<KURALON K-Ⅱ>
High Performance Spun Yarn

《EQ5 Stretch - Broken Yarn ECC5/1~20/1》

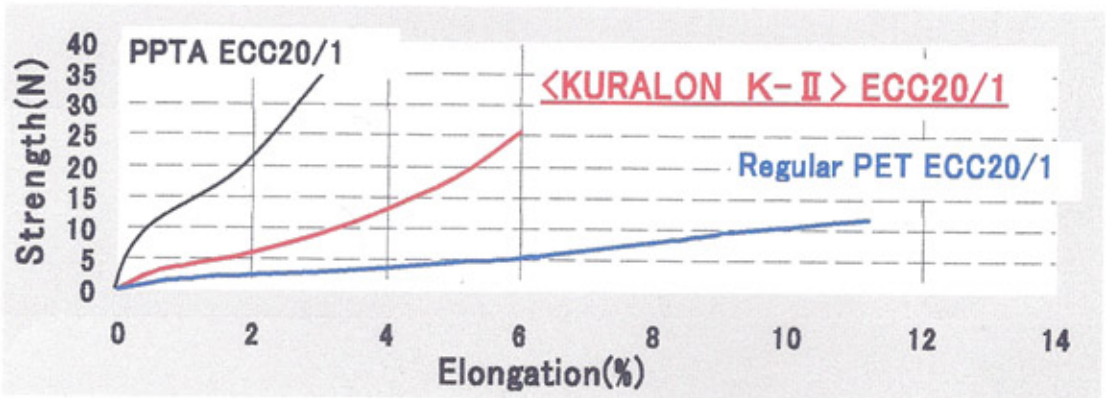
KURARAY CO.,LTD.
Fiber and Industrial materials Division

Characteristics of <KURALON K-Ⅱ>

- Good Cost Performance
- High Strength
- Cut Resistance
- Dye able (Color Variation)
- Good adhesion to rubber
- Easily Removing the Stain
- Superior Chemical Resistance for Alkalis
- Good Light Resistance for Sunshine

Characteristics of <KURALON K-Ⅱ>Spun Yarn

1)Stress and Strength curve



PPTA = Para Aramid
ECC = English Cotton Count

Characteristics of <KURALON K-Ⅱ>Spun Yarn

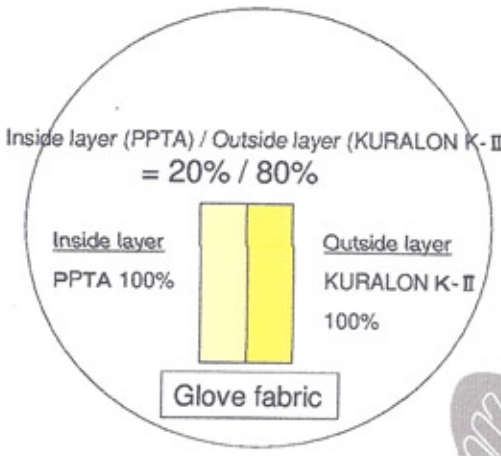
2)Data of numerical characteristic

	Yarn Count 1)	Yarn Thickness	Strength at Break		Tenacity		Elongation		Hot Air Shrinkage 2)	Boiling Shrinkage 3)
		dtex	N		cN/dtex		%		%	%
			dry	wet	dry	wet	dry	wet		
<KURALON K-Ⅱ>	10	579	47	41	8.1	7.0	6.4	6.4	1.2	3.6
<KURALON K-Ⅱ>	20	304	23	19	7.6	6.4	6.0	6.0	1.2	3.4
PET Regular	20	295	11	11	3.7	3.7	12.9	9.2	5.9	2.8

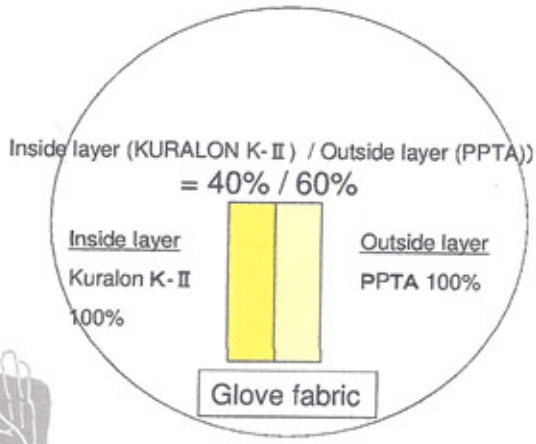
1) ECC (English Cotton Count)
2) 160℃×15min.
3) 100℃×30min.

Example for Application (Knitting glove)

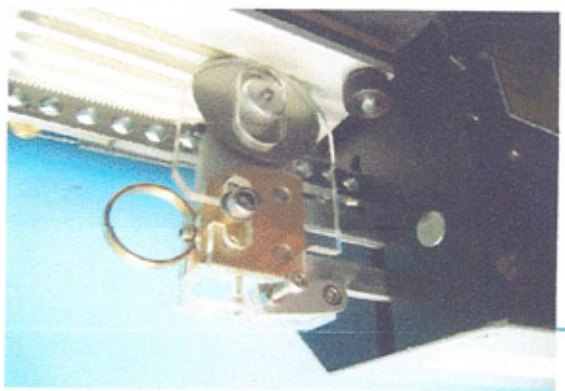
1) Inside layer (PPTA) / Outside layer (K-Ⅱ)



2) Inside layer (K-Ⅱ) / Outside layer (PPTA)

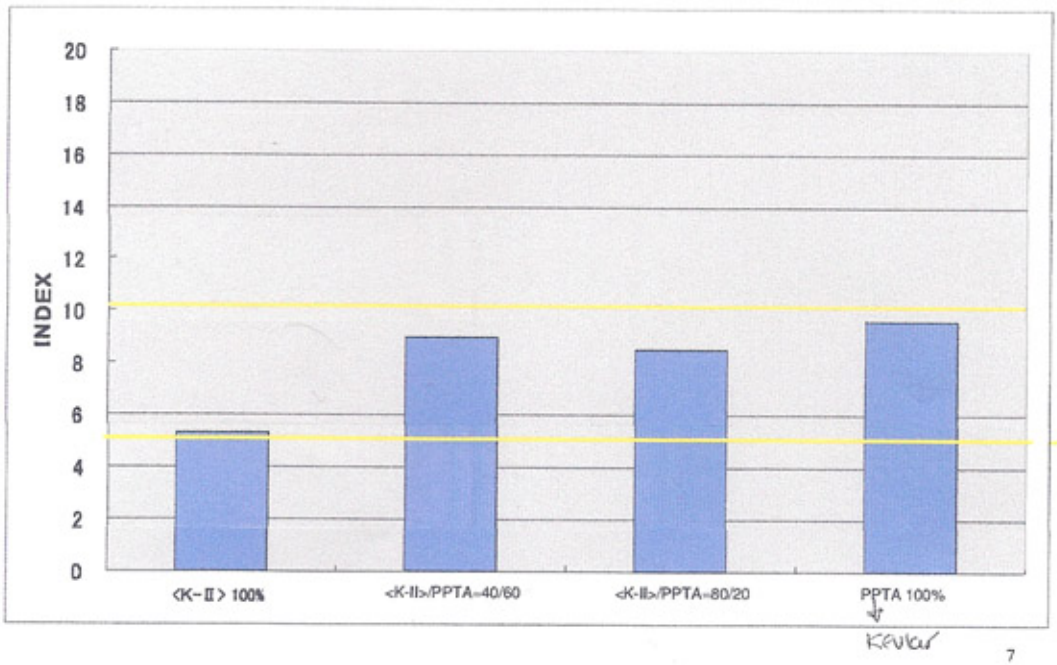


<EN388 Test Method>

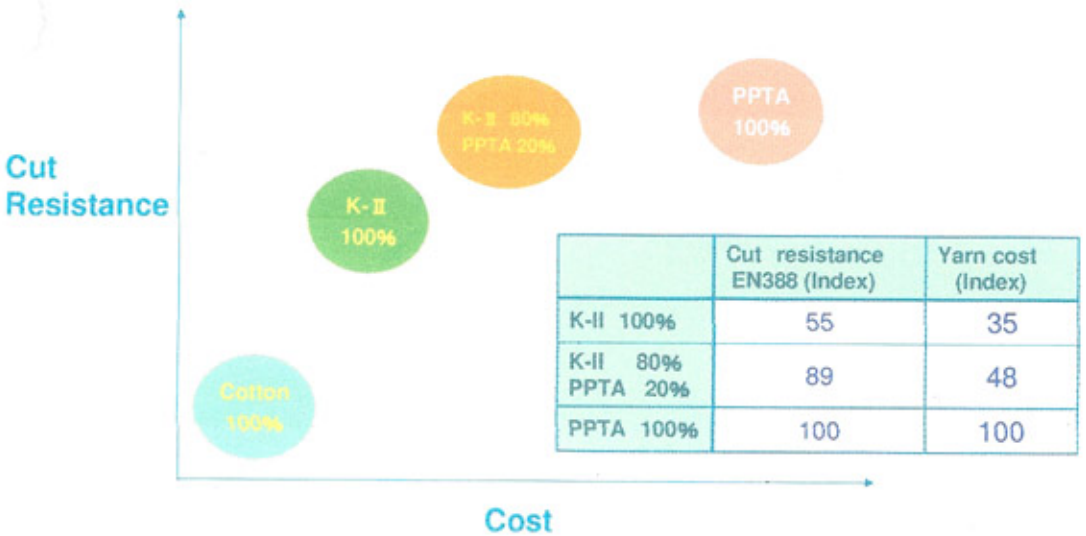


Level1 ;More than 1. 2 Worst
Level2 ;More than 2. 5
Level3 ;More than 5. 0
Level4 ;More than 10. 0
Level5 ;More than 20. 0 Best

<Cut Resistance (Glove) by EN388 >

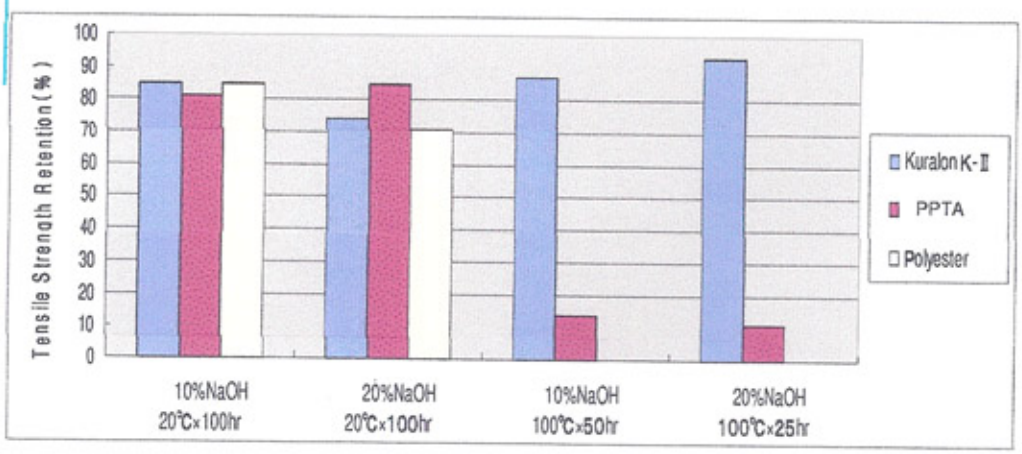


<Good Cost Performance (For Example)>

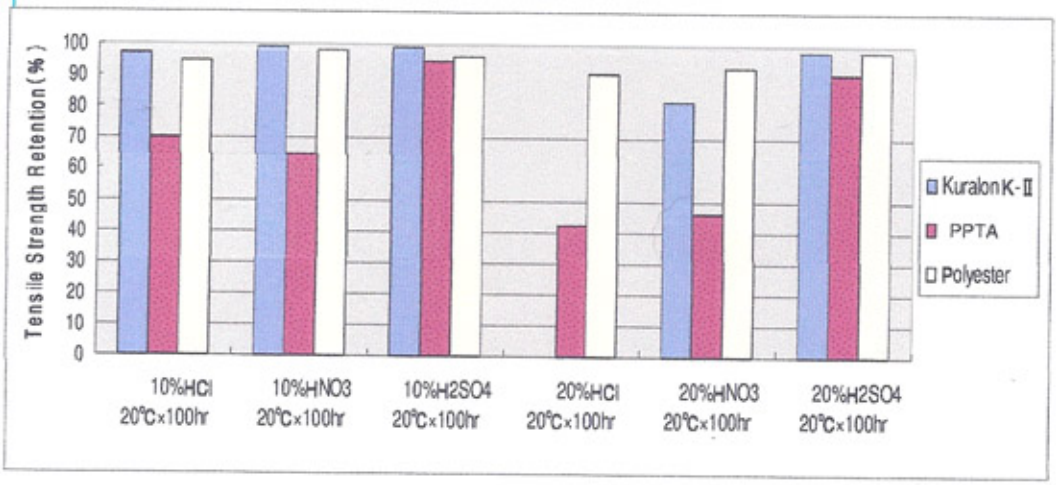


	Cut resistance EN388 (Index)	Yarn cost (Index)
K-II 100%	55	35
K-II 80% PPTA 20%	89	48
PPTA 100%	100	100

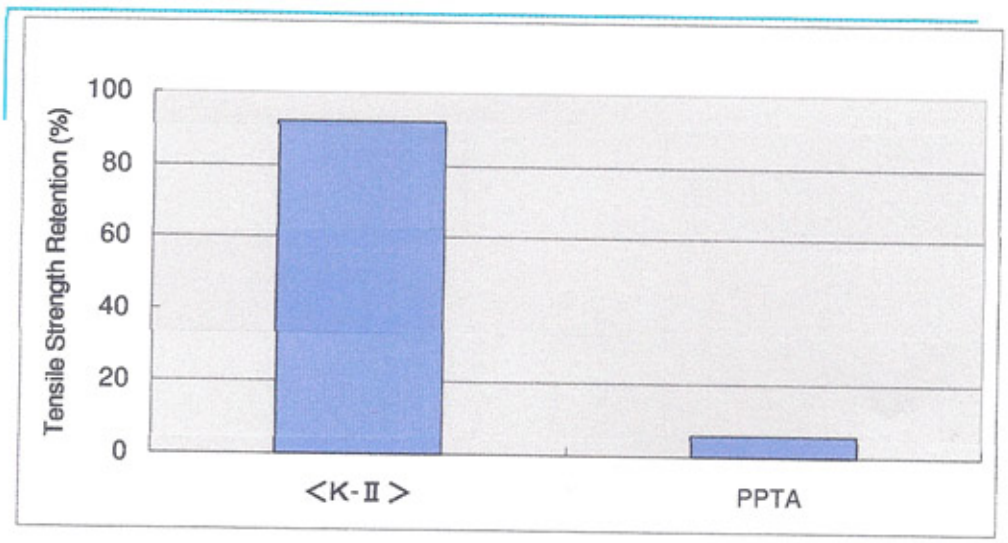
<Superior Chemical Resistance for "Alkalis">



<Chemical Resistance for "Acid">

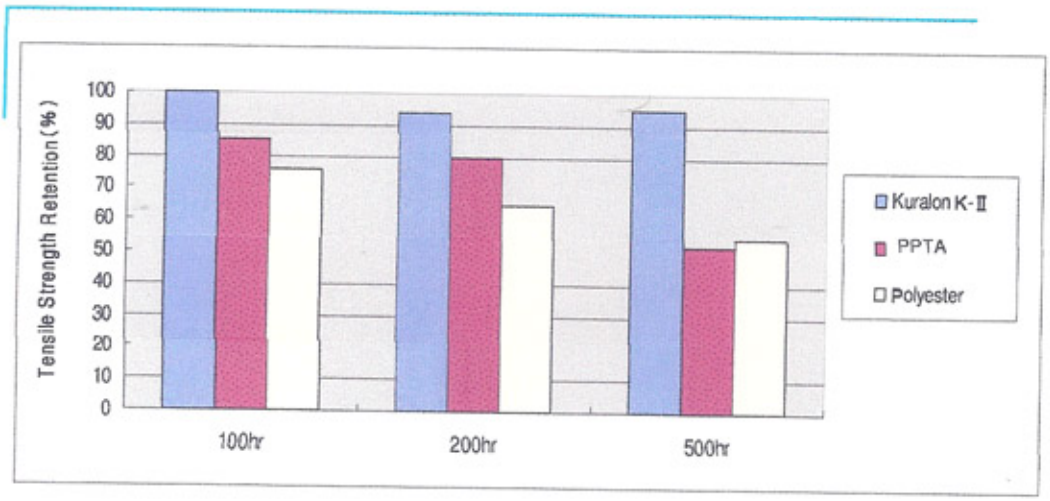


<Chemical Resistance for "Hypochlorous acid">



Treatment condition
- Room Temp. x 24hours
- Hypochlorous acid concentration; 3% solution

<Good Light Resistance for Sunshine>



< JIS B 7753 >
Testing condition
- Tem.; 63 ℃
- Wave length; 380～780nm

<Easily Removing the Stain and shrinkage performance>

Before Washing **After Washing (80℃)**

< KURALON K-Ⅱ >

PPTA

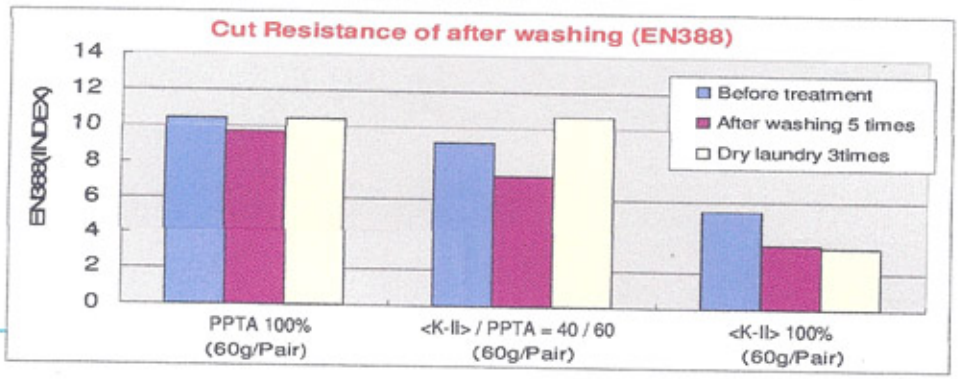
Testing Method
1) Add manmade smear
2) Wash by laundry machine
Temp. 80℃
Time 30min x 5times

This testing method is developed by TOYOTA motor co., in Japan.

<Launderability (shrinkage and cut resistance)>

			Washing cycle 1time			Washing cycle 3time			Washing cycle 5time		
			Left hand	Right hand	Average(%)	Left hand	Right hand	Average(%)	Left hand	Right hand	Average(%)
1	<K-Ⅱ> 100%	WARP	8.2	6.1	7.1	11.2	7.4	9.3	11.4	10.5	11.0
		WEFT	3.3	1.6	2.5	2.7	2.9	2.8	6.1	5.7	5.9
2	<K-Ⅱ> / <PPTA> = 40 / 60	WARP	2.6	3.1	2.8	2.8	3.3	3.0	2.7	3.5	3.1
		WEFT	1.0	1.0	1.0	1.1	0.8	0.9	2.5	2.6	2.6
3	<PPTA> 100%	WARP	-0.9	-3.8	-2.4	3.2	0.8	2.0	-3.5	-1.9	-2.7
		WEFT	-0.2	5.7	2.7	-1.0	2.4	0.6	-1.9	4.7	1.4

* The specification of each gloves is as follows; Weight ⇒approx.60g/pair,Knitting⇒7Gauge
* Washing conditoin ①Washing ;80℃×30min ②Dry;80℃×30min



Further information

(From typical frequency questions)

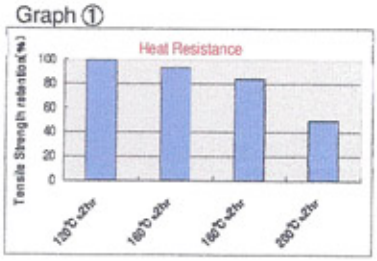
- **Heat Resistance**
  (See graph ①)

- **Humidity dependence**
  Official moisture regain = 5%

- **Abrasion resistance**
  (See picture ①)

- **Conductivity**
  1) Electrical; Essentially, this material is non electrical conductive.
  2) Thermal; Glass Fiber (LOW) ≪ PVA ≪ Poly Amid ≪ Cotton (HIGH)

Graph ①



Picture ①

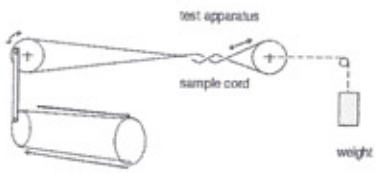
The Result of Abrasion resistance

		dry	wet
<KURALON K-II>	ECC20/6/2	3976	939
PET Regular	ECC20/6/2	630	100000

weight 2000g 500g

didn't break at this times

twist cable 24t/10cm
ply 15t/10cm



Supply of <Kuralon K-II>

- **Lead time**
  It generally takes approx.1～2month after receiving the order.

- **Minimum Order**
  - More than 500kgs
    - Case size: 305mm x 526mm x 526mm(H)
    - 1case: 1.5kgs x 18corns = 27kgs/case
    - 20ft container ⇒ 27kgs/case x 308cases = 8316kgs

- **Product Liability**
  - We can issue "materials safety data sheet" and can guarantee' an *average quality' of K-II* spun yarn.
  - We can not guarantee all of the capability like the cut resistance on gloves.

<Present Usage of Kuralon K-Ⅱ>

Kuralon K-II Spun Yarns are used several industrial resources.

1. Rope and cord
2. Sawing thread
3. Protective gear
4. Light weight Sail cloth




(Attn: "Paweron" is Japanese trading name for these materials.