness – thread – stitch density

Sewing thread	Needle thickness / Nm	Stiches / cm Closing seam	Lockstitch seam
Polyester Long stapled / Covering yarn PES / PES			
No. 150	65 – 80	4	3 – 4
No. 140	65 – 80	4	3 – 4
No. 120	70 – 80	4	3 – 4
No. 100	80 – 90	-	3 – 4
No. 80	90 – 100	-	3 – 4
No. 70	90 – 100	-	3 – 4

Polyester endless	Needle thickness	Blind stitch, Trimming stitch Pricking stitch
No. 180	60 – 70	2 – 3
No. 200	60 – 70	2 – 3
No. 240	60 – 70	2 – 3
No. 360	60 – 80	2 – 3

8.6.5.3. Separating

If closing seams have to be opened for any reason and then closed again, the new seam should be sewn approx. 1 mm behind the first seam in order to conceal the first seam. For lockstitch seams, the new seam should cover the original in order to conceal the original stitching. In general, the following shall apply: The finer the needle selected, the less the original stitching can be detected. The unfortunate appearance usually seen when re-sewing on leather does not occur with amaretta.

8.6.5.4 Tacking

If tacking is necessary, a suitably fine needle should be used such as those usually used for light fabrics.
Recommendation: Sewing thread strength 180 or finer, needle thickness Nm 60 to 70.

8.6.5.5 Trimming, pricking, hemming

The customary endless polyester sewing threads or spun sewing threads of strength 180 or finer can be used with amaretta without problems. No special machine settings are necessary.

8.6.5.6 Trimmings, applications, contrasting colours

amaretta is best combined with similar colours (hue-in-hue) or with middle-dark fabrics. If dark colours are to be combined with light ones (amaretta-amaretta or amaretta-other material) "bleeding" of the material could occur by wet treatment or dry cleaning under some circumstances. (Means: Darker dyestuff may migrate into lighter material.)

Therefore, a washing and dry cleaning test must be made before actual processing in order to check the possibility/risk of dyestuff migration. In the actual case of dyestuff migration the design must be changed in order to avoid later claims by the end-consumer.

As conditions are different for each fabric, the care labels should not be drawn up until a colour-fastness test has been carried out. If amaretta is to be sewn on as a trimming, thread wrinkling could occur if transporting through the machine is not even.

Any possible differences in the way amaretta and other materials react to transportation and stretching must be taken into consideration.

8.6.6 Ironing

When ironing seams or when seams must be opened so that they lie almost flat, this can be achieved with steam at a maximum temperature of 115 °C (max. steam and sole temperature).

It is recommended that the iron is furnished with a "PTFE" sole".

It is recommended that ironing machines are operated at a low pressure in order to avoid any impressions on the material, especially on the naps.

Investigations have shown that neither shiny areas or any other significant changes to the appearance of the surface occurs. Nevertheless, a dry cloth should be placed under the iron during ironing to be safe.

The ironing surfaces of ironing presses should be furnished with soft felt or a similar material. The following press settings are recommended:

Steam temperature	max. 115 °C
Pressure	20 Kpa – 5 seconds
Steam	max. 5 seconds
Vacuum	max. 10 seconds

9. Removing stain and mending defects of amaretta

9.1 Light stains

In case of light stains, put an adhesive tape such as Scotch Tape gently onto a stain spot, then take off the tape with the stain.

9.2 In case of an oil stain

- (1) Spray a spot remover such as "Dry-clean" (J. Goddard & Sons Limited, England / S.C. Johnson & Son, Inc., U.S.A.) to an oil stain part.
- (2) Wait until powder is completely dry, usually about 5 minutes.
- (3) Brush or vacuum off powder.
- (4) Should powder adhere to the stain gently wipe with moist sponge, then with a dry cloth or tissue. Allow to dry and brush again.
- (5) For stubborn stains, repeat steps (1) through (4) as necessary.
- (6) If the stain spot is not removed from amaretta spray "Ligroin" (Petroleum solvent, boiling point at 40 – 150 °C).






9.3 In case of wounded stains, if surface tone is partly changed by wounding or pressing, such part should be rubbed with fine abrasion paper (500 – 800 counts).

9.4 A stubborn glazing or press mark caused by high temperature of iron can not be repaired. So pay strong attention to the control of iron and steam temperature.

10. Care labelling

Care labelling information for amaretta fabric itself is shown in Fig. 4. Washing should be done by hand wash or delicate machine washing as indicated in the table. The table does not include made-up garments, since such garments differ depending upon the accessories attached. Care labelling of made-up garments should be done according to classified care labelling standards set by the performance of amaretta and that of accessories.

Fig. 4 Care labelling

	Hand wash or Delicate machine washing PH-neutral fine detergent, e.g. "Woolite" / Couturel". Water temperature max. 30 degree C. Never add the detergent directly onto amaretta. Always wash amaretta clothing separately. Always wash multi-piece amaretta clothing together.
	Do not chlorine bleach
	Iron at a maximum sole plate temperature of 120 °C ("1 dot"). Use pressing cloth.
	Articles dry-cleanable in Perchloroethylene, Monofluorotrichloromethane, Hydrocarbons, Tri-fluorotrichloroethane. Using the normal procedure. But with a strict limit on the addition of water and certain restrictions concerning mechanical action or drying temperature.
	Do not dry by tumbling.

11. Remarks

The information set forth above serve solely as suggestions and recommendations for processing garments made of amaretta.

As the individual circumstances are always different and the care and responsibility of the processor/user is of the highest importance, there is no liability on the part of the publishers of this brochure and the manufactures of amaretta in connection with the utilisation of the information contained herein.

With the issue of this brochure, all previous publications lose their validity.

Important:

Complaints about the goods supplied are barred after cutting has occurred or if any other processing has already commenced.

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