

History of SKINOS

1981
The development of perspirometers begins with a collaboration of the School of Medicine, Shinshu University, and the National Nagano College of Technology.

1988-1992
Research meetings on psychogenic sweating are held.

1993-1997
Japan Sweating Research Meeting is held.

1998-
Development of differential ventilated capsule-type perspirometer.
Establishment of Skinos Co., Ltd.

2004
Approval of differential ventilated capsule-type perspirometer as a medical device.

2017
SKINOS Co., Ltd. starts business under a new structure in collaboration with the School of Medicine, Shinshu University.
Starts development of JIS standards after being selected for the Ministry of Economy, Trade and Industry's "New Market Creation Standardization System."

2018
Sweat testing using a ventilated capsule-type perspirometer is covered by insurance.
Receives the title of "Shinshu University Startup."

2020
JIS standard "Ventilated capsule-type perspirometer" is established.

Company Overview

Trade name: SKINOS Co., Ltd.

Representative Director: Hideya Momose

Location: 2-16-24 Fumiiri, Ueda City, Nagano Prefecture, 386-0017 Japan

Shinshu University Open Venture Innovation Center, Room 107

TEL: 0268-75-9071 FAX: 0268-75-9072

Email: info@skinos.co.jp URL: <https://www.skinos.co.jp>

Established: April 26, 2017

Capital: 44,252,500 yen

Affiliated companies:

Nishizawa Electric Instrument Manufacturing Co., Ltd. (Sakaki Town, Nagano Prefecture)

SKINOS Tomi Research Institute (Tomi City, Nagano Prefecture)

Business content:

1. Development of bio-measuring equipment and research equipment, mainly ventilated capsule-type perspirometers
2. Sales of bio-measuring equipment, mainly ventilated capsule-type perspirometers
3. Other development of medical equipment, welfare equipment, etc.

Licenses and permits:

Type 2 medical equipment manufacturing and sales business (license number 20B2X10018)

Second-hand goods dealer license (Nagano Prefectural Public Safety Commission, No. 481101900032)

Science of sweat
SKINOS

SKINOS Co., Ltd.

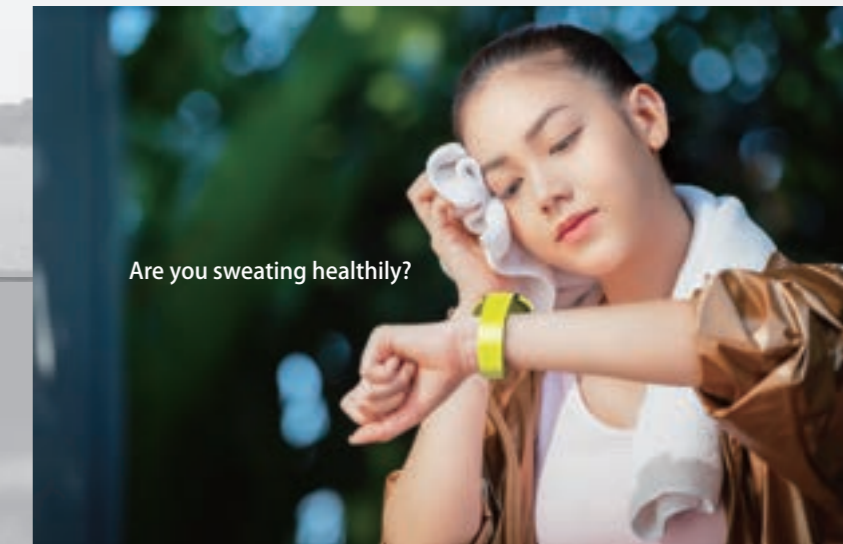
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SHINSHU UNIVERSITY
Startup company originating from Shinshu University
JAPAN

Company Profile

SKINOS
Technology
& Products

Insights into mind and body health.



Science of sweat

SKINOS

 **SHINSHU UNIVERSITY**

Startup company originating from Shinshu University /Japan

Insights into mind and body health.

Our mission is to contribute to the realization of comfortable and healthy lives for people through our unique sweat measurement technology, and we deliver innovative products and new services.

SKINOS offers a unique core technology.

It is the only technology that can measure both sweating in hot weather and sweating caused by stress with high sensitivity and precision. In addition, because it allows for continuous measurement, it has the advantage of visualizing the neural activity involved in sweating.

Measuring “sweat”

Sweating is a physiological phenomenon unique to humans that is controlled more by neural activity than by the heart or breathing. A decrease in sweating increases the risk of heat stroke. In addition, excessive sweating is uncomfortable, and sweating problems can interfere with your life. Stress-related mental changes can also cause mental imbalance. By noting abnormalities in sweating and continuously measuring the amount of sweat, the characteristics of sweat can be understood.

Our technology is also applied to product manufacturing.

It is also possible to measure human sweating and evaluate comfort in various industrial fields, such as textile products (“functional fibers”, “Cool Biz”, etc.), air conditioning appliances, housing, environment, and toiletry products such as antiperspirants. Traditionally, the functionality of these products was evaluated based on physical properties (for example, temperature, heat flow, breathability, etc.). In recent years, the perspective of the effect of products on humans has become more important.

In March 2020, a Japanese Industrial Standard (JIS) for “ventilated capsule-type perspirometers” was established.

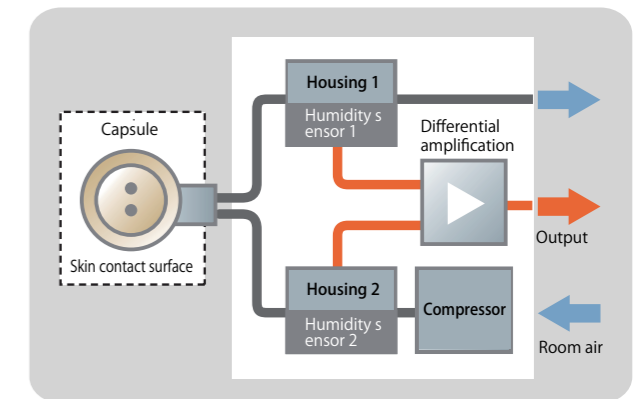
Optimal function to visualize sweating patterns Skinos Perspirometers



SKN-2000

Operating mechanism of Skinos perspirometers

A simple perspirometer that does not require dry air and uses the air in the measurement environment as a reference. Two humidity sensors detect the ambient humidity before passing through the skin and that after passing through the skin (including the moisture evaporated from sweat), and the amount of sweat is measured from the difference. The output of the humidity sensor is obtained as the absolute humidity (unit: kg/kg; the weight ratio of water vapor to 1 kg of dry air), and the measured amount of sweat is calibrated to indicate the amount of moisture evaporated from the skin.



SKINOS Technology & Products



SKW-1000



SMN-1000SR



SKWL-1000

“Psychogenic sweating” and “thermal sweating” are classified by their functions.

“Psychogenic sweating” is sweating on the palms and soles of the feet that occurs due to mental tension, agitation, and emotional fluctuations. When observing fingerprints under a microscope, it can be observed that sweating occurs intermittently when subjected to stress under deep breathing.

“Thermal sweating” is an important function for maintaining constant body temperature. When walking or exercising in the hot sun, sweating occurs to lower the body temperature and appears on the entire body except the palms and soles of the feet.

“Psychogenic sweating” is an effective indicator of emotional activity.

In the autonomic nervous system, circulation and respiratory systems are mainly regulated at the brainstem level, but psychogenic sweating is regulated by the central nervous system at a higher level than the brainstem. Moreover, it has been proven that the amygdala, hippocampus, and limbic system, which are closely related to emotions, are involved. Recent research has also proven that psychogenic sweating is induced by stimulation of the locus coeruleus, which is the center of arousal and sympathetic nervous tension, and it has been shown that psychogenic sweating is a simple and effective indicator of emotions and mental arousal.

An excellent thermoregulatory function acquired by humans “Thermal sweating”

The thermoregulatory center in the anterior part of the hypothalamus of the diencephalon controls the production and dissipation of heat. When a person with a body weight of 70 kg walks in the hot sun and sweats 100 mL, it is said that sweating can prevent body temperature from rising by 1° C. It is also known that the amount of sweating increases in response to the intensity of exercise.

