

“Adhesive” type Hyaluronic Acid

“Hyaloveil[®]-P” for skin-care

Q.P. Corporation
Fine Chemical Division

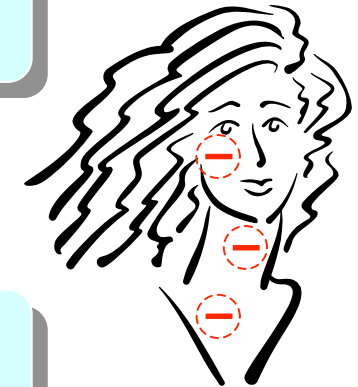
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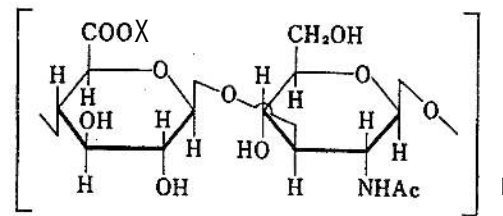


Mechanism of "ADHESION" to the skin

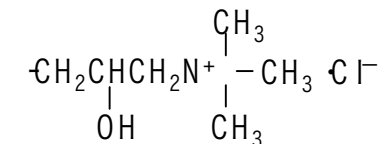
1 Skin's surface is normally electrically charged negative.



2 While Hyaloveil®-P is charged positive.



X Na or



Chemical structure of
Hyaloveil®-P

Hydroxypropyltrimonium

3 Hyaloveil®-P is considered to adhere to the skin by means of ionic bond.



Adhesion test of Hyaloveil[®]-P to the skin

< test method >

Test sample

- ① **1% solution of Hyaloveil[®]-P**
- ② **1% solution of common hyaluronic acid**

Flow-chart of the test

Applying the test sample to the subject's forearm.



Leaving it at rest for 3 minutes.



Washing the sample off the forearm by running water.



Sticking and stripping adhesive tape

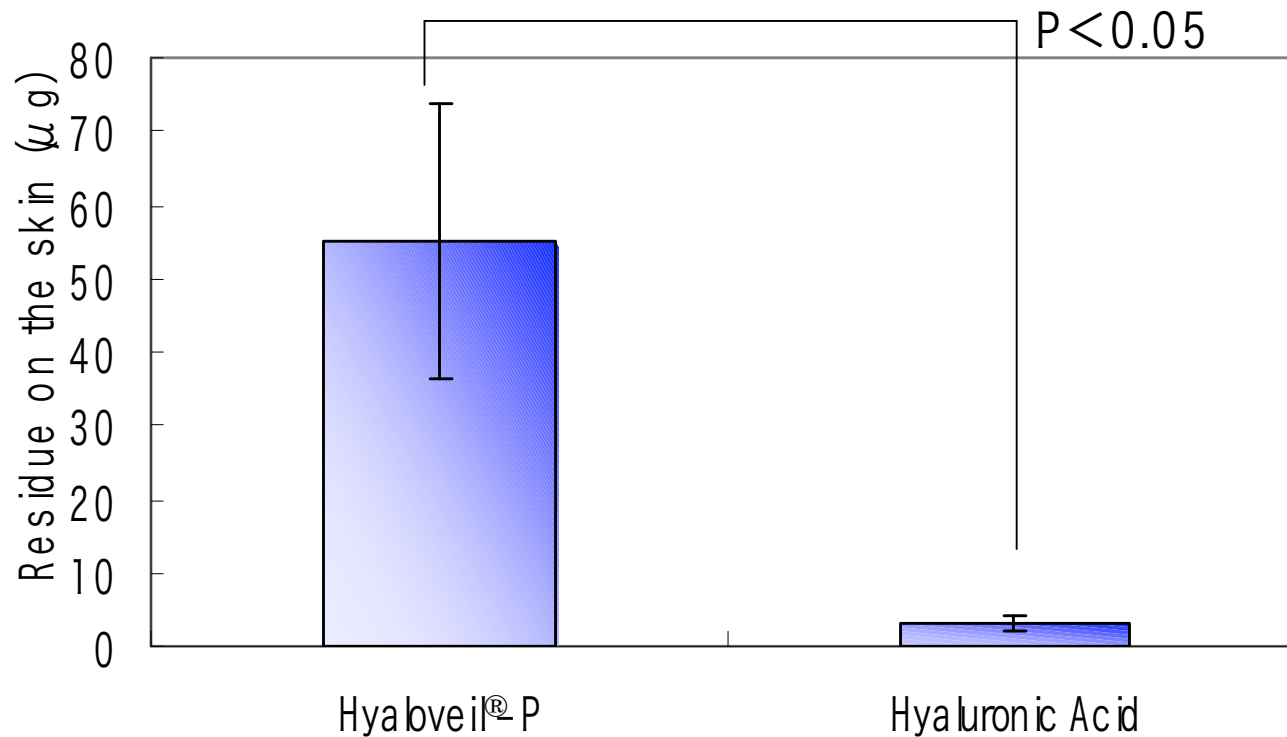


Measuring the residue of hyaluronic acid in the adhesive tape by HPLC analysis



Adhesion test of Hyaloveil[®]-P to the skin

< Test result >



Residue of Hyaloveil[®]-P and Hyaluronic acid on the skin
(Average of 15 objects)

It was confirmed that Hyaloveil[®]-P was not washed off but remained on the skin.

SKIN'S moisture retention test with Hyaloveil®-P

< Test method >

Test sample

- ① 1% solution of Hyaloveil®-P
- ② 1% solution of common Hyaluronic acid

Flow-chart of the test

Applying the test sample to the subject's forearm. (n=12)



Leaving it at rest for 3 minutes.



Washing the sample off the forearm by running water.



Removing water from the surface of the skin.



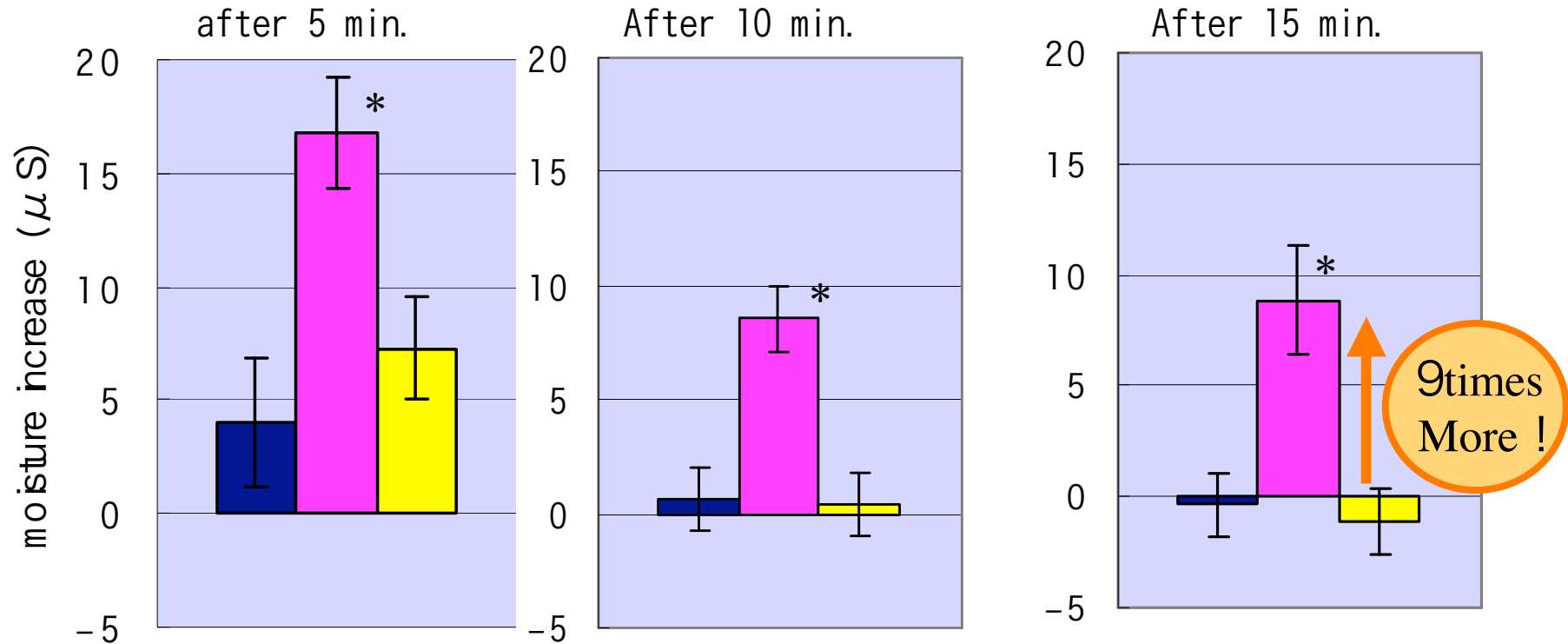
Measuring moisture contents by time
(after 5 min. · 10 min. · 15 min.)

using skin surface stratum corneum moisture meter (SKICON-200)



Skin's moisture retention test with Hyaloveil[®]-P

< Test result >



■ without
■ Hyaloveil[®]-P 1% solution
■ Hyaluronic acid 1% solution

*: Significant differences between Hyaloveil[®]-P and the other two groups were confirmed by t-test (p < 0.01)

It was confirmed that Hyaloveil[®]-P was not washed off but remained on the skin and moistened it.



Effectiveness test of Hyaloveil[®]-P on the rough skin

< Test method >

Test sample

① **1% solution of
Hyaloveil[®]-P**

Artificially creating rough skin on the forearm of the test subject

(treated with 30% sodium lauryl sulfate)



Day 1 : Observation of the skin condition
(with a digital microscope)



Application of Hyaloveil[®]-P (twice a day)



Day 2 :



Application of Hyaloveil[®]-P (twice a day)



Day 3 : Observation of the skin condition

Effectiveness test of Hyaloveil[®]-P on the rough skin

<Test result>

Day 1

Day 3

Without



Hyaloveil[®]-P



It was confirmed that rough skin was improved by applying Hyaloveil[®]-P to it.



Sensory research-questionnaires to female users

Test program for the research

Test subject : 7 female subjects

Test method : After artificially creating **rough skin** on the forearm .

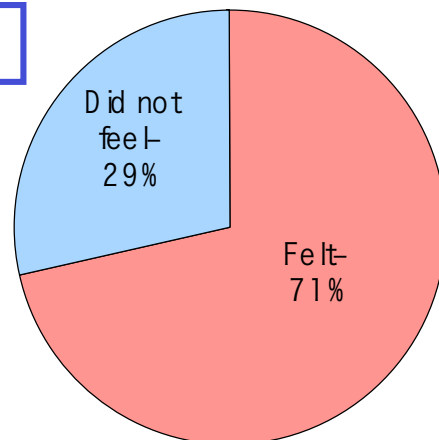
1% solution of Hyalobveil[®]-P was applied there on second and third day respectively.

Test period : 3days

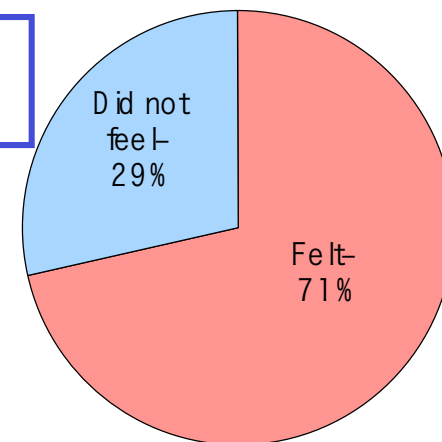
Response to the questionnaire] Response to the questionnaire on the second and the third day was identical.

Questionnaire was targeted at if the subjects felt "skin's moisture is retained" and "skin was kept supple and moist" compared with no Hyaloveil[®]-P applied.

Moisture retention



Suppleness and moistness



It was confirmed that improvement of the skin condition was felt positively after applying 1% solution of Hyaloveil[®]-P to the skin.



Multi-purpose use of Hyaloveil[®]-P

Facial soap · Body soap

Moisturizer “Hyaloveil[®]-P” keeps the face moist even after cleansing.

Moisturizer “Hyaloveil[®]-P” finishes the skin with fresh feeling.

UV-care · Suntan lotion

Moisturizer “Hyaloveil[®]-P” without being sweated away keeps the skin moist in the sun.

Lotion

“Hyaloveil[®]-P” with different touch from conventional hyaluronic acid finishes the skin fresh and smooth.

Bath oil

Moisturizer “Hyaloveil[®]-P” keeps the skin moist even after taking bath.

