

## **Sharp's High-Density Plasmacluster Ions\*<sup>1</sup> (25,000 ions/cm<sup>3</sup>) Proven Effective in Preserving Skin Moisture**

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Through tests commissioned to Soiken Inc.\*<sup>2</sup>, Sharp Corporation has proven that high-density Plasmacluster Ions are effective in preserving skin moisture.

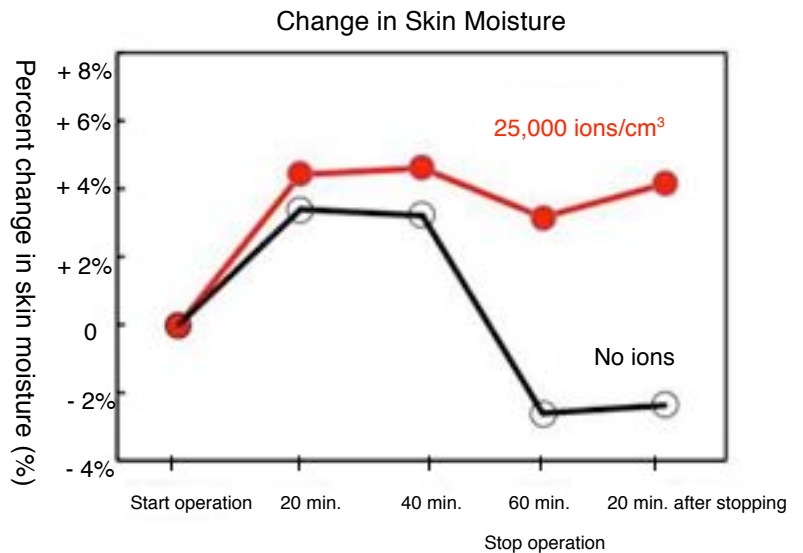
These experiments measured changes in the moisture content of skin in the temple area of 13 female subjects aged 20 to 65 years old. The experiments were conducted under two conditions: when Plasmacluster Ions (at an ion density of approximately 25,000 ions/cm<sup>3</sup>) were generated and when no ions were generated, in a real space having a floor area of around 9.8 m<sup>2</sup>. Sixty minutes after a Plasmacluster Ion generator was turned on, a statistically significant effect was confirmed: when Plasmacluster Ions were generated, average skin moisture content was approximately 6% higher compared to when no ions were generated, proving that high-density Plasmacluster Ions (25,000 ions/cm<sup>3</sup>) enhanced the moisturizing of skin.

Plasmacluster, developed in 2000, is Sharp's proprietary air purification technology that inhibits the action of airborne viruses (tested in a 1 m<sup>3</sup> box), and decomposes and removes airborne mold fungi, airborne allergens (dust mite feces and carcasses), and clinging odors. Since developing Plasmacluster, Sharp has jointly proven with academic research organizations around the world that Plasmacluster technology is effective against 29 kinds of harmful substances. Research has also confirmed their safety\*<sup>3</sup>.

Sharp has embedded Plasmacluster technology in 11 different kinds of its own products, including air purifiers, Plasmacluster Ion generators, air conditioners, and LED lighting and has also been working proactively to deploy this technology in a broad range of other business fields. Plasmacluster technology has now been adopted by 24 companies for use in such products as railcars, elevators, car air conditioners, and toilets.

Sharp will use the proven skin moisturizing efficacy of Plasmacluster Ions to work for even more widespread use of products incorporating Plasmacluster technology.

Graph:  
Change over time in skin moisture at a Plasmacluster Ion density of 25,000 ions/cm<sup>3</sup>



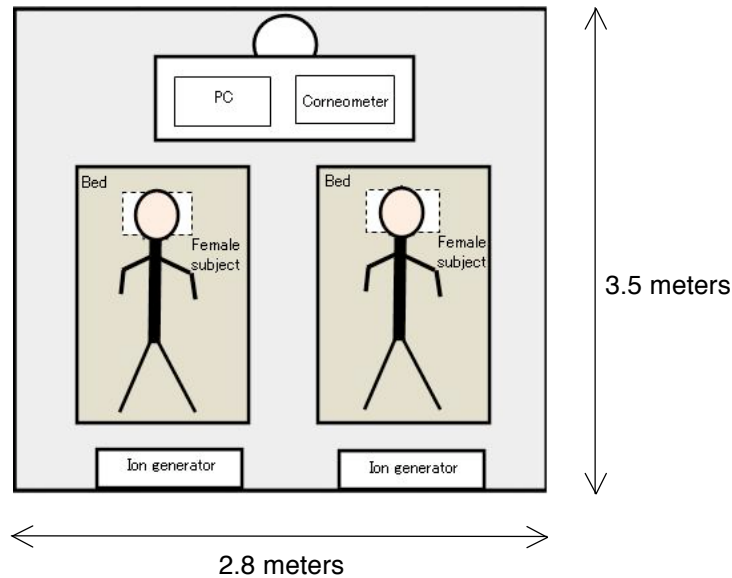
- \*1 Plasmacluster Ion and Plasmacluster are trademarks of Sharp Corporation.
- \*2 Contract clinical trial organization: Soiken Inc. (a company that conducts clinical trials on a contract basis for the development of pharmaceuticals and foods).
- \*3 Testing conducted by Mitsubishi Chemical Medience Corporation, including tests for inhalation toxicity and for skin and eye irritancy and corrosivity.

### Method of Proving the Effectiveness of Plasmacluster Technology in Preserving Skin Moisture

Plasmacluster Ion generators were set up in a testing room having a floor area of approximately 9.8 m<sup>2</sup> with the temperature adjusted to 28°C and humidity around 40% relative humidity (RH). The change in the moisture content of skin\*<sup>4</sup> in the temple area was measured in 13 healthy female subjects ranging from 20 to 65 years of age. The experiments were conducted under two conditions: when Plasmacluster Ions (at an ion density of approximately 25,000 ions/cm<sup>3</sup>) were generated and when no ions were generated\*<sup>5</sup>. A Corneometer<sup>®</sup> CM 825\*<sup>6</sup>, an instrument widely used in medical research to determine skin hydration, was used to measure skin moisture.

The test subjects removed their makeup and cleansed their faces. After 60 minutes in this state with nothing applied to the face, a test subject would enter the testing room and lie face up on a bed and remain at rest for 20 minutes before the test.

## Testing Room Layout



\*4 Measuring the moisture content of the corneal layer of the epidermis.

\*5 A blind test in which the subjects were not informed whether ions were being generated or not.

\*6 Manufactured by Courage + Khazaka electronic GmbH; "corneo" refers to the corneal layer of skin.

### Comment by Mr. Tomohiro Sugino, Representative Director of Soiken Inc.

Dry skin is caused by reduced moisture in the corneal layer of the skin. Now that the skin moisturizing effect of Plasmacluster Ions has been proven, the daily use of Plasmacluster technology can be considered a way to combat dry skin.

### About Soiken Inc.

Soiken was founded as Soiken Limited in 1994 to commercialize the findings of research on digitalizing biological signals ("biomarkers") conducted at the Department of Neuropsychiatry, School of Medicine, Osaka University (now the Department of Psychiatry, Osaka University Graduate School of Medicine). The company underwent reorganization and became Soiken Inc. in 2001.

The company has since been developing businesses related to medical marketing support and providing specific health care advice related to lifestyle diseases, as well as conducting clinical trials of foods and devices, making use of its independently developed technologies for biomarkers and assay systems.

In its clinical trial business, research specialists with a high level of expertise in clinical evaluations conduct the studies and act as consultants from the beginning of testing until the product is brought to market, working in conjunction with physicians from universities and research organizations who are active opinion leaders in various disease areas. Soiken has so far conducted over 200 clinical trials on commission.